

Telephone:  
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VAT Registration No.:

### Trouble code identification

VAG type 4-digit	Fault location	Probable cause
1111	Engine control module (ECM) - defective	ECM
1231	Vehicle speed sensor (VSS)	Wiring, speedometer, VSS
1232	Idle speed control (ISC) actuator	Throttle valve tight/sticking, wiring, multi-plug incorrectly wired, ISC actuator
2111	Crankshaft position (CKP) sensor	Air gap, metal particles, insecure sensor/rotor, wiring, CKP sensor
2113	Camshaft position (CMP) sensor	Air gap, insecure sensor/rotor, wiring, poor connection, fuse, distributor/camshaft alignment, CMP sensor
2121	Closed throttle position (CTP) switch	Accelerator cable adjustment, CTP switch adjustment, wiring, CTP switch
2141	Knock control - control limit exceeded	ECM
2142	Knock sensor (KS) 1	Wiring, KS, ECM
2144	Knock sensor (KS) 2	Wiring, KS, ECM
2212	Throttle position (TP) sensor	Wiring, poor connection, TP sensor
2214	Maximum engine RPM exceeded	Incorrect gear shift, CKP/RPM sensor
2222	Manifold absolute pressure (MAP) sensor	TC wastegate regulating valve, hose connection(s), oil contamination, valve timing, poor connection, wiring, MAP sensor, ECM
2231	Idle speed control (ISC)	Intake leak/blockage, throttle valve tight/sticking, IAC valve or ISC actuator/position sensor
2234	Engine control module (ECM) - supply voltage	Fuse, alternator, battery, current draw with ignition OFF, engine control (EC) relay, wiring
2242	Mixture adjustment resistor	Wiring, mixture adjustment resistor
2243	Instrument panel, fuel consumption signal	Wiring short to positive, instrument panel
2312	Engine coolant temperature (ECT) sensor	Wiring, poor connection, ECT sensor
2314	Engine/gearbox electrical connection	Wiring, transmission fault
2322	Intake air temperature (IAT) sensor	Wiring, poor connection, IAT sensor
2323	Volume air flow (VAF) sensor	Intake leak, wiring, VAF sensor
2324	Mass air flow (MAF) sensor	Intake leak, wiring, MAF sensor
2341	Heated oxygen sensor (HO2S) - lambda control	Heating inoperative, intake/exhaust leak, misfire, fuel level low, fuel pressure/pump, injector(s), EVAP canister purge valve, MAF sensor filament burn-off, wiring, HO2S
2342	Heated oxygen sensor (HO2S)	Wiring, HO2S, heating inoperative, fuel level low
2411	Exhaust gas recirculation temperature (EGRT) sensor	Wiring, EGRT sensor

2412	Intake air temperature (IAT) sensor	Wiring, poor connection, IAT sensor
2413	Mixture control (MC)	Fuel level low, fuel pressure/pump, intake/exhaust leak, misfire, MAF sensor filament burn-off, HO2S, EVAP canister purge valve, injector(s), excessive fuel in engine oil
3434	Oxygen sensor heater relay	Wiring, oxygen sensor heater relay
4312	Exhaust gas recirculation (EGR) solenoid	Wiring, EGR solenoid
4332	Engine control module (ECM) - output stages	Wiring, ECM controlled components
4343	Evaporative emission (EVAP) canister purge valve	Wiring, fuse, EVAP canister purge valve
4411	Injector 1	Wiring, injector
4412	Injector 2	Wiring, injector
4413	Injector 3	Wiring, injector
4414	Injector 4	Wiring, injector
4421	Injector 5	Wiring, injector
4422	Injector 6	Wiring, injector
4431	Idle air control (IAC) valve	Wiring, IAC valve
4433	Fuel pump relay	Wiring, fuse, fuel pump (FP) relay
4444	No fault found	-

VAG type 5-digit	EOBD type	Fault location	Probable cause
-	P0, P2, P34xx, U0, U3, Failure type	Refer to EOBD trouble code tables	-
00000	-	No fault found	-
00263	-	Transmission control module (TCM) - incorrect signal	Wiring short to earth, TCM trouble code(s) stored, ECM
00268	-	Idle speed control (ISC) actuator	Wiring, ISC actuator
00281	-	Vehicle speed sensor (VSS)	Wiring, speedometer, VSS
00282	-	Idle speed control (ISC) actuator/throttle motor	Throttle valve tight/sticking, wiring, multi-plug incorrectly wired, ISC actuator/throttle motor
00305	-	Instrument panel, fuel consumption signal	Wiring, instrument panel
00513	-	Crankshaft position (CKP) sensor	Air gap, metal particles, insecure sensor/rotor, wiring, CKP sensor
00514	-	Crankshaft position (CKP) sensor	Air gap, insecure sensor/rotor, wiring, poor connection, CKP sensor
00515	-	Except ACU/ADL: Camshaft position (CMP) sensor	Air gap, insecure sensor/rotor, wiring, poor connection, fuse, distributor/camshaft alignment, CMP sensor
00515	-	ACU/ADL: Crankshaft position (CKP) sensor	Air gap, insecure sensor/rotor, wiring, poor connection, fuse, distributor/camshaft alignment, CKP sensor
00516	-	Closed throttle position (CTP) switch	Accelerator cable adjustment, CTP switch adjustment, throttle valve tight/sticking, wiring, CTP switch
00518	-	Throttle position (TP) sensor	Wiring, poor connection, TP sensor
00519	-	Manifold absolute pressure (MAP) sensor	TC wastegate regulating valve, hose connection(s), oil contamination, valve timing, poor connection, wiring, MAP sensor, ECM
00520	-	Mass air flow (MAF) sensor	Wiring, MAF sensor
00521	-	Mixture adjustment resistor	Wiring, mixture adjustment resistor
00522	-	Engine coolant temperature (ECT) sensor	Wiring, poor connection, ECT sensor
00523	-	Intake air temperature (IAT) sensor	Wiring, poor connection, IAT sensor

00524	-	Knock sensor (KS) 1	Wiring, KS, ECM
00525	-	Heated oxygen sensor (HO2S) 1 - implausible signal	Wiring, HO2S, heating inoperative, fuel level low
00526	-	Stop lamp switch	Wiring, stop lamp switch
00527	-	Intake air temperature (IAT) sensor	Wiring, poor connection, IAT sensor
00528	-	Barometric pressure (BARO) sensor	Wiring, BARO sensor
00529	-	Crankshaft position (CKP) sensor	Wiring, CKP sensor
00530	-	Idle speed control (ISC) actuator/position sensor	Wiring, poor connection, multi-plug incorrectly wired, ISC actuator/position sensor
00532	-	Engine control module (ECM) - supply voltage	Fuse, alternator, battery, current draw with ignition OFF, engine control (EC) relay, wiring
00533	-	Idle speed control (ISC)	Intake leak/blockage, throttle valve tight/sticking, IAC valve or ISC actuator/position sensor
00534	-	Engine oil temperature (EOT) sensor	Wiring, EOT sensor
00535	-	Engine control module (ECM) - knock control 1	Wiring, KS, ECM
00536	-	Engine control module (ECM) - knock control 2	Wiring, KS, ECM
00537	-	Heated oxygen sensor (HO2S) - lambda control	CO adjustment, heating inoperative, intake/exhaust leak, misfire, fuel level low, fuel pressure/pump, injector(s), EVAP canister purge valve, MAP sensor, MAF sensor filament burn-off, wiring, HO2S
00539	-	Fuel temperature sensor	Wiring, fuel temperature sensor
00540	-	Knock sensor (KS) 2	Wiring, KS, ECM
00542	-	Injector needle lift sensor	Air in fuel system, fuel level low, wiring, injector needle lift sensor
00543	-	Maximum engine RPM exceeded	Incorrect gear shift, CKP/RPM sensor, AT fault, ECM
00544	-	Maximum boost pressure exceeded	Hoses interchanged/not connected, hoses blocked/leaking, TC wastegate actuator/regulating valve, MAP sensor
00545	-	ECM/TCM electrical connection	TCM trouble code(s) stored, wiring, transmission fault
00546	-	Data link connector (DLC) - defective	Wiring
00549	-	Instrument panel, fuel consumption signal	Wiring short to positive, instrument panel
00550	-	Start of injection - control	Wiring, fuel injection timing solenoid, injector needle lift sensor, air in fuel system, fuel level low, pump timing
00552	-	Volume air flow (VAF) sensor	Intake leak, wiring, VAF sensor
00553	-	Mass air flow (MAF) sensor	Intake leak, wiring, MAF sensor
00554	-	Heated oxygen sensor (HO2S) - lambda control	CO adjustment, heating inoperative, intake/exhaust leak, misfire, fuel level low, fuel pressure/pump, injector(s), EVAP canister purge valve, MAP sensor, MAF sensor filament burn-off, wiring, HO2S
00555	-	Heated oxygen sensor (HO2S) 2 - implausible signal	Wiring, HO2S, heating inoperative, fuel level low
00557	-	Power steering pressure (PSP) switch - short to earth	Wiring short to earth, PSP switch
00560	-	Exhaust gas recirculation (EGR) - control difference	Intake leak, EGR valve/solenoid
00561	-	Mixture control (MC)	Trouble codes 00525/00533 stored, fuel level low, fuel pressure/pump, intake/exhaust leak, misfire, MAP sensor, MAF sensor filament burn-off, HO2S, EVAP canister purge valve, injector(s), excessive fuel in engine oil
00575	-	Intake manifold pressure	Intake leak/blockage, MAF sensor, MAP sensor, TC wastegate actuator/regulating valve, hoses interchanged/not connected, wiring
00577	-	Knock control, cylinder 1 - control limit exceeded	Fuel pressure, misfire, intake leak, injector(s)

00578	-	Knock control, cylinder 2 - control limit exceeded	Fuel pressure, misfire, intake leak, injector(s)
00579	-	Knock control, cylinder 3 - control limit exceeded	Fuel pressure, misfire, intake leak, injector(s)
00580	-	Knock control, cylinder 4 - control limit exceeded	Fuel pressure, misfire, intake leak, injector(s)
00581	-	Knock control, cylinder 5 - control limit exceeded	Fuel pressure, misfire, intake leak, injector(s)
00582	-	Knock control, cylinder 6 - control limit exceeded	Fuel pressure, misfire, intake leak, injector(s)
00585	-	Exhaust gas recirculation temperature (EGRT) sensor	Wiring, EGRT sensor
00586	-	Exhaust gas recirculation (EGR) system - control	EGR solenoid
00609	-	Ignition amplifier, primary circuit 1	Wiring, ignition amplifier
00610	-	Ignition amplifier, primary circuit 2	Wiring, ignition amplifier
00611	-	Ignition amplifier, primary circuit 3	Wiring, ignition amplifier
00624	-	AC signal - compressor cut-in	Wiring, AC system
00625	-	Vehicle speed signal	Wiring, speedometer, VSS
00626	-	Glow plug warning lamp	Wiring, glow plug warning lamp
00627	-	Fuel filter water level sensor	Water in filter, wiring, fuel filter water level sensor
00628	-	Fuel injection pump control module - engine stop malfunction	Wiring, fuel injection pump
00635	-	Heated oxygen sensor (HO2S) 1, bank 1 - heater circuit malfunction	Wiring, HO2S
00638	-	ECM/TCM electrical connection	Wiring, transmission fault
00640	-	Oxygen sensor heater relay	Wiring, oxygen sensor heater relay
00650	-	Clutch pedal position (CPP) switch - short to positive	Wiring short to positive, CPP switch
00653	-	Transmission control module (TCM)/TR sensor - implausible TR signal	Wiring, transmission fault, poor connection
00667	-	Outside air temperature signal	Wiring, instrument panel, AC system, outside air temperature sensor
00668	-	Engine control module (ECM) - supply voltage low	Battery, wiring, engine control (EC) relay
00670	-	Idle speed control (ISC) actuator position sensor	Wiring, throttle valve, ISC actuator position sensor
00671	-	Cruise control master switch	Wiring, cruise control master switch
00740	-	Camshaft position (CMP) sensor	Wiring, CMP sensor
00741	-	Stop lamp switch/brake pedal position (BPP) switch - signal correlation	Wiring, both switch positions not synchronised, stop lamp switch, BPP switch
00750	-	Malfunction indicator lamp (MIL) - circuit malfunction	ECM incorrectly coded, wiring, MIL
00758	-	Secondary air injection (AIR) system	AIR solenoid/relay, wiring
00765	-	Fuel quantity adjuster position sensor	Wiring, fuel injection pump
00777	-	Accelerator pedal position (APP) sensor	Incorrectly set, wiring, APP sensor
00792	-	AC pressure switch	Wiring, AC pressure switch
01013	-	AC compressor clutch, load signal	Wiring, AC system
01025	-	Malfunction indicator lamp (MIL)	Wiring, MIL
01028	-	Engine coolant blower motor relay	Wiring, engine coolant blower motor relay
01044	-	Engine control module (ECM) - coding	Incorrectly coded
01050	-	Glow plug monitoring	Fuse, wiring, glow plug relay, glow plugs
01052	-	Fuel lever position sensor	Wiring, fuel lever position sensor
01087	-	Engine control module (ECM) - basic setting	Basic setting not completed, throttle valve tight/sticking

01088	-	Mixture control (MC)	Fuel level low, fuel pressure/pump, MAP sensor, MAF sensor, intake/exhaust leak, EVAP canister purge valve, excessive fuel in engine oil, injector(s)
01117	-	Alternator load signal	Wiring, alternator
01119	-	Gear recognition signal - AT	Wiring
01120	-	Camshaft position (CMP) control, bank 1 - mechanical fault	Wiring, fuse, CMP actuator
01121	-	Camshaft position (CMP) control, bank 2 - mechanical fault	Wiring, fuse, CMP actuator
01126	-	Engine RPM signal	Wiring, CKP/RPM sensor, instrument panel
01163	-	Backfire	Intake leak, wiring, ignition amplifier, injector(s)
01165	-	Idle speed control (ISC) actuator/throttle motor	Accelerator cable adjustment, throttle valve, wiring, ISC actuator/throttle motor, basic setting not carried out
01167	-	Full throttle stop solenoid	Wiring, full throttle stop valve
01168	-	Idle speed boost solenoid	Wiring, full throttle stop valve, idle speed boost solenoid
01169	-	Door contact switch, driver's	Wiring, door contact switch
01170	-	Fuel injection timing sensor	Wiring, fuel injection timing sensor
01177	-	Engine control module (ECM) - defective	ECM
01180	-	Engine/AC electrical connection	Wiring
01182	-	Mass air flow (MAF) sensor/throttle position (TP) sensor - signal incompatibility	Throttle valve sticking, ISC actuator/throttle motor sticking/mechanically damaged, incorrect throttle control unit, intake leak between MAF sensor and throttle valve, air filter blocked
01183	-	Malfunction indicator lamp (MIL) - circuit malfunction	ECM incorrectly coded, wiring, MIL
01193	-	Engine coolant heater relay 1, low output	Wiring, engine coolant heater relay
01194	-	Engine coolant heater relay 2, high output	Wiring, engine coolant heater relay
01196	-	CAN data bus, TCM - incorrect signal	Wiring
01204	-	Engine coolant temperature (ECT) sensor	Wiring, ECT sensor
01208	-	Engine control module (ECM) - data changed	ECM
01209	-	Alternator speed signal	Wiring, alternator
01235	-	Secondary air injection (AIR) solenoid	Wiring, AIR solenoid
01237	-	Fuel shut-off solenoid	Wiring, fuel shut-off solenoid
01242	-	Engine control module (ECM) - output stages	Wiring, ECM controlled components
01243	-	Intake manifold air control solenoid	Wiring, intake manifold air control solenoid
01247	-	Evaporative emission (EVAP) canister purge valve	Wiring, fuse, EVAP canister purge valve
01249	-	Injector 1	Wiring, injector
01250	-	Injector 2	Wiring, injector
01251	-	Injector 3	Wiring, injector
01252	-	Injector 4	Wiring, injector
01253	-	Injector 5	Wiring, injector
01254	-	Injector 6	Wiring, injector
01257	-	Idle air control (IAC) valve	Wiring, IAC valve
01259	-	Fuel pump relay	Wiring, fuse, fuel pump (FP) relay
01262	-	Turbocharger (TC) wastegate regulating valve	Wiring, fuse, TC wastegate regulating valve
01265	-	Exhaust gas recirculation (EGR) solenoid	Wiring, EGR solenoid
01266	-	Glow plug relay	Wiring, glow plug relay

01268	-	Fuel quantity adjuster	Incorrectly set, wiring, fuel injection pump
01269	-	Fuel injection timing solenoid	Wiring, fuel injection timing solenoid
01282	-	Intake manifold air control solenoid	Wiring, intake manifold air control solenoid
01283	-	Intake manifold air control actuator	Wiring, intake manifold flap, intake manifold air control actuator
01312	-	CAN data bus - defective	Trouble code(s) stored in other system(s), wiring
01314	-	Engine control module (ECM), cruise control system - defective	ECM
01315	-	CAN data bus, TCM - no signal	TCM trouble code(s) stored, wiring, matching resistor in ECM
01316	-	CAN data bus, ABS - defective	ABS control module incorrectly coded, wiring
01317	-	CAN data bus, instrumentation	Trouble code(s) stored in other system(s), wiring, instrumentation control module
01318	-	Fuel injection pump control module	Data bus wiring, fuel injection pump
01321	-	CAN data bus, SRS	SRS control module trouble code(s) stored, wiring
01375	-	Engine mounting control solenoid, bank 1 & 2	Wiring, engine mounting control solenoid
01376	-	Fuel injection pump position sensor	Wiring, fuel injection pump position sensor
01437	-	Throttle control unit - basic setting	Basic setting not carried out, CTP switch, ISC actuator/position sensor, TP sensor
01440	-	Fuel level signal	Wiring, instrument panel, fuel gauge tank sensor
01441	-	Fuel low level sensor	Wiring, fuel transfer pump, fuel level sensor
01442	-	Engine misfire - fuel pump housing empty	Fuel level low, fuel transfer pump
01575	-	Auxiliary drive - switched OFF	Auxiliary drive overloaded
01613	-	Fuel cooling pump relay - circuit malfunction	Wiring, fuel cooling pump relay
01656	-	SRS control module - crash signal	Wiring
01686	-	Engine coolant blower motor run-on relay	Wiring, engine coolant blower motor run-on relay
01695	-	Fuel temperature sensor - circuit malfunction	Wiring, fuel temperature sensor
16394	-	Camshaft position (CMP) actuator, intake/left/front, bank 1 - circuit malfunction	Wiring, CMP actuator
16395	-	Camshaft position (CMP), intake/left/front, bank 1 - timing over-advanced/system performance	Valve timing, camshaft position (CMP) actuator
16396	-	Camshaft position (CMP), intake/left/front, bank 1 - timing over-retarded	Valve timing, camshaft position (CMP) actuator
16398	-	Camshaft position (CMP) actuator, exhaust/right/rear, bank 1 - timing over-advanced/system performance	Valve timing, camshaft position (CMP) actuator
16399	-	Camshaft position (CMP) actuator, exhaust/right/rear, bank 1 - timing over-retarded	Valve timing, camshaft position (CMP) actuator
16414	-	Heated oxygen sensor (HO2S) 1, bank 1, heater control - circuit malfunction	Wiring open circuit, HO2S
16415	-	Heated oxygen sensor (HO2S) 1, bank 1, heater control - circuit low	Wiring short to earth, HO2S
16416	-	Heated oxygen sensor (HO2S) 1, bank 1, heater control - circuit high	Wiring short to positive, HO2S
16474	-	Fuel metering solenoid - open circuit	Wiring open circuit, fuel metering solenoid
16475	-	Fuel metering solenoid - short to earth	Wiring short to earth, fuel metering solenoid
16476	-	Fuel metering solenoid - short to positive	Wiring short to positive, fuel metering solenoid
16485	-	Mass air flow (MAF) sensor, bank 1 - range/performance problem	Intake leak, wiring, MAF sensor

16486	-	Mass air flow (MAF) sensor, bank 1 - low input	Intake leak, air filter blocked, wiring short to earth, fuse, MAF sensor
16487	-	Mass air flow (MAF) sensor, bank 1 - high input	Wiring short to positive, earth wire defective, MAF sensor
16490	-	Manifold absolute pressure (MAP) sensor/barometric pressure (BARO) sensor - range/performance problem	Intake/exhaust leak, wiring, MAP sensor, BARO sensor
16491	-	Manifold absolute pressure (MAP) sensor/barometric pressure (BARO) sensor - low input	Wiring short to earth, MAP sensor, BARO sensor
16492	-	Manifold absolute pressure (MAP) sensor/barometric pressure (BARO) sensor - high input	Wiring short to positive, MAP sensor, BARO sensor
16496	-	Intake air temperature (IAT) sensor - low input	Wiring short to earth, IAT sensor
16497	-	Intake air temperature (IAT) sensor - high input	Wiring open circuit/short to positive, earth wire defective, IAT sensor
16500	-	Engine coolant temperature (ECT) sensor - range/performance problem	Coolant thermostat, poor connection, wiring, ECT sensor
16501	-	Engine coolant temperature (ECT) sensor - low input	Coolant thermostat, wiring short to earth, ECT sensor
16502	-	Engine coolant temperature (ECT) sensor - high input	Coolant thermostat, wiring open circuit/short to positive, earth wire defective, ECT sensor
16504	-	Throttle position (TP) sensor - circuit malfunction	Poor connection, wiring, TP sensor
16505	-	Throttle position (TP) sensor - range/performance problem	Poor connection, TP sensor
16506	-	Throttle position (TP) sensor - low input	Signal wire short to earth, supply wire defective, TP sensor
16507	-	Throttle position (TP) sensor - high input	Signal wire open circuit/short to positive, earth wire defective, TP sensor
16514	-	Heated oxygen sensor (HO2S) 1, bank 1 - circuit malfunction	Heating inoperative, poor connection, wiring, HO2S
16515	-	Heated oxygen sensor (HO2S) 1, bank 1 - voltage low	Wiring short to earth, HO2S
16516	-	Heated oxygen sensor (HO2S) 1, bank 1 - voltage high	Wiring short to positive, HO2S
16517	-	Heated oxygen sensor (HO2S) 1, bank 1 - slow response	Heating inoperative, wiring, HO2S
16518	-	Heated oxygen sensor (HO2S) 1, bank 1 - no activity detected	Wiring open circuit, heating inoperative, HO2S
16519	-	Heated oxygen sensor (HO2S) 1, bank 1 - heater circuit malfunction	Fuse, wiring, HO2S
16520	-	Heated oxygen sensor (HO2S) 2, bank 1 - circuit malfunction	Heating inoperative, wiring, HO2S
16521	-	Heated oxygen sensor (HO2S) 2, bank 1 - low voltage	Wiring short to earth, exhaust leak, HO2S
16522	-	Heated oxygen sensor (HO2S) 2, bank 1 - high voltage	Wiring short to positive, HO2S
16523	-	Heated oxygen sensor (HO2S) 2, bank 1 - slow response	Heating inoperative, wiring, HO2S
16524	-	Heated oxygen sensor (HO2S) 2, bank 1 - no activity detected	Wiring, HO2S
16525	-	Heated oxygen sensor (HO2S) 2, bank 1 - heater circuit malfunction	Wiring, HO2S
16534	-	Heated oxygen sensor (HO2S) 1, bank 2 - circuit malfunction	Wiring, HO2S
16535	-	Heated oxygen sensor (HO2S) 1, bank 2 - low voltage	Wiring short to earth, HO2S

16536	-	Heated oxygen sensor (HO2S) 1, bank 2 - high voltage	Wiring short to positive, HO2S
16537	-	Heated oxygen sensor (HO2S) 1, bank 2 - slow response	Heating inoperative, wiring, HO2S
16538	-	Heated oxygen sensor (HO2S) 1, bank 2 - no activity detected	Wiring, HO2S
16540	-	Heated oxygen sensor (HO2S) 2, bank 2 - circuit malfunction	Heating inoperative, wiring, HO2S
16541	-	Heated oxygen sensor (HO2S) 2, bank 2 - low voltage	Wiring short to earth, exhaust leak, HO2S
16542	-	Heated oxygen sensor (HO2S) 2, bank 2 - high voltage	Wiring short to positive, HO2S
16543	-	Heated oxygen sensor (HO2S) 2, bank 2 - slow response	Heating inoperative, wiring, HO2S
16544	-	Heated oxygen sensor (HO2S) 2, bank 2 - no activity detected	Wiring, HO2S
16545	-	Heated oxygen sensor (HO2S) 2, bank 2 - heater circuit malfunction	Wiring, HO2S
16554	-	Fuel trim (FT), bank 1 - malfunction	Intake leak, AIR system, fuel pressure/pump, injector(s), EVAP canister purge valve, HO2S
16555	-	System too lean, bank 1	Intake/exhaust leak, AIR system, MAP sensor, MAF sensor, fuel pressure/pump, injector(s), EVAP canister purge valve, HO2S
16556	-	System too rich, bank 1	EVAP canister purge valve, fuel pressure, injector(s), HO2S
16557	-	Fuel trim (FT), bank 2 - malfunction	Fuel pressure/pump, injector(s), AIR system, hose connection(s), intake leak
16558	-	System too lean, bank 2	Fuel pressure/pump, injector(s), intake/exhaust leak, AIR system, hose connection(s)
16559	-	System too rich, bank 2	Fuel pressure, injector(s), EVAP canister purge valve
16575	-	Fuel rail pressure (FRP) sensor - range/performance problem	Wiring, FRP sensor
16576	-	Fuel rail pressure (FRP) sensor - low input	Wiring short to earth, FRP sensor
16577	-	Fuel rail pressure (FRP) sensor - high input	Wiring short to positive, FRP sensor
16578	-	Fuel rail pressure (FRP) sensor - circuit intermittent	Wiring open circuit, FRP sensor
16581	-	Engine oil temperature (EOT) sensor - low input	Wiring short to earth, EOT sensor
16582	-	Engine oil temperature (EOT) sensor - high input	Wiring short to positive, EOT sensor
16585	-	Injector 1 - circuit malfunction	Wiring, injector
16586	-	Injector 2 - circuit malfunction	Wiring, injector
16587	-	Injector 3 - circuit malfunction	Wiring, injector
16588	-	Injector 4 - circuit malfunction	Wiring, injector
16589	-	Injector 5 - circuit malfunction	Wiring, injector
16590	-	Injector 6 - circuit malfunction	Wiring, injector
16603	-	Engine over speed condition	Incorrect gear change
16605	-	Throttle position (TP) sensor B - range/performance problem	Wiring, TP sensor
16606	-	Throttle position (TP) sensor B - low input	Wiring short to earth, TP sensor
16607	-	Throttle position (TP) sensor B - high input	Wiring short to positive, TP sensor
16610	-	Accelerator pedal position (APP) sensor A/B - range/performance problem	Wiring, APP sensor

16611	-	Accelerator pedal position (APP) sensor A - low input	Wiring short to earth, APP sensor
16612	-	Accelerator pedal position (APP) sensor A - high input	Wiring short to positive, APP sensor
16614	-	Fuel pump relay - circuit malfunction	Wiring, fuel pump (FP) relay
16618	-	Engine boost condition - limit exceeded	Hose connection(s), wiring, TC wastegate regulating valve, TC wastegate
16619	-	Engine boost condition - limit not reached	Hose connection(s), wiring, TC wastegate regulating valve, TC wastegate
16620	-	Manifold absolute pressure (MAP) sensor A, TC system - range/performance problem	Intake/exhaust leak, hose connection(s), MAP sensor
16621	-	Manifold absolute pressure (MAP) sensor A, TC system - low input	Wiring short to earth, MAP sensor
16622	-	Manifold absolute pressure (MAP) sensor A, TC system - high input	Wiring short to positive, MAP sensor
16627	-	Turbocharger (TC) wastegate regulating valve A - circuit malfunction	Wiring, TC wastegate regulating valve
16629	-	Turbocharger (TC) wastegate regulating valve A - circuit low	Wiring short to earth, TC wastegate regulating valve
16630	-	Turbocharger (TC) wastegate regulating valve A - circuit high	Wiring short to positive, TC wastegate regulating valve
16645	-	Injector 1 - circuit low	Wiring short to earth, injector
16646	-	Injector 1 - circuit high	Wiring short to positive, injector
16648	-	Injector 2 - circuit low	Wiring short to earth, injector
16649	-	Injector 2 - circuit high	Wiring short to positive, injector
16651	-	Injector 3 - circuit low	Wiring short to earth, injector
16652	-	Injector 3 - circuit high	Wiring short to positive, injector
16654	-	Injector 4 - circuit low	Wiring short to earth, injector
16655	-	Injector 4 - circuit high	Wiring short to positive, injector
16657	-	Injector 5 - circuit low	Wiring short to earth, injector
16658	-	Injector 5 - circuit high	Wiring short to positive, injector
16660	-	Injector 6 - circuit low	Wiring short to earth, injector
16661	-	Injector 6 - circuit high	Wiring short to positive, injector
16684	-	Random/multiple cylinder(s) - misfire detected	Spark plug(s), HT lead(s), injector(s), ignition coil(s), low compression, wiring
16685	-	Cylinder 1 - misfire detected	Spark plug, HT lead(s), injector, ignition coil, low compression, wiring
16686	-	Cylinder 2 - misfire detected	Spark plug, HT lead(s), injector, ignition coil, low compression, wiring
16687	-	Cylinder 3 - misfire detected	Spark plug, HT lead(s), injector, ignition coil, low compression, wiring
16688	-	Cylinder 4 - misfire detected	Spark plug, HT lead(s), injector, ignition coil, low compression, wiring
16689	-	Cylinder 5 - misfire detected	Spark plug, HT lead(s), injector, ignition coil, low compression, wiring
16690	-	Cylinder 6 - misfire detected	Spark plug, HT lead(s), injector, ignition coil, low compression, wiring
16691	-	Cylinder 7 - misfire detected	Spark plug, HT lead(s), injector, ignition coil, low compression, wiring
16692	-	Cylinder 8 - misfire detected	Spark plug, HT lead(s), injector, ignition coil, low compression, wiring
16705	-	Crankshaft position (CKP) sensor/engine speed (RPM) sensor - range/performance problem	Air gap, metal particles, insecure sensor/rotor, wiring, CKP/RPM sensor

16706	-	Crankshaft position (CKP) sensor/engine speed (RPM) sensor - no signal	Wiring, CKP/RPM sensor
16708	-	Knock control system error	Wiring, poor connection, KS, ECM
16709	-	Knock sensor (KS) 1, bank 1 - circuit malfunction	Wiring, poor connection, KS
16710	-	Knock sensor (KS) 1, bank 1 - range/performance problem	Wiring, KS incorrectly tightened, KS
16711	-	Knock sensor (KS) 1, bank 1 - low input	Insecure KS, poor connection, wiring short to earth, incorrectly tightened, KS
16712	-	Knock sensor (KS) 1, bank 1 - high input	Wiring short to positive, KS incorrectly tightened, KS
16716	-	Knock sensor (KS) 2, bank 2 - low input	Insecure KS, poor connection, wiring short to earth, KS incorrectly tightened, KS
16717	-	Knock sensor (KS) 2, bank 2 - high input	Wiring short to positive, KS incorrectly tightened, KS
16719	-	Crankshaft position (CKP) sensor - circuit malfunction	Wiring, CKP/RPM sensor
16721	-	Crankshaft position (CKP) sensor - low input	Insecure sensor, air gap, wiring short to earth, CKP/RPM sensor
16724	-	Camshaft position (CMP) sensor A, bank 1 - circuit malfunction	Wiring, CMP sensor
16725	-	Camshaft position (CMP) sensor A, bank 1 - range/performance problem	Insecure sensor/rotor, air gap, wiring, CMP sensor
16726	-	Camshaft position (CMP) sensor A, bank 1 - low input	Wiring short to earth, CMP sensor
16727	-	Camshaft position (CMP) sensor A, bank 1 - high input	Wiring short to positive, CMP sensor
16730	-	Camshaft position (CMP) sensor A, bank 2 - range/performance problem	Insecure sensor/rotor, air gap, wiring, CMP sensor
16731	-	Camshaft position (CMP) sensor A, bank 2 - low input	Wiring short to earth, CMP sensor
16732	-	Camshaft position (CMP) sensor A, bank 2 - high input	Wiring short to positive, CMP sensor
16735	-	Ignition coil, cylinder 1, primary/secondary - circuit malfunction	Wiring, ignition amplifier, ignition coil
16736	-	Ignition coil, cylinder 2, primary/secondary - circuit malfunction	Wiring, ignition amplifier, ignition coil
16737	-	Ignition coil, cylinder 3, primary/secondary - circuit malfunction	Wiring, ignition amplifier, ignition coil
16738	-	Ignition coil, cylinder 4, primary/secondary - circuit malfunction	Wiring, ignition amplifier, ignition coil
16764	-	Glow plugs - circuit A malfunction	Wiring, glow plug relay, fuse, glow plugs
16784	-	Exhaust gas recirculation (EGR) system - flow malfunction	Basic setting not carried out, EGR valve/solenoid
16785	-	Exhaust gas recirculation (EGR) system - insufficient flow detected	Hose leak/blockage, basic setting not carried out, EGR valve/solenoid
16786	-	Exhaust gas recirculation (EGR) system - excessive flow detected	EGR valve/solenoid, basic setting not carried out
16787	-	Exhaust gas recirculation (EGR) system - circuit malfunction	Wiring, EGR valve/solenoid
16788	-	Exhaust gas recirculation (EGR) system - range/performance problem	Hose connection(s), wiring, EGR valve/solenoid
16791	-	Exhaust gas recirculation (EGR) valve position sensor - low input	Wiring short to earth, EGR valve position sensor
16792	-	Exhaust gas recirculation (EGR) valve position sensor - high input	Wiring short to positive, EGR valve position sensor
16795	-	Secondary air injection (AIR) system - incorrect flow detected	AIR pump, AIR valve, AIR hose(s)

16796	-	Secondary air injection (AIR) solenoid A - circuit malfunction	Wiring, AIR solenoid
16802	-	Secondary air injection (AIR) pump relay A - circuit malfunction	Wiring, AIR pump relay
16804	-	Catalytic converter system, bank 1 - efficiency below threshold	Catalytic converter
16806	-	Main catalytic converter, bank 1 - efficiency below threshold	Catalytic converter
16814	-	Catalytic converter system, bank 2 - efficiency below threshold	Catalytic converter
16824	-	Evaporative emission (EVAP) system - malfunction	Hose connection(s), intake leak, EVAP canister purge valve
16825	-	Evaporative emission (EVAP) system - incorrect flow detected	Hose connection(s), intake leak, EVAP canister purge valve
16826	-	Evaporative emission (EVAP) system - small leak detected	Hose connection(s), intake leak, EVAP canister, EVAP canister purge valve
16827	-	Evaporative emission (EVAP) canister purge valve - circuit malfunction	Wiring, EVAP canister purge valve
16828	-	Evaporative emission (EVAP) canister purge valve - open circuit	Wiring open circuit, EVAP canister purge valve
16829	-	Evaporative emission (EVAP) canister purge valve - short circuit	Wiring short circuit, EVAP canister purge valve
16839	-	Evaporative emission (EVAP) system - large leak detected	Hose connection(s), intake leak, EVAP canister, EVAP canister purge valve
16845	-	Fuel tank level sensor - range/performance problem	Wiring, fuel tank level sensor
16864	-	Engine coolant blower motor 1 - circuit malfunction	Wiring, engine coolant blower motor
16865	-	Engine coolant blower motor 2 - circuit malfunction	Wiring, engine coolant blower motor
16885	-	Vehicle speed sensor (VSS) - range/performance problem	Wiring, speedometer, VSS, CAN data bus
16887	-	Vehicle speed sensor (VSS) - intermittent/erratic/high input	Wiring, other connected system, instrument panel, VSS
16890	-	Idle speed control (ISC) system - rpm lower than expected	Throttle control unit
16891	-	Idle speed control (ISC) system - rpm higher than expected	Throttle control unit
16894	-	Closed throttle position (CTP) switch - circuit malfunction	Wiring, CTP switch
16897	-	Engine control module (ECM) - immobilizer active	Incorrect/damaged key, ECM incorrectly coded, ECM/immobilizer replacement without coding, wiring, immobilizer defective, ECM
16916	-	AC refrigerant pressure sensor - low input	AC refrigerant pressure too low (incorrectly charged), wiring, AC refrigerant pressure sensor
16917	-	AC refrigerant pressure sensor - high input	AC refrigerant pressure too high (cooling fault/incorrectly charged), wiring, AC refrigerant pressure sensor
16928	-	Exhaust gas recirculation temperature (EGRT) sensor, bank 1 - circuit malfunction	Wiring, EGRT sensor
16929	-	Exhaust gas recirculation temperature (EGRT) sensor, bank 1 - low input	Wiring short to earth, EGRT sensor
16930	-	Exhaust gas recirculation temperature (EGRT) sensor, bank 1 - high input	Wiring short to positive, EGRT sensor
16935	-	Power steering pressure (PSP) sensor/switch - range/performance problem	Wiring, PSP switch/sensor
16944	-	System voltage - malfunction	Fuse(s), battery, wiring, engine control (EC) relay

16946	-	System voltage - low	Fuse(s), battery, wiring, engine control (EC) relay
16947	-	System voltage - high	Alternator, wiring
16952	-	Cruise control master/selector switch, SET signal - malfunction	Wiring, cruise control master/selector switch
16955	-	Stop lamp switch/brake pedal position (BPP) switch - circuit malfunction	Wiring, stop lamp switch, BPP switch
16983	-	CAN data bus - malfunction	Trouble code(s) stored in other system, wiring
16984	-	CAN data bus - malfunction	Trouble code(s) stored in other system, wiring
16985	-	Engine control module (ECM) - memory check sum error	ECM
16986	-	Engine control module (ECM)/transmission control module (TCM) - programming error	ECM/TCM
16987	-	Engine control module (ECM) - KAM error	ECM
16988	-	Engine control module (ECM) - RAM error	ECM
16989	-	Engine control module (ECM) - ROM error	ECM
16990	-	Engine control module (ECM) - PCM processor fault	ECM
17022	-	Throttle control unit, bank 1 - range/performance problem	Basic setting not carried out, throttle control unit, APP sensor
17026	-	Engine control module (ECM), knock control - defective	ECM
17029	-	AC system	Wiring, AC system
17034	-	Malfunction indicator lamp (MIL) - circuit malfunction	Wiring, MIL
17040	-	Instrument panel, fuel consumption signal - circuit malfunction	Wiring
17054	-	Glow plug control module - circuit malfunction	Wiring, poor connection, glow plug control module
17055	-	Glow plug, cylinder 1 - circuit malfunction	Wiring, poor connection, glow plug
17056	-	Glow plug, cylinder 2 - circuit malfunction	Wiring, poor connection, glow plug
17057	-	Glow plug, cylinder 3 - circuit malfunction	Wiring, poor connection, glow plug
17068	-	Glow plug control module - communication error	Wiring, poor connection, glow plug control module
17069	-	Engine control (EC) relay - open circuit	Wiring open circuit, engine control (EC) relay
17070	-	Engine control (EC) relay - short to earth	Wiring short to earth, engine control (EC) relay
17071	-	Engine control (EC) relay - short to earth	Wiring short to earth, engine control (EC) relay
17072	-	Engine control (EC) relay - short to positive	Wiring short to positive, engine control (EC) relay
17075	-	Engine coolant blower motor 1 - short to earth	Wiring short to earth, engine coolant blower motor
17076	-	Engine coolant blower motor 1 - short to positive	Wiring short to positive, engine coolant blower motor
17077	-	Engine coolant blower motor 2 - short to earth	Wiring short to earth, engine coolant blower motor
17078	-	Engine coolant blower motor 2 - short to positive	Wiring short to positive, engine coolant blower motor
17091	-	Transmission range (TR) sensor - low input	Wiring short to earth, TR sensor
17092	-	Transmission range (TR) sensor - high input	Wiring short to positive, TR sensor

-	P0, P2, P34xx, U0, U3, Failure type	Refer to EOBD trouble code tables	-
-	P1004	Engine torque monitoring - engine torque difference, cylinder 1	Wiring, intake manifold air leak, fuel supply pipe blockage, mechanical fault, ECM
-	P1005	Engine torque monitoring - engine torque difference, cylinder 2	Wiring, intake manifold air leak, fuel supply pipe blockage, mechanical fault, ECM
-	P1006	Engine torque monitoring - engine torque difference, cylinder 3	Wiring, intake manifold air leak, fuel supply pipe blockage, mechanical fault, ECM
-	P1007	Engine torque monitoring - engine torque difference, cylinder 4	Wiring, intake manifold air leak, fuel supply pipe blockage, mechanical fault, ECM
-	P100D	Turbocharger (TC) adjustment - tight/sticking	-
-	P100E	Turbocharger (TC) protection - torque limitation	-
-	P100F	Injector(s) - performance problem	Wiring, injector(s), ECM
-	P1010	Injector 9 - open circuit	Wiring open circuit, injector
-	P1011	Injector 10 - open circuit	Wiring open circuit, injector
-	P1012	Injector 11 - open circuit	Wiring open circuit, injector
-	P1013	Injector 12 - open circuit	Wiring open circuit, injector
-	P1014	Intake air flap control actuator - short to positive	Wiring, intake air flap control actuator
-	P1015	Intake air flap control actuator - short to earth	Wiring, intake air flap control actuator
-	P1016	Intake air flap control actuator - open circuit	Wiring, intake air flap control actuator
-	P1019	Nitrogen oxide (NOx) sensor - signal too slow	Wiring, NOx sensor
-	P101A	Turbocharger (TC) adjustment - open/short circuit to earth	Wiring
-	P101B	Turbocharger (TC) adjustment - short circuit to positive	Wiring
-	P101C	Turbocharger (TC) adjustment, bank 2 - open/short circuit to earth	Wiring
-	P101E	Forced limited rpm mode - temperature limit exceeded	-
-	P101F	High-pressure fuel system - maximum pressure exceeded	-
17428	P1020	Fuel pressure - control limit exceeded	Wiring, fuel pressure sensor, fuel pressure control valve, high pressure fuel pump
17431	P1023	Fuel pressure control valve - short to earth	Wiring short to earth, fuel pressure control valve
17432	P1024	Fuel pressure control valve - open circuit	Wiring open circuit, fuel pressure control valve
17433	P1025	Fuel pressure control valve - mechanical fault	Fuel pressure control valve
17434	P1026	Intake manifold air control solenoid - short to positive	Wiring short to positive, intake manifold air control solenoid
17435	P1027	Intake manifold air control solenoid - short to earth	Wiring short to earth, intake manifold air control solenoid
17436	P1028	Intake manifold air control solenoid - open circuit	Wiring open circuit, intake manifold air control solenoid
17437	P1029	Intake manifold air control valve position sensor - upper limit not reached	Air control flap tight/sticking, hose connection(s), intake manifold air control actuator
-	P102A	Engine torque monitoring - engine coolant temperature too high	Wiring, coolant thermostat, engine coolant pump, ECT sensor, ECM

-	P102B	Engine torque monitoring - engine oil temperature too high	Wiring, engine oil temperature (EOT) sensor, ECM
-	P102C	Engine torque monitoring - fuel temperature too high	Wiring, fuel temperature sensor, ECM
-	P102D	Engine torque monitoring - intake air temperature too high	Wiring, intake air temperature (IAT) sensor, ECM
-	P102E	Engine torque monitoring - exhaust gas temperature too high	Wiring, exhaust gas temperature sensors, ECM
-	P102F	Torque reduction - fuel pressure malfunction	-
17438	P1030	Intake manifold air control valve position sensor - lower limit not reached	Air control flap tight/sticking, hose connection(s), intake manifold air control actuator
17439	P1031	Intake manifold air control valve position sensor - specification not attained	Air control flap tight/sticking, hose connection(s), intake manifold air control actuator, intake manifold air control solenoid
17440	P1032	Nitrogen oxides (NOx) sensor - signal too high	Catalytic converter, wiring short to positive, NOx sensor
17441	P1033	Nitrogen oxides (NOx) sensor - signal too low	Exhaust leak, wiring short to earth, NOx sensor
17442	P1034	Nitrogen oxides (NOx) sensor - signal outside tolerance	Catalytic converter, exhaust leak, wiring, NOx sensor
17443	P1035	Nitrogen oxides (NOx) sensor - range/performance problem	Wiring, heating inoperative, NOx sensor
17444	P1036	Nitrogen oxides (NOx) heater sensor - short to positive	Wiring short to positive, NOx sensor
17445	P1037	Nitrogen oxides (NOx) heater sensor - short to earth	Wiring short to earth, NOx sensor
17446	P1038	Nitrogen oxides (NOx) heater sensor - open circuit	Wiring open circuit, NOx sensor
17447	P1039	Injector 1, supply voltage - short circuit	Wiring, injector
-	P103A	Excessive fuel in engine oil	-
-	P103B	High-pressure fuel system - fuel pressure low	Fuel leak/blockage
17448	P1040	Injector 1, supply voltage - circuit malfunction	Wiring, injector
17449	P1041	Injector 2, supply voltage - short circuit	Wiring, injector
17450	P1042	Injector 2, supply voltage - circuit malfunction	Wiring, injector
17451	P1043	Injector 3, supply voltage - short circuit	Wiring, injector
17452	P1044	Injector 3, supply voltage - circuit malfunction	Wiring, injector
17453	P1045	Injector 4, supply voltage - short circuit	Wiring, injector
17454	P1046	Injector 4, supply voltage - circuit malfunction	Wiring, injector
17455	P1047	Camshaft position (CMP) actuator, exhaust/right/rear, bank 1 - circuit malfunction	Wiring, camshaft position (CMP) actuator
17456	P1048	Camshaft position (CMP) actuator, exhaust/right/rear, bank 1 - short to positive	Wiring short to positive, camshaft position (CMP) actuator
17457	P1049	Camshaft position (CMP) actuator, exhaust/right/rear, bank 1 - short to earth	Wiring short to earth, camshaft position (CMP) actuator
-	P104A	Air filter bypass valve, bank 2 - short circuit to positive	Wiring
-	P104B	Air filter bypass valve, bank 2 - short circuit to earth	Wiring
-	P104C	Air filter bypass valve, bank 2 - open circuit	Wiring

17458	P1050	Camshaft position (CMP) actuator, exhaust/right/rear, bank 1 - open circuit	Wiring open circuit, camshaft position (CMP) actuator
-	P1052	Camshaft position (CMP) actuator, exhaust, bank 2 - short circuit to positive	Wiring, CMP actuator
-	P1053	Camshaft position (CMP) actuator, exhaust, bank 2 - short circuit to earth	Wiring, CMP actuator
-	P1054	Camshaft position (CMP) actuator, exhaust, bank 2 - open circuit	Wiring, CMP actuator
-	P1057	Camshaft position control system, exhaust, bank 1 - open circuit	-
-	P1060	Camshaft position control system, exhaust, bank 2 - open circuit	-
17471	P1063	Fuel pressure - control limit not reached	Air in fuel system, fuel system leak, fuel lift pump, fuel bypass valve, fuel pressure control valve, high pressure fuel pump
17472	P1064	Fuel pressure - mechanical fault	Air in fuel system, fuel system leak, fuel lift pump, fuel bypass valve, fuel pressure control valve, high pressure fuel pump
17473	P1065	Fuel pressure - system deviation	Air in fuel system, fuel system leak, fuel lift pump, fuel bypass valve, fuel pressure control valve, high pressure fuel pump
17474	P1066	Intake manifold air control solenoid - short to positive	Wiring short to positive, intake manifold air control solenoid
17475	P1067	Intake manifold air control solenoid - short to earth	Wiring short to earth, intake manifold air control solenoid
17476	P1068	Intake manifold air control solenoid - open circuit	Wiring open circuit, intake manifold air control solenoid
17477	P1069	Nitrogen oxides (NOx) sensor - heater control - short to earth	Wiring short to earth, NOx sensor
-	P106A	Throttle control system - implausible signal with throttle position	Wiring, APP sensor, throttle motor, throttle motor position sensor, ECM
-	P106B	Throttle motor - performance problem	Wiring, throttle control unit
-	P106C	Throttle motor - performance problem	Wiring, throttle control unit
17478	P1070	Nitrogen oxides (NOx) sensor - heater control - short to positive	Wiring short to positive, NOx sensor
17479	P1071	Nitrogen oxides (NOx) sensor - heater control - incorrect signal	Wiring, NOx sensor
17480	P1072	Nitrogen oxides (NOx) sensor - heater control - circuit malfunction	Wiring, NOx sensor
-	P1073	Mass air flow (MAF) sensor 2 - signal low	-
-	P1074	Mass air flow (MAF) sensor 2 - signal high	-
-	P1081	Mixture adaptation range 1, bank 3 - lean limit not reached	-
-	P1082	Mixture adaptation range 2, bank 3 - lean limit not reached	-
-	P1083	Mixture adaptation range 1, bank 3 - rich limit not reached	-
-	P1084	Mixture adaptation range 2, bank 3 - rich limit not reached	-
-	P1085	Mixture adaptation range 1, bank 4 - lean limit not reached	-
-	P1086	Mixture adaptation range 2, bank 4 - lean limit not reached	-
-	P1087	Mixture adaptation range 1, bank 4 - rich limit not reached	-
-	P1088	Mixture adaptation range 2, bank 4 - rich limit not reached	-
17501	P1093	Mixture control (MC), bank 1 - malfunction	Fuel pressure/pump, injector(s) intake leak

-	P1094	Mixture control (MC), bank 2 - malfunction	Fuel pressure/pump, injector(s), intake leak
-	P1098	Intake manifold air control actuator position sensor - open circuit/short to positive	Wiring open circuit/short to positive, position sensor, ECM
-	P10A0	Intake air flap control actuator - malfunction	-
-	P10A3	Intake air flap control actuator - open circuit	-
-	P10A4	Intake air flap control actuator - mechanical malfunction	-
-	P10A5	Intake air flap control actuator position sensor - signal too high	-
-	P10A6	Intake air flap control actuator position sensor - signal too low	-
-	P10A7	Intake air control - air control flap tight/sticking	-
-	P10A8	Intake air control - lower limit not reached	-
-	P10A9	Supercharger (SC) clutch - does not open	-
-	P10AA	Supercharger (SC) clutch - does not close	-
-	P10AB	Supercharger (SC) clutch - excessive SC clutch wear	Wiring
-	P10AC	Supercharger (SC) clutch - short circuit to earth	Wiring
-	P10AD	Supercharger (SC) clutch - open circuit	Wiring
-	P10AE	Supercharger (SC) clutch - malfunction	Wiring
-	P10AF	Supercharger (SC) clutch - malfunction	Wiring
-	P10B0	Supercharger (SC) clutch - short circuit to positive	Wiring
-	P10B1	Fuel injector monitoring - injector 1 - failure	Wiring, injector
-	P10B2	Fuel injector monitoring - injector 2 - failure	Wiring, injector
-	P10B3	Fuel injector monitoring - injector 3 - failure	Wiring, injector
-	P10B4	Fuel injector monitoring - injector 4 - failure	Wiring, injector
-	P10B5	Engine control module (ECM)/powertrain control module (PCM) - processor fault	ECM/PCM
-	P10B6	Engine control module (ECM) - coding	Incorrectly coded
-	P1100	Heated oxygen sensor (HO2S) 2, bank 1 - heater circuit low	Wiring, HO2S
17509	P1101	Heated oxygen sensor (HO2S) 1, bank 1 - low voltage/air leak	Intake/exhaust leak, fuel pressure/pump, wiring short to earth, HO2S
17510	P1102	Heated oxygen sensor (HO2S) 1, bank 1 - heater short to positive	Wiring short to positive, HO2S
17511	P1103	Heated oxygen sensor (HO2S) 1, bank 1 - heater output too low	Wiring, HO2S
-	P1104	Heated oxygen sensor (HO2S), downstream - signal too low	Wiring, HO2S, ECM
17513	P1105	Heated oxygen sensor (HO2S) 2, bank 1 - heater short to positive	Wiring short to positive, HO2S
17514	P1106	Heated oxygen sensor (HO2S) 1, bank 2 - low voltage/air leak	Intake/exhaust leak, fuel pressure/pump, wiring short to earth, HO2S

17515	P1107	Heated oxygen sensor (HO2S) 1, bank 2 - heater short to positive	Wiring short to positive, HO2S
17518	P1110	Heated oxygen sensor (HO2S) 2, bank 2 - heater short to positive	Wiring short to positive, HO2S
17519	P1111	Heated oxygen sensor (HO2S) control, bank 1 - system too lean	Intake/exhaust leak, injector blocked, MAP sensor, MAF sensor, fuel pressure/pump, HO2S
17520	P1112	Heated oxygen sensor (HO2S) control, bank 1 - system too rich	Excessive fuel in engine oil, injector leaking, fuel pressure, EVAP canister purge valve, MAP sensor, MAF sensor, HO2S
17521	P1113	Heated oxygen sensor (HO2S) 1, bank 1 - heater resistance too high	Wiring, HO2S
17522	P1114	Heated oxygen sensor (HO2S) 2, bank 1 - heater resistance too high	Wiring, HO2S
17523	P1115	Heated oxygen sensor (HO2S) 1, bank 1 - heater short to earth	Wiring short to earth, HO2S
17524	P1116	Heated oxygen sensor (HO2S) 1, bank 1 - heater open circuit	Wiring open circuit, HO2S
17525	P1117	Heated oxygen sensor (HO2S) 2, bank 1 - heater short to earth	Wiring short to earth, HO2S
17526	P1118	Heated oxygen sensor (HO2S) 2, bank 1 - heater open circuit	Wiring open circuit, HO2S
17527	P1119	Heated oxygen sensor (HO2S) 1, bank 2 - heater short to earth	Wiring short to earth, HO2S
17528	P1120	Heated oxygen sensor (HO2S) 1, bank 2 - heater open circuit	Wiring open circuit, HO2S
17529	P1121	Heated oxygen sensor (HO2S) 2, bank 2 - heater short to earth	Wiring short to earth, HO2S
17530	P1122	Heated oxygen sensor (HO2S) 2, bank 2 - heater open circuit	Wiring open circuit, HO2S
-	P1123	Mixture adaption - system too rich	Wiring, fuel system, intake system, ECM
-	P1124	Mixture adaption - system too lean	Wiring, fuel system, intake system, ECM
17535	P1127	Long term fuel trim, entire speed/load range, bank 1 - system too rich	Excessive fuel in engine oil, fuel pressure, EVAP canister purge valve, injector(s), HO2S
17536	P1128	Long term fuel trim, entire speed/load range, bank 1 - system too lean	Fuel pressure/pump, injector(s), intake/exhaust leak, AIR system, hose leak
17537	P1129	Long term fuel trim, entire speed/load range, bank 2 - system too rich	Excessive fuel in engine oil, fuel pressure, EVAP canister purge valve, injector(s)
17538	P1130	Long term fuel trim, entire speed/load range, bank 2 - system too lean	Fuel pressure/pump, injector(s), intake/exhaust leak, AIR system, hose leak
17539	P1131	Heated oxygen sensor (HO2S) 1, bank 1 - heater resistance too high	Wiring, HO2S
17540	P1132	Heated oxygen sensor (HO2S) 1, bank 1 & 2 - heater control - circuit high	Wiring short to positive, HO2S
17541	P1133	Heated oxygen sensor (HO2S) 1, bank 1 & 2 - heater control - circuit low	Wiring open circuit/short to earth, HO2S
17544	P1136	Long term fuel trim, idling, bank 1 - system too lean	Fuel pressure/pump, injector(s), intake/exhaust leak, AIR system, hose leak
17545	P1137	Long term fuel trim, idling, bank 1 - system too rich	Fuel pressure, injector(s), EVAP canister purge valve, HO2S
17546	P1138	Long term fuel trim, idling, bank 2 - system too lean	Fuel pressure/pump, injector(s), intake/exhaust leak, AIR system, hose leak
17547	P1139	Long term fuel trim, idling, bank 2 - system too rich	Fuel pressure, injector(s), EVAP canister purge valve
-	P113D	Intake air heater - malfunction	Wiring, mechanical failure
-	P113E	Intake air heater - temperature limit exceeded	Wiring, mechanical failure
-	P113F	Intake air heater 2 - temperature limit exceeded	Wiring, mechanical failure

17548	P1140	Heated oxygen sensor (HO2S) 2, bank 2 - heater resistance too high	Wiring, HO2S
17549	P1141	Load calculation - implausible value	Wiring, intake leak, MAP sensor, MAF sensor, TP sensor, APP sensor, throttle control unit
17550	P1142	Load calculation - signal too low	Throttle control unit, MAP sensor, MAF sensor, APP sensor
17551	P1143	Load calculation - signal too high	Throttle control unit, MAP sensor, MAF sensor, APP sensor
17552	P1144	Mass air flow (MAF) sensor, bank 1 - open circuit/short to earth	Wiring open circuit/short to earth, MAF sensor
17553	P1145	Mass air flow (MAF) sensor, bank 1 - short to positive	Wiring short to positive, MAF sensor
17554	P1146	Mass air flow (MAF) sensor, bank 1 - supply voltage	Operating voltage too high/low, wiring
17555	P1147	Heated oxygen sensor (HO2S) 1, bank 2 - lambda regulation, system too lean	Intake leak, wiring, HO2S
17556	P1148	Heated oxygen sensor (HO2S) 1, bank 2 - lambda regulation, system too rich	Exhaust leak, wiring, HO2S
17557	P1149	Heated oxygen sensor (HO2S) 1, bank 1 - implausible lambda control value	Exhaust leak, wiring, HO2S
17558	P1150	Heated oxygen sensor (HO2S) 1, bank 2 - implausible lambda control value	Exhaust leak, wiring, HO2S
17559	P1151	Long term fuel trim 1, bank 1 - below lean limit	Fuel pressure/pump, injectors, intake/exhaust leak, HO2S
17560	P1152	Long term fuel trim 2, bank 1 - below lean limit	Fuel pressure/pump, injectors, intake/exhaust leak, AIR system, HO2S
17561	P1153	Heated oxygen sensor (HO2S) 2, bank 1 & 2 - interchanged	HO2S 2 on bank 1 & 2 incorrectly installed
-	P1154	Intake manifold air control system - malfunction	Wiring, intake manifold air control valve/solenoid
17563	P1155	Manifold absolute pressure (MAP) sensor - short to positive	Wiring short to positive, MAP sensor
17564	P1156	Manifold absolute pressure (MAP) sensor - open circuit/short to earth	Wiring open circuit/short to earth, MAP sensor
17565	P1157	Manifold absolute pressure (MAP) sensor - supply voltage	Wiring, MAP sensor
17566	P1158	Manifold absolute pressure (MAP) sensor - range/performance problem	Wiring, hose connection(s), MAP sensor
17567	P1159	Mass air flow (MAF) sensor, bank 1 & 2 - implausible signal	EGR system, intake leak, wiring, MAF sensor 1/2
17568	P1160	Intake air temperature (IAT) sensor - short to earth	Wiring short to earth, IAT sensor
17569	P1161	Intake air temperature (IAT) sensor - open circuit/short to positive	Wiring open circuit/short to positive, IAT sensor
17570	P1162	Fuel temperature sensor - short to earth	Wiring short to earth, fuel temperature sensor
17571	P1163	Fuel temperature sensor - open circuit/short to positive	Wiring open circuit/short to positive, fuel temperature sensor
17572	P1164	Fuel temperature sensor - range/performance problem	Wiring, fuel temperature sensor
17573	P1165	Long term fuel trim 1, bank 1 - above rich limit	Fuel pressure/pump, injectors, EVAP canister purge valve, EGR system, HO2S, intake/exhaust system
17574	P1166	Long term fuel trim 2, bank 1 - above rich limit	Fuel pressure/pump, injectors, EVAP canister purge valve, EGR system, HO2S, intake/exhaust system
17575	P1167	Mass air flow (MAF) sensor, bank 2 - range/performance problem	Intake leak, wiring, MAF sensor
17576	P1168	Mass air flow (MAF) sensor, bank 2 - low input	Intake leak, air filter blocked, wiring short to earth, fuse, MAF sensor
17577	P1169	Mass air flow (MAF) sensor, bank 2 - high input	Wiring short to positive, earth wire defective, MAF sensor

-	P116C	Intake manifold - intake air leak	Intake manifold
-	P116F	Mass air flow (MAF) sensor - signal malfunction	Wiring, MAF sensor
17578	P1170	Mass air flow (MAF) sensor, bank 2 - supply voltage	Wiring, fuse, engine control (EC) relay, injector
17579	P1171	Throttle motor position sensor 2 - range/performance problem	Wiring, throttle valve tight/sticking, throttle motor position sensor
17580	P1172	Throttle motor position sensor 2 - low input	Wiring short to earth, throttle motor position sensor
17581	P1173	Throttle motor position sensor 2 - high input	Wiring short to positive, throttle motor position sensor
17582	P1174	Fuel measurement system, bank 1 - injection timing incorrect	Fuel pressure/pump, injector(s), intake/exhaust leak, EGR system, EVAP canister purge valve, HO2S
17584	P1176	Lambda correction after catalyst, bank 1 - control limit reached	Intake leak, wiring, HO2S, ECM
17585	P1177	Lambda correction after catalyst, bank 2 - control limit reached	Intake leak, HO2S
17586	P1178	Heated oxygen sensor (HO2S) 1, bank 1, pump current - open circuit	Wiring open circuit, HO2S
17587	P1179	Heated oxygen sensor (HO2S) 1, bank 1, pump current - short to earth	Wiring short to earth, HO2S
-	P117A	Heated oxygen sensor (HO2S), downstream - control limit reached	Wiring, HO2S
-	P117C	Heated oxygen sensor (HO2S) 2, bank 3 - above lean limit	Wiring, air leak, HO2S
-	P117D	Heated oxygen sensor (HO2S) 2, bank 3 - above rich limit	Wiring, air leak, HO2S
-	P117E	Heated oxygen sensor (HO2S) 2, bank 4 - above lean limit	Wiring, air leak, HO2S
-	P117F	Heated oxygen sensor (HO2S) 2, bank 4 - above rich limit	Wiring, air leak, HO2S
17588	P1180	Heated oxygen sensor (HO2S) 1, bank 1, pump current - short to positive	Wiring short to positive, HO2S
17589	P1181	Heated oxygen sensor (HO2S) 1, bank 1, reference voltage - open circuit	Wiring open circuit, HO2S, HT leads, spark plugs, misfire detection
17590	P1182	Heated oxygen sensor (HO2S) 1, bank 1, reference voltage - short to earth	Wiring short to earth, HO2S, HT leads, spark plugs, misfire detection
17591	P1183	Heated oxygen sensor (HO2S) 1, bank 1, reference voltage - short to positive	Wiring short to positive, HO2S, HT leads, spark plugs, misfire detection
17592	P1184	Heated oxygen sensor (HO2S) 1, bank 1, common earth - open circuit	Wiring open circuit, HO2S, HT leads, spark plugs, misfire detection
17593	P1185	Heated oxygen sensor (HO2S) 1, bank 1, common earth - short to earth	Wiring short to earth, HO2S, HT leads, spark plugs, misfire detection
17594	P1186	Heated oxygen sensor (HO2S) 1, bank 1, common earth - short to positive	Wiring short to positive, HO2S, HT leads, spark plugs, misfire detection
17595	P1187	Heated oxygen sensor (HO2S) 1, bank 1 or 2 - circuit malfunction	Wiring, HO2S
-	P1188	Heated oxygen sensor (HO2S), upstream - short to earth	Wiring, HO2S, ECM
-	P1189	Heated oxygen sensor (HO2S), upstream - short to positive	Wiring, HO2S, ECM
-	P118A	Heated oxygen sensor (HO2S) 1, bank 3 - voltage too low	Wiring, air leak, HO2S
-	P118B	Heated oxygen sensor (HO2S) 1, bank 4 - voltage too low	Wiring, air leak, HO2S
-	P118C	Heated oxygen sensor (HO2S) 2, bank 3 - above lean limit	Wiring, air leak, HO2S

-	P118D	Heated oxygen sensor (HO2S) 2, bank 3 - above rich limit	Wiring, air leak, HO2S
-	P118E	Heated oxygen sensor (HO2S) 2, bank 4 - above lean limit	Wiring, air leak, HO2S
-	P118F	Heated oxygen sensor (HO2S) 2, bank 4 - above rich limit	Wiring, air leak, HO2S
17598	P1190	Heated oxygen sensor (HO2S) 1, bank 1, reference voltage - range/performance problem	Wiring, HO2S, HT leads, spark plugs, misfire detection
17599	P1191	Heated oxygen sensor (HO2S) 1, bank 1 & 2 - interchanged	HO2S 1 on banks 1 & 2 incorrectly installed
17600	P1192	Fuel pressure sensor - supply voltage	Wiring, fuel pressure sensor
17601	P1193	Fuel pressure sensor - open circuit/short to positive	Wiring open circuit/short to positive
17602	P1194	Fuel pressure control valve - short to positive	Wiring short to positive, fuel pressure control valve
17603	P1195	Fuel pressure control valve - open circuit/short to earth	Wiring open circuit/short to earth, fuel pressure control valve
17604	P1196	Heated oxygen sensor (HO2S) 1, bank 1, heater circuit malfunction	Wiring, HO2S
17605	P1197	Heated oxygen sensor (HO2S) 1, bank 2, heater circuit malfunction	Wiring, HO2S
17606	P1198	Heated oxygen sensor (HO2S) 2, bank 1, heater circuit malfunction	Wiring, HO2S
17607	P1199	Heated oxygen sensor (HO2S) 2, bank 2, heater circuit malfunction	Wiring, HO2S
-	P119A	Fuel rail pressure (FRP) sensor 1 - malfunction	Wiring, FRP sensor
-	P119B	Fuel rail pressure (FRP) sensor 2 - malfunction	Wiring, FRP sensor
-	P11A1	Camshaft position (CMP) actuator A, cylinder 1 - open/short circuit	Wiring, CMP actuator
-	P11A2	Camshaft position (CMP) actuator A, cylinder 1 - range/performance problem	Wiring, CMP actuator
-	P11A3	Camshaft position (CMP) actuator B, cylinder 1 - open/short circuit	Wiring, CMP actuator
-	P11A4	Camshaft position (CMP) actuator B, cylinder 1 - range/performance problem	Wiring, CMP actuator
-	P11A5	Camshaft position (CMP) actuator A, cylinder 2 - open/short circuit	Wiring, CMP actuator
-	P11A6	Camshaft position (CMP) actuator A, cylinder 2 - range/performance problem	Wiring, CMP actuator
-	P11A7	Camshaft position (CMP) actuator B, cylinder 2 - open/short circuit	Wiring, CMP actuator
-	P11A8	Camshaft position (CMP) actuator B, cylinder 2 - range/performance problem	Wiring, CMP actuator
-	P11A9	Camshaft position (CMP) actuator A, cylinder 3 - open/short circuit	Wiring, CMP actuator
-	P11AA	Camshaft position (CMP) actuator A, cylinder 3 - range/performance problem	Wiring, CMP actuator
-	P11AB	Camshaft position (CMP) actuator B, cylinder 3 - open/short circuit	Wiring, CMP actuator
-	P11AC	Camshaft position (CMP) actuator B, cylinder 3 - range/performance problem	Wiring, CMP actuator
-	P11AD	Camshaft position (CMP) actuator A, cylinder 4 - open/short circuit	Wiring, CMP actuator
-	P11AE	Camshaft position (CMP) actuator A, cylinder 4 - range/performance problem	Wiring, CMP actuator

-	P11AF	Camshaft position (CMP) actuator B, cylinder 4 - open/short circuit	Wiring, CMP actuator
-	P11B0	Camshaft position (CMP) actuator B, cylinder 4 - range/performance problem	Wiring, CMP actuator
-	P11B1	Camshaft position (CMP) actuator A, cylinder 5 - open/short circuit	Wiring, CMP actuator
-	P11B2	Camshaft position (CMP) actuator A, cylinder 5 - range/performance problem	Wiring, CMP actuator
-	P11B3	Camshaft position (CMP) actuator B, cylinder 5 - open/short circuit	Wiring, CMP actuator
-	P11B4	Camshaft position (CMP) actuator B, cylinder 5 - range/performance problem	Wiring, CMP actuator
-	P11B5	Camshaft position (CMP) actuator A, cylinder 6 - open/short circuit	Wiring, CMP actuator
-	P11B6	Camshaft position (CMP) actuator A, cylinder 6 - range/performance problem	Wiring, CMP actuator
-	P11B7	Camshaft position (CMP) actuator B, cylinder 6 - open/short circuit	Wiring, CMP actuator
-	P11B8	Camshaft position (CMP) actuator B, cylinder 6 - range/performance problem	Wiring, CMP actuator
-	P11BB	Camshaft position (CMP) actuator A, cylinder 7 - range/performance problem	Wiring, CMP actuator
-	P11BC	Camshaft position (CMP) actuator B, cylinder 7 - open/short circuit	Wiring, CMP actuator
-	P11BD	Camshaft position (CMP) actuator A, cylinder 8 - range/performance problem	Wiring, CMP actuator
-	P11BE	Camshaft position (CMP) actuator B, cylinder 8 - open/short circuit	Wiring, CMP actuator
-	P11BF	Camshaft position (CMP) actuator, exhaust A, cylinder 1 - range/performance problem	Wiring, CMP actuator
-	P11C0	Camshaft position (CMP) actuator, exhaust B, cylinder 1 - open/short circuit	Wiring, CMP actuator
-	P11C1	Camshaft position (CMP) actuator, exhaust A, cylinder 2 - range/performance problem	Wiring, CMP actuator
-	P11C2	Camshaft position (CMP) actuator, exhaust B, cylinder 2 - open/short circuit	Wiring, CMP actuator
-	P11C3	Camshaft position (CMP) actuator, exhaust A, cylinder 3 - range/performance problem	Wiring, CMP actuator
-	P11C4	Camshaft position (CMP) actuator, exhaust B, cylinder 3 - open/short circuit	Wiring, CMP actuator
-	P11C5	Camshaft position (CMP) actuator, exhaust A, cylinder 4 - range/performance problem	Wiring, CMP actuator
-	P11C6	Camshaft position (CMP) actuator, exhaust B, cylinder 4 - open/short circuit	Wiring, CMP actuator
-	P11C7	Camshaft position (CMP) actuator, exhaust A, cylinder 5 - range/performance problem	Wiring, CMP actuator
-	P11C8	Camshaft position (CMP) actuator, exhaust B, cylinder 5 - open/short circuit	Wiring, CMP actuator
-	P11C9	Camshaft position (CMP) actuator, exhaust A, cylinder 6 - range/performance problem	Wiring, CMP actuator
-	P11CA	Camshaft position (CMP) actuator, exhaust B, cylinder 6 - open/short circuit	Wiring, CMP actuator

-	P11CB	Camshaft position (CMP) actuator, exhaust A, cylinder 7 - range/performance problem	Wiring, CMP actuator
-	P11CC	Camshaft position (CMP) actuator, exhaust B, cylinder 7 - open/short circuit	Wiring, CMP actuator
-	P11CD	Camshaft position (CMP) actuator, exhaust A, cylinder 8 - range/performance problem	Wiring, CMP actuator
-	P11CE	Camshaft position (CMP) actuator, exhaust B, cylinder 8 - open/short circuit	Wiring, CMP actuator
-	P11CF	Camshaft position (CMP) actuator A, cylinder 7 - range/performance problem	Wiring, CMP actuator
-	P11D0	Camshaft position (CMP) actuator B, cylinder 7 - range/performance problem	Wiring, CMP actuator
-	P11D1	Camshaft position (CMP) actuator A, cylinder 8 - range/performance problem	Wiring, CMP actuator
-	P11D2	Camshaft position (CMP) actuator B, cylinder 8 - range/performance problem	Wiring, CMP actuator
-	P11D3	Camshaft position (CMP) actuator, exhaust A, cylinder 1 - range/performance problem	Wiring, CMP actuator
-	P11D4	Camshaft position (CMP) actuator, exhaust B, cylinder 1 - range/performance problem	Wiring, CMP actuator
-	P11D5	Camshaft position (CMP) actuator, exhaust A, cylinder 2 - range/performance problem	Wiring, CMP actuator
-	P11D6	Camshaft position (CMP) actuator, exhaust B, cylinder 2 - range/performance problem	Wiring, CMP actuator
-	P11D7	Camshaft position (CMP) actuator, exhaust A, cylinder 3 - range/performance problem	Wiring, CMP actuator
-	P11D8	Camshaft position (CMP) actuator, exhaust B, cylinder 3 - range/performance problem	Wiring, CMP actuator
-	P11D9	Camshaft position (CMP) actuator, exhaust A, cylinder 4 - range/performance problem	Wiring, CMP actuator
-	P11DA	Camshaft position (CMP) actuator, exhaust B, cylinder 4 - range/performance problem	Wiring, CMP actuator
-	P11DB	Camshaft position (CMP) actuator, exhaust A, cylinder 5 - range/performance problem	Wiring, CMP actuator
-	P11DC	Camshaft position (CMP) actuator, exhaust B, cylinder 5 - range/performance problem	Wiring, CMP actuator
-	P11DD	Camshaft position (CMP) actuator, exhaust A, cylinder 6 - range/performance problem	Wiring, CMP actuator
-	P11DE	Camshaft position (CMP) actuator, exhaust B, cylinder 6 - range/performance problem	Wiring, CMP actuator
-	P11DF	Camshaft position (CMP) actuator, exhaust A, cylinder 7 - range/performance problem	Wiring, CMP actuator
-	P11E0	Camshaft position (CMP) actuator, exhaust B, cylinder 7 - range/performance problem	Wiring, CMP actuator

-	P11E1	Camshaft position (CMP) actuator, exhaust A, cylinder 8 - range/performance problem	Wiring, CMP actuator
-	P11E2	Camshaft position (CMP) actuator, exhaust B, cylinder 8 - range/performance problem	Wiring, CMP actuator
17608	P1200	Turbocharger (TC) bypass valve/turbocharger (TC) intake divert valve - malfunction	TC bypass valve/TC intake divert valve, mechanical fault
17609	P1201	Injector 1 - circuit malfunction	Wiring, injector
17610	P1202	Injector 2 - circuit malfunction	Wiring, injector
17611	P1203	Injector 3 - circuit malfunction	Wiring, injector
17612	P1204	Injector 4 - circuit malfunction	Wiring, injector
17613	P1205	Injector 5 - circuit malfunction	Wiring, injector
17614	P1206	Injector 6 - circuit malfunction	Wiring, injector
17615	P1207	Injector 7 - circuit malfunction	Wiring, injector
17616	P1208	Injector 8 - circuit malfunction	Wiring, injector
-	P120A	Injector monitoring - circuit malfunction	Wiring, injector(s), ECM
-	P120C	Injector monitoring - short/open circuit	Wiring, injector(s), ECM
-	P120F	Cold start fuel pressure performance, bank 2 - malfunction	-
17621	P1213	Injector 1 - short to positive	Wiring short to positive, injector
17622	P1214	Injector 2 - short to positive	Wiring short to positive, injector
17623	P1215	Injector 3 - short to positive	Wiring short to positive, injector
17624	P1216	Injector 4 - short to positive	Wiring short to positive, injector
17625	P1217	Injector 5 - short to positive	Wiring short to positive, injector
17626	P1218	Injector 6 - short to positive	Wiring short to positive, injector
17627	P1219	Injector 7 - short to positive	Wiring short to positive, injector
-	P121A	Cold start fuel pressure performance, bank 2 - maximum pressure exceeded	-
17628	P1220	Injector 8 - short to positive	Wiring short to positive, injector
17633	P1225	Injector 1 - short to earth	Wiring short to earth, injector
17634	P1226	Injector 2 - short to earth	Wiring short to earth, injector
17635	P1227	Injector 3 - short to earth	Wiring short to earth, injector
17636	P1228	Injector 4 - short to earth	Wiring short to earth, injector
17637	P1229	Injector 5 - short to earth	Wiring short to earth, injector
17638	P1230	Injector 6 - short to earth	Wiring short to earth, injector
17639	P1231	Injector 7 - short to earth	Wiring short to earth, injector
17640	P1232	Injector 8 - short to earth	Wiring short to earth, injector
-	P1233	Engine load monitoring - malfunction	Wiring, ECM
17645	P1237	Injector 1 - open circuit	Wiring open circuit, injector
17646	P1238	Injector 2 - open circuit	Wiring open circuit, injector
17647	P1239	Injector 3 - open circuit	Wiring open circuit, injector
17648	P1240	Injector 4 - open circuit	Wiring open circuit, injector
17649	P1241	Injector 5 - open circuit	Wiring open circuit, injector
17650	P1242	Injector 6 - open circuit	Wiring open circuit, injector
17651	P1243	Injector 7 - open circuit	Wiring open circuit, injector
17652	P1244	Injector 8 - open circuit	Wiring open circuit, injector
17653	P1245	Injector needle lift sensor - short to earth	Wiring short to earth, injector needle lift sensor
17654	P1246	Injector needle lift sensor - range/performance problem	Injector needle lift sensor, injector pipe defective, fuel level low
17655	P1247	Injector needle lift sensor - open circuit/short to positive	Wiring open circuit/short to positive, injector needle lift sensor

17656	P1248	Start of injection - control difference	Fuel injection timing solenoid, injector needle lift sensor, fuel level low, pump timing
17658	P1250	Fuel tank level sensor - low input	Fuel level too low
17659	P1251	Fuel injection timing solenoid - short to positive	Wiring short to positive
17660	P1252	Fuel injection timing solenoid - open circuit/short to earth	Wiring open circuit/short to earth, fuel injection timing solenoid
17661	P1253	Instrument panel, fuel consumption signal - short to earth	Wiring short to earth, instrument panel
17662	P1254	Instrument panel, fuel consumption signal - short to positive	Wiring short to positive, instrument panel
17663	P1255	Engine coolant temperature (ECT) sensor - short to earth	Wiring short to earth, ECT sensor
17664	P1256	Engine coolant temperature (ECT) sensor - open circuit/short to positive	Wiring open circuit/short to positive, ECT sensor
-	P125A	Coolant circulation - implausible signal	-
-	P125B	Low pressure fuel system - fuel over temperature condition	-
17668	P1260	Injector 1 - implausible signal	No control
17669	P1261	Injector 1 - control limit exceeded	Control period too long, wiring, injector
17670	P1262	Injector 1 - control limit malfunction	Fuel level low, air in fuel system, wiring, injector, ECM
17671	P1263	Injector 2 - implausible signal	No control, wiring, injector, ECM
17672	P1264	Injector 2 - control limit exceeded	Control period too long, wiring, injector, ECM
17673	P1265	Injector 2 - control limit malfunction	Fuel level low, air in fuel system, wiring, injector, ECM
17674	P1266	Injector 3 - implausible signal	No control, wiring, injector, ECM
17675	P1267	Injector 3 - control limit exceeded	Control period too long, wiring, injector, ECM
17676	P1268	Injector 3 - control limit malfunction	Fuel level low, air in fuel system, wiring, injector, ECM
17677	P1269	Injector 4 - implausible signal	No control, wiring, injector, ECM
17678	P1270	Injector 4 - control limit exceeded	Control period too long, wiring, injector, ECM
17679	P1271	Injector 4 - control limit malfunction	Fuel level low, air in fuel system, wiring, injector, ECM
17686	P1278	Fuel metering solenoid - short to positive	Wiring short to positive, fuel metering solenoid
17687	P1279	Fuel metering solenoid - open circuit/short to earth	Wiring open circuit/short to earth, fuel metering solenoid
17689	P1281	Fuel metering solenoid - short to earth	Wiring short to earth, fuel metering solenoid
17690	P1282	Fuel metering solenoid - open circuit	Wiring open circuit, fuel metering solenoid
-	P1285	Engine coolant temperature (ECT) sensor - high input	Wiring, ECT sensor
17695	P1287	Turbocharger (TC) bypass valve/turbocharger (TC) intake divert valve - open circuit	Wiring open circuit, TC bypass valve/TC intake divert valve
17696	P1288	Turbocharger (TC) bypass valve/turbocharger (TC) intake divert valve - short to positive	Wiring short to positive, TC bypass valve/TC intake divert valve
17697	P1289	Turbocharger (TC) bypass valve/turbocharger (TC) intake divert valve - short to earth	Wiring short to earth, TC bypass valve/TC intake divert valve
-	P128F	Radiator outlet engine coolant temperature (ECT) sensor - malfunction	-
17698	P1290	Engine coolant temperature (ECT) sensor, ECM controlled cooling system - high input	Wiring, ECT sensor
17699	P1291	Engine coolant temperature (ECT) sensor, ECM controlled cooling system - high input	Wiring, ECT sensor
17700	P1292	Engine coolant thermostat - open circuit	Wiring open circuit, engine coolant thermostat

17701	P1293	Engine coolant thermostat - short to positive	Wiring short to positive, engine coolant thermostat
17702	P1294	Engine coolant thermostat - short to earth	Wiring short to earth, engine coolant thermostat
17703	P1295	Turbocharger (TC), bypass - flow malfunction	TC wastegate regulating valve, hose connection(s), injector
17704	P1296	Engine cooling system - malfunction	ECT sensor, engine coolant thermostat
17705	P1297	Turbocharger (TC)/throttle valve, hose connection - pressure loss	Hose connection
-	P1298	Engine coolant temperature (ECT) sensor - implausible signal	Wiring, ECT sensor, ECM
17707	P1299	Fuel metering solenoid - circuit malfunction	Wiring, fuel metering solenoid
-	P129B	Fuel pressure regulator control solenoid, bank 2 - open circuit	-
-	P129C	Fuel pressure regulator control solenoid, bank 2 - short circuit to earth	-
-	P129D	Fuel pressure regulator control solenoid, bank 2 - short circuit to positive	-
-	P12A1	Fuel rail pressure (FRP) sensor - signal low	Wiring, FRP sensor, ECM
-	P12A2	Fuel rail pressure (FRP) sensor - signal high	Wiring, FRP sensor, ECM
-	P12A3	Fuel pressure regulator control solenoid - solenoid stuck open	Wiring, fuel pressure regulator control solenoid, ECM
-	P12A4	Fuel pressure regulator control solenoid - solenoid stuck closed	Wiring, fuel pressure regulator control solenoid, ECM
-	P12A8	Camshaft position (CMP) actuator A, cylinder 1 - malfunction	CMP actuator
-	P12A9	Camshaft position (CMP) actuator A, cylinder 2 - malfunction	CMP actuator
-	P12AA	Camshaft position (CMP) actuator A, cylinder 3 - malfunction	CMP actuator
-	P12AB	Camshaft position (CMP) actuator A, cylinder 4 - malfunction	CMP actuator
-	P12AC	Camshaft position (CMP) actuator A, cylinder 5 - malfunction	CMP actuator
-	P12AD	Camshaft position (CMP) actuator A, cylinder 6 - malfunction	CMP actuator
-	P12AE	Camshaft position (CMP) actuator A, cylinder 7 - malfunction	CMP actuator
-	P12AF	Camshaft position (CMP) actuator A, cylinder 8 - malfunction	CMP actuator
-	P12B0	Camshaft position (CMP) actuator B, cylinder 1 - malfunction	CMP actuator
-	P12B1	Camshaft position (CMP) actuator B, cylinder 2 - malfunction	CMP actuator
-	P12B2	Camshaft position (CMP) actuator B, cylinder 3 - malfunction	CMP actuator
-	P12B3	Camshaft position (CMP) actuator B, cylinder 4 - malfunction	CMP actuator
-	P12B4	Camshaft position (CMP) actuator B, cylinder 5 - malfunction	CMP actuator
-	P12B5	Camshaft position (CMP) actuator B, cylinder 6 - malfunction	CMP actuator
-	P12B6	Camshaft position (CMP) actuator B, cylinder 7 - malfunction	CMP actuator

-	P12B7	Camshaft position (CMP) actuator B, cylinder 8 - malfunction	CMP actuator
-	P12B8	Camshaft position (CMP) actuator, exhaust A, cylinder 1 - malfunction	CMP actuator
-	P12B9	Camshaft position (CMP) actuator, exhaust A, cylinder 2 - malfunction	CMP actuator
-	P12BA	Camshaft position (CMP) actuator, exhaust A, cylinder 3 - malfunction	CMP actuator
-	P12BB	Camshaft position (CMP) actuator, exhaust A, cylinder 4 - malfunction	CMP actuator
-	P12BC	Camshaft position (CMP) actuator, exhaust A, cylinder 5 - malfunction	CMP actuator
-	P12BD	Camshaft position (CMP) actuator, exhaust A, cylinder 6 - malfunction	CMP actuator
-	P12BE	Camshaft position (CMP) actuator, exhaust A, cylinder 7 - malfunction	CMP actuator
-	P12BF	Camshaft position (CMP) actuator, exhaust A, cylinder 8 - malfunction	CMP actuator
-	P12C0	Camshaft position (CMP) actuator, exhaust B, cylinder 1 - malfunction	CMP actuator
-	P12C1	Camshaft position (CMP) actuator, exhaust B, cylinder 2 - malfunction	CMP actuator
-	P12C2	Camshaft position (CMP) actuator, exhaust B, cylinder 3 - malfunction	CMP actuator
-	P12C3	Camshaft position (CMP) actuator, exhaust B, cylinder 4 - malfunction	CMP actuator
-	P12C4	Camshaft position (CMP) actuator, exhaust B, cylinder 5 - malfunction	CMP actuator
-	P12C5	Camshaft position (CMP) actuator, exhaust B, cylinder 6 - malfunction	CMP actuator
-	P12C6	Camshaft position (CMP) actuator, exhaust B, cylinder 7 - malfunction	CMP actuator
-	P12C7	Camshaft position (CMP) actuator, exhaust B, cylinder 8 - malfunction	CMP actuator
17708	P1300	Random/multiple cylinder(s) - misfire detected	Fuel level low, fuel gauge tank sensor
-	P1319	Knock sensor (KS) 1 - short to earth	Wiring, knock sensor (KS)
-	P1320	Knock sensor (KS) 2 - short to earth	Wiring, knock sensor (KS)
-	P1321	Knock sensor (KS) 3 - signal too low	Wiring, knock sensor (KS)
-	P1322	Knock sensor (KS) 3 - signal too high	Wiring, knock sensor (KS)
-	P1323	Knock sensor (KS) 4 - signal too low	Wiring, knock sensor (KS)
-	P1324	Knock sensor (KS) 4 - signal too high	Wiring, knock sensor (KS)
17733	P1325	Knock control, cylinder 1 - control limit reached	Poor quality fuel, incorrect fuel, insecure engine component, KS incorrectly tightened/defective, shield wiring open circuit, poor connection
17734	P1326	Knock control, cylinder 2 - control limit reached	Poor quality fuel, incorrect fuel, insecure engine component, KS incorrectly tightened/defective, shield wiring open circuit, poor connection
17735	P1327	Knock control, cylinder 3 - control limit reached	Poor quality fuel, incorrect fuel, insecure engine component, KS incorrectly tightened/defective, shield wiring open circuit, poor connection
17736	P1328	Knock control, cylinder 4 - control limit reached	Poor quality fuel, incorrect fuel, insecure engine component, KS incorrectly tightened/defective, shield wiring open circuit, poor connection
17737	P1329	Knock control, cylinder 5 - control limit reached	Poor quality fuel, incorrect fuel, insecure engine component, KS incorrectly tightened/defective, shield wiring open circuit, poor connection
-	P132A	Knock sensor (KS) 3 - malfunction	Wiring, knock sensor (KS)

-	P132B	Knock sensor (KS) 4 - malfunction	Wiring, knock sensor (KS)
17738	P1330	Knock control, cylinder 6 - control limit reached	Poor quality fuel, incorrect fuel, insecure engine component, KS incorrectly tightened/defective, shield wiring open circuit, poor connection
17739	P1331	Knock control, cylinder 7 - control limit reached	Poor quality fuel, incorrect fuel, insecure engine component, KS incorrectly tightened/defective, shield wiring open circuit, poor connection
17740	P1332	Knock control, cylinder 8 - control limit reached	Poor quality fuel, incorrect fuel, insecure engine component, KS incorrectly tightened/defective, shield wiring open circuit, poor connection
17743	P1335	Engine torque control - limit reached	Throttle control unit, hose(s), TC system, MAP sensor, IAT sensor, MAF sensor, ECT sensor
17744	P1336	Engine torque monitoring - control limit exceeded	Hose(s), TC system, throttle control unit, IAT sensor, MAP sensor, MAF sensor, ECT sensor, APP sensor
17745	P1337	Camshaft position (CMP) sensor, bank 1 - short to earth	Wiring short to earth, CMP sensor
17746	P1338	Camshaft position (CMP) sensor, bank 1 - circuit malfunction	Wiring, CMP sensor
17747	P1339	Crankshaft position (CKP) sensor/engine speed (RPM) sensor - interchanged	Multi-plugs incorrectly connected
17748	P1340	Camshaft position (CMP) sensor 1, bank 1/crankshaft position (CKP) sensor - out of sequence	Valve timing, CKP/CMP sensor installation, CKP sensor rotor
17749	P1341	Ignition amplifier, primary circuit 1 - short to earth	Wiring short to earth, ignition amplifier, CMP sensor, HT leads, spark plugs
17750	P1342	Ignition amplifier, primary circuit 1 - short to positive	Wiring short to positive, ignition amplifier, CMP sensor, HT leads, spark plugs
17751	P1343	Ignition amplifier, primary circuit 2 - short to earth	Wiring short to earth, ignition amplifier, CMP sensor, HT leads, spark plugs
17752	P1344	Ignition amplifier, primary circuit 2 - short to positive	Wiring short to positive, ignition amplifier, CMP sensor, HT leads, spark plugs
17753	P1345	Ignition amplifier, primary circuit 3 - short to earth	Wiring short to earth, ignition amplifier, CMP sensor, HT leads, spark plugs
17754	P1346	Ignition amplifier, primary circuit 3 - short to positive	Wiring short to positive, ignition amplifier, CMP sensor, HT leads, spark plugs
17755	P1347	Camshaft position (CMP) sensor 2, bank 2/crankshaft position (CKP) sensor - out of sequence	Valve timing, CKP/CMP sensor installation, CKP sensor rotor
17756	P1348	Ignition amplifier, primary circuit 1 - open circuit	Wiring short to earth, ignition amplifier, CMP sensor, HT leads, spark plugs
17757	P1349	Ignition amplifier, primary circuit 2 - open circuit	Wiring short to positive, ignition amplifier, CMP sensor, HT leads, spark plugs
17758	P1350	Ignition amplifier, primary circuit 3 - open circuit	Wiring short to positive, ignition amplifier, CMP sensor, HT leads, spark plugs
17759	P1351	Camshaft position (CMP) sensor, bank 1 - range/performance problem	Ignore trouble code, erase fault memory
17762	P1354	Fuel quantity adjuster position sensor	Wiring, fuel injection pump
17763	P1355	Ignition coil/amplifier, cylinder 1 - open circuit	Wiring open circuit, ignition coil/amplifier
17764	P1356	Ignition coil/amplifier, cylinder 1 - short to positive	Wiring short to positive, ignition coil/amplifier
17765	P1357	Ignition coil/amplifier, cylinder 1 - short to earth	Wiring short to earth, ignition coil/amplifier
17766	P1358	Ignition coil/amplifier, cylinder 2 - open circuit	Wiring open circuit, ignition coil/amplifier
17767	P1359	Ignition coil/amplifier, cylinder 2 - short to positive	Wiring short to positive, ignition coil/amplifier

17768	P1360	Ignition coil/amplifier, cylinder 2 - short to earth	Wiring short to earth, ignition coil/amplifier
17769	P1361	Ignition coil/amplifier, cylinder 3 - open circuit	Wiring open circuit, ignition coil/amplifier
17770	P1362	Ignition coil/amplifier, cylinder 3 - short to positive	Wiring short to positive, ignition coil/amplifier
17771	P1363	Ignition coil/amplifier, cylinder 3 - short to earth	Wiring short to earth, ignition coil/amplifier
17772	P1364	Ignition coil/amplifier, cylinder 4 - open circuit	Wiring open circuit, ignition coil/amplifier
17773	P1365	Ignition coil/amplifier, cylinder 4 - short to positive	Wiring short to positive, ignition coil/amplifier
17774	P1366	Ignition coil/amplifier, cylinder 4 - short to earth	Wiring short to earth, ignition coil/amplifier
17775	P1367	Ignition coil/amplifier, cylinder 5 - open circuit	Wiring open circuit, ignition coil/amplifier
17776	P1368	Ignition coil/amplifier, cylinder 5 - short to positive	Wiring short to positive, ignition coil/amplifier
17777	P1369	Ignition coil/amplifier, cylinder 5 - short to earth	Wiring short to earth, ignition coil/amplifier
17778	P1370	Ignition coil/amplifier, cylinder 6 - open circuit	Wiring open circuit, ignition coil/amplifier
17779	P1371	Ignition coil/amplifier, cylinder 6 - short to positive	Wiring short to positive, ignition coil/amplifier
17780	P1372	Ignition coil/amplifier, cylinder 6 - short to earth	Wiring short to earth, ignition coil/amplifier
17781	P1373	Ignition coil/amplifier, cylinder 7 - open circuit	Wiring open circuit, ignition coil/amplifier
17782	P1374	Ignition coil/amplifier, cylinder 7 - short to positive	Wiring short to positive, ignition coil/amplifier
17783	P1375	Ignition coil/amplifier, cylinder 7 - short to earth	Wiring short to earth, ignition coil/amplifier
17784	P1376	Ignition coil/amplifier, cylinder 8 - open circuit	Wiring open circuit, ignition coil/amplifier
17785	P1377	Ignition coil/amplifier, cylinder 8 - short to positive	Wiring short to positive, ignition coil/amplifier
17786	P1378	Ignition coil/amplifier, cylinder 8 - short to earth	Wiring short to earth, ignition coil/amplifier
-	P1384	Engine control module (ECM) 2 - defective	-
17793	P1385	Engine control module (ECM) - defective	ECM
17794	P1386	Engine control module (ECM) - defective	ECM
17795	P1387	Engine control module (ECM) - defective	ECM
17796	P1388	Engine control module (ECM) - defective	ECM
17797	P1389	Engine control module (ECM) 2 - defective	ECM
17799	P1391	Camshaft position (CMP) sensor 2, bank 2 - short to earth	Wiring short to earth, CMP sensor
17800	P1392	Camshaft position (CMP) sensor 2, bank 2 - open circuit/short to positive	Wiring open circuit/short to positive, CMP sensor
17801	P1393	Ignition amplifier, primary circuit 1 - circuit malfunction	Wiring, ignition amplifier, HT leads, spark plugs
17802	P1394	Ignition amplifier, primary circuit 2 - circuit malfunction	Wiring, ignition amplifier, HT leads, spark plugs

17803	P1395	Ignition amplifier, primary circuit 3 - circuit malfunction	Wiring, ignition amplifier, HT leads, spark plugs
-	P1396	Crankshaft position (CKP) sensor - CKP sensor flywheel pin bent/missing	CKP sensor rotor
17805	P1397	Crankshaft position (CKP) sensor/engine speed (RPM) sensor - control limit reached	Insecure/damaged rotor, CKP/RPM sensor
17806	P1398	Crankshaft position (CKP) sensor/engine speed (RPM) sensor - short to earth	Wiring short to earth, CKP/RPM sensor
17807	P1399	Crankshaft position (CKP) sensor/engine speed (RPM) sensor - short to positive	Wiring short to positive, CKP/RPM sensor
-	P139A	Crankshaft position (CKP) sensor - implausible signal	Wiring, CKP sensor, CKP sensor rotor
-	P13CE	Cylinder pressure sensor, cylinder 1 - malfunction	Wiring
-	P13CF	Cylinder pressure sensor, cylinder 1 - short circuit to earth	Wiring
-	P13D0	Cylinder pressure sensor, cylinder 1 - implausible signal	Wiring
-	P13D1	Cylinder pressure sensor, cylinder 2 - malfunction	Wiring
-	P13D2	Cylinder pressure sensor, cylinder 2 - short circuit to earth	Wiring
-	P13D3	Cylinder pressure sensor, cylinder 2 - implausible signal	Wiring
-	P13D4	Cylinder pressure sensor, cylinder 3 - malfunction	Wiring
-	P13D5	Cylinder pressure sensor, cylinder 3 - short circuit to earth	Wiring
-	P13D6	Cylinder pressure sensor, cylinder 3 - implausible signal	Wiring
-	P13D7	Cylinder pressure sensor, cylinder 4 - malfunction	Wiring
-	P13D8	Cylinder pressure sensor, cylinder 4 - short circuit to earth	Wiring
-	P13D9	Cylinder pressure sensor, cylinder 4 - implausible signal	Wiring
-	P13DA	Cylinder pressure sensor, cylinder 5 - malfunction	Wiring
-	P13DB	Cylinder pressure sensor, cylinder 5 - short circuit to earth	Wiring
-	P13DC	Cylinder pressure sensor, cylinder 5 - implausible signal	Wiring
-	P13DD	Cylinder pressure sensor, cylinder 6 - malfunction	Wiring
-	P13DE	Cylinder pressure sensor, cylinder 6 - short circuit to earth	Wiring
-	P13DF	Cylinder pressure sensor, cylinder 6 - implausible signal	Wiring
-	P13E0	Cylinder pressure sensor, cylinder 1 - malfunction	Wiring
-	P13E1	Cylinder pressure sensor, cylinder 2 - malfunction	Wiring
-	P13E2	Cylinder pressure sensor, cylinder 3 - malfunction	Wiring

-	P13E3	Cylinder pressure sensor, cylinder 4 - malfunction	Wiring
-	P13E4	Cylinder pressure sensor, cylinder 5 - malfunction	Wiring
-	P13E5	Cylinder pressure sensor, cylinder 6 - malfunction	Wiring
-	P13E6	Cylinder pressure sensor(s) - implausible signal	Wiring
-	P13EA	Cold start ignition timing adjustment - performance problem	-
17808	P1400	Exhaust gas recirculation (EGR) valve/solenoid, bank 1 - circuit malfunction	Wiring, EGR valve
17809	P1401	Exhaust gas recirculation (EGR) valve/solenoid, bank 1 - short to earth	Wiring short to earth, EGR valve
17810	P1402	Exhaust gas recirculation (EGR) valve/solenoid, bank 1 - short to positive	Wiring short to positive, EGR valve/solenoid
17811	P1403	Exhaust gas recirculation (EGR) system - control difference	Basic setting not carried out, EGR system
17812	P1404	Exhaust gas recirculation (EGR) system - basic setting	Basic setting not carried out, EGR system
-	P1405	Exhaust gas recirculation (EGR) valve/solenoid 2 - malfunction	EGR system
17815	P1407	Exhaust gas recirculation temperature (EGRT) sensor - low input	Wiring short to earth, EGRT sensor
17816	P1408	Exhaust gas recirculation temperature (EGRT) sensor - high input	Wiring short to positive, earth wire defective, EGRT sensor
17817	P1409	Evaporative emission (EVAP) canister purge valve - circuit malfunction	Wiring, EVAP canister purge valve
-	P140B	Exhaust gas recirculation (EGR) valve/solenoid 2, bank 2 - control difference	EGR system
-	P140D	Exhaust gas recirculation (EGR) valve/solenoid 2, bank 2 - signal too low	EGR system
-	P140F	Exhaust gas recirculation (EGR) valve/solenoid 2, bank 2 - signal too high	EGR system
17818	P1410	Evaporative emission (EVAP) canister purge valve - short to positive	Wiring short to positive, EVAP canister purge valve
17819	P1411	Secondary air injection (AIR) system, bank 2 - insufficient flow detected	Intake leak, hose(s) blocked/leaking, AIR valve/solenoid
17822	P1414	Secondary air injection (AIR) system, bank 2 - leak detected	Intake leak, hose(s) leaking, AIR valve/solenoid
17823	P1415	Exhaust gas recirculation (EGR) valve position sensor - lower limit exceeded	Basic setting not carried out
17824	P1416	Exhaust gas recirculation (EGR) valve position sensor - upper limit exceeded	Basic setting not carried out
-	P1417	Fuel level sensor - signal too low	Wiring, connector, fuel level sensor
-	P1418	Fuel level sensor - signal too high	Wiring, connector, fuel level sensor
-	P1419	Exhaust gas recirculation (EGR) cooler bypass valve - short to positive	EGR system
-	P141F	Exhaust gas temperature sensor(s) - implausible signal	Exhaust gas temperature sensor
17828	P1420	Secondary air injection (AIR) valve/solenoid - circuit malfunction	Wiring, AIR solenoid
17829	P1421	Secondary air injection (AIR) valve/solenoid - short to earth	Wiring short to earth, AIR valve/solenoid
17830	P1422	Secondary air injection (AIR) valve/solenoid - short to positive	Wiring short to positive, AIR valve/solenoid

17831	P1423	Secondary air injection (AIR) system, bank 1 - insufficient flow detected	Hose connection(s), AIR valve/solenoid
17832	P1424	Secondary air injection (AIR) system, bank 1 - leak detected	AIR valve, exhaust leak
17833	P1425	Evaporative emission (EVAP) canister purge valve - short to earth	Wiring short to earth, EVAP canister purge valve
17834	P1426	Evaporative emission (EVAP) canister purge valve - open circuit	Wiring open circuit, EVAP canister purge valve
17835	P1427	Vacuum pump, brakes - short to positive	Wiring short to positive, vacuum pump
17836	P1428	Vacuum pump, brakes - short to earth	Wiring short to earth, vacuum pump
17837	P1429	Vacuum pump, brakes - open circuit	Wiring open circuit, vacuum pump
-	P142F	Exhaust gas recirculation (EGR) system 2, bank 2 - circuit malfunction	EGR system
17838	P1430	Vacuum pump, brakes - open circuit/short to positive	Wiring open circuit/short to positive, vacuum pump
17839	P1431	Vacuum pump, brakes - open circuit/short to earth	Wiring open circuit/short to earth, vacuum pump
17840	P1432	Secondary air injection (AIR) valve/solenoid - open circuit	Wiring open circuit, fuse, AIR valve/solenoid
17841	P1433	Secondary air injection (AIR) pump relay - open circuit	Wiring open circuit, fuse, AIR pump relay
17842	P1434	Secondary air injection (AIR) pump relay - short to positive	Wiring short to positive, AIR pump relay
17843	P1435	Secondary air injection (AIR) pump relay - short to earth	Wiring short to earth, AIR pump relay
17844	P1436	Secondary air injection (AIR) pump relay - circuit malfunction	Wiring, AIR pump relay
17845	P1437	Exhaust gas recirculation (EGR) valve/solenoid, bank 2 - short to positive	Wiring short to positive, EGR valve/solenoid
17846	P1438	Exhaust gas recirculation (EGR) valve/solenoid, bank 2 - open circuit/short to earth	Wiring open circuit/short to earth, EGR valve/solenoid
17847	P1439	Exhaust gas recirculation (EGR) valve position sensor - basic setting	Basic setting not carried out, EGR system
17848	P1440	Exhaust gas recirculation (EGR) valve - open circuit	Wiring open circuit, EGR valve
17849	P1441	Exhaust gas recirculation (EGR) valve/solenoid, bank 1 - open circuit/short to earth	Wiring open circuit/short to earth, EGR solenoid
17850	P1442	Exhaust gas recirculation (EGR) valve position sensor - high input	Wiring short to positive, EGR valve position sensor
17851	P1443	Exhaust gas recirculation (EGR) valve position sensor - low input	Wiring short to earth, EGR valve position sensor
17852	P1444	Exhaust gas recirculation (EGR) valve position sensor - range/performance problem	Wiring, EGR valve position sensor
-	P144A	Exhaust gas recirculation (EGR) system 2, bank 1 - circuit malfunction	EGR system
-	P144C	Exhaust gas recirculation (EGR) valve position sensor 2, bank 1 - basic setting conditions	EGR system
-	P144D	Exhaust gas recirculation (EGR) valve position sensor 2, bank 2 - basic setting conditions	EGR system
-	P144E	Exhaust gas recirculation (EGR) solenoid, bank 2 - malfunction	EGR system
-	P144F	Exhaust gas recirculation (EGR) solenoid, bank 2 - open circuit	EGR system

17858	P1450	Secondary air injection (AIR) system - short to positive	Wiring short to positive, AIR relay
17859	P1451	Secondary air injection (AIR) system - short to earth	Wiring short to earth, AIR relay
17860	P1452	Secondary air injection (AIR) system - open circuit	Wiring open circuit, AIR relay
17861	P1453	Exhaust gas recirculation temperature (EGRT) sensor 1, bank 1 - open circuit/short to positive	Wiring open circuit/short to positive, EGRT sensor
17862	P1454	Exhaust gas recirculation temperature (EGRT) sensor 1, bank 1 - short to earth	Wiring short to earth, EGRT sensor
17863	P1455	Exhaust gas recirculation temperature (EGRT) sensor 1, bank 1 - range/performance problem	Exhaust leak, wiring, EGRT sensor
17864	P1456	Exhaust gas recirculation temperature (EGRT) control, bank 1 - control limit reached	EGRT sensor
17865	P1457	Exhaust gas recirculation temperature (EGRT) sensor 2, bank 2 - open circuit/short to positive	Wiring open circuit/short to positive, EGRT sensor
17866	P1458	Exhaust gas recirculation temperature (EGRT) sensor 2, bank 2 - short to earth	Wiring short to earth, EGRT sensor
17867	P1459	Exhaust gas recirculation temperature (EGRT) sensor 2, bank 2 - range/performance problem	Exhaust leak, wiring, EGRT sensor
-	P145C	Exhaust gas temperature sensor 3 - short to earth	Wiring, exhaust gas temperature sensor
-	P145D	Exhaust gas temperature sensor 3 - short circuit to positive	Wiring, exhaust gas temperature sensor
-	P145E	Diesel particulate filter (DPF) regeneration - mass air flow too low	EGR system
-	P145F	Diesel particulate filter (DPF) regeneration - mass air flow too high	EGR system
17868	P1460	Exhaust gas recirculation temperature (EGRT) control, bank 2 - control limit reached	EGRT sensor
17869	P1461	Exhaust gas recirculation temperature (EGRT) control, bank 1 - range/performance problem	Exhaust leak/blockage, EGRT sensor
17870	P1462	Exhaust gas recirculation temperature (EGRT) control, bank 2 - range/performance problem	Exhaust leak/blockage, EGRT sensor
-	P146A	Diesel particulate filter (DPF) - malfunction	DPF
-	P146D	Selective catalytic reduction (SCR) additive heater 1 - short to positive	Wiring
-	P146F	Selective catalytic reduction (SCR) additive heater 2 - short to positive	Wiring
17878	P1470	Evaporative emission (EVAP) leak detection pump/fuel tank vent system - circuit malfunction	Wiring, EVAP leak detection pump
17879	P1471	Evaporative emission (EVAP) leak detection pump - short to positive	Wiring short to positive, EVAP leak detection pump
17880	P1472	Evaporative emission (EVAP) leak detection pump - short to earth	Wiring short to earth, EVAP leak detection pump
17881	P1473	Evaporative emission (EVAP) leak detection pump/fuel tank vent system - wiring open circuit	Wiring open circuit, EVAP canister purge valve, EVAP leak detection pump

17883	P1475	Evaporative emission (EVAP) leak detection pump/fuel tank vent system - no signal	Wiring, EVAP canister purge valve, EVAP leak detection pump
17884	P1476	Evaporative emission (EVAP) leak detection pump/fuel tank vent system - vacuum too low	System leak, hose blockage, EVAP canister, EVAP leak detection pump
17885	P1477	Evaporative emission (EVAP) leak detection pump/fuel tank vent system - malfunction	Wiring, hose leak/blockage, EVAP canister purge valve, EVAP canister, EVAP leak detection pump
17886	P1478	Evaporative emission (EVAP) leak detection pump/fuel tank vent system - blockage detected	Hose blockage
17887	P1479	Vacuum system, brakes - mechanical fault	Vacuum pump
-	P147A	Brake vacuum pump - activation error	Wiring
-	P148A	Selective catalytic reduction (SCR) additive level sensor - implausible value	Wiring, SCR level sensor
-	P148B	Selective catalytic reduction (SCR) additive heater 1 - malfunction	-
-	P148C	Selective catalytic reduction (SCR) additive heater 2 - malfunction	-
-	P148D	Evaporative emission (EVAP) leak detection pump - malfunction	EVAP leak detection pump
-	P148F	Exhaust gas recirculation (EGR) cooler bypass valve 2 - malfunction	Wiring, EGR system
-	P1495	Exhaust gas recirculation (EGR) cooler bypass valve - open circuit/short to earth	Wiring open circuit/short to earth, EGR cooler bypass valve, ECM
-	P1496	Exhaust gas recirculation (EGR) cooler bypass valve - short to positive	Wiring short to positive, EGR cooler bypass valve, ECM
-	P1497	Secondary air injection (AIR) system, bank 3 - incorrect flow detected	-
-	P1498	Secondary air injection (AIR) system, bank 4 - incorrect flow detected	-
-	P1499	Exhaust gas recirculation (EGR) cooler bypass valve 2 - wiring open circuit/short to earth	Wiring, EGR system
-	P149D	Selective catalytic reduction (SCR) additive transfer pump - open circuit	Wiring, SCR additive transfer pump
-	P149E	Selective catalytic reduction (SCR) additive transfer pump - short circuit to earth	Wiring, SCR additive transfer pump
-	P149F	Selective catalytic reduction (SCR) additive transfer pump - short circuit to positive	Wiring, SCR additive transfer pump
-	P14A6	Exhaust gas temperature sensor, bank 1 - malfunction	Wiring, exhaust gas temperature sensor
-	P14A8	Exhaust gas temperature sensor, bank 1 - short circuit to earth	Wiring, exhaust gas temperature sensor
-	P14AA	Exhaust gas control solenoid - malfunction	Exhaust gas control solenoid
17908	P1500	Fuel pump relay - circuit malfunction	Wiring, fuel pump (FP) relay
17909	P1501	Fuel pump relay - short to earth	Wiring short to earth, fuel pump (FP) relay
17910	P1502	Fuel pump relay - short to positive	Wiring short to positive, fuel pump (FP) relay
17911	P1503	Alternator load signal	Wiring, alternator
17912	P1504	Intake system - leak detected	Intake leak, EGR system, EVAP system, hose connection(s), throttle control unit
17913	P1505	Closed throttle position (CTP) switch - does not close	Throttle cable/valve, wiring open circuit/short to positive, CTP switch adjustment/defective, ECM

17914	P1506	Closed throttle position (CTP) switch - does not open	Moisture ingress, wiring short to earth, CTP switch adjustment/defective, ECM
17915	P1507	Idle speed control (ISC) - lower limit reached	Throttle control unit/basic setting, intake/exhaust leak, mechanical fault, AC signals
17916	P1508	Idle speed control (ISC) - upper limit reached	Throttle control unit/basic setting, intake/exhaust leak, mechanical fault, AC signals
17917	P1509	Idle air control (IAC) valve - circuit malfunction	Wiring, IAC valve
-	P150A	Engine control module (ECM) - internal engine off timer - performance problem	-
-	P150B	Acceleration monitoring - control limit exceeded	-
-	P150C	Transmission speed - signal malfunction	-
-	P150D	Excessive chain wear	-
-	P150E	Vehicle speed signal to ABS control module - implausible vehicle speed signal	Wiring
-	P150F	External control module incorrectly coded	-
17918	P1510	Idle air control (IAC) valve - short to positive	Wiring open circuit/short to positive, IAC valve
17919	P1511	Intake manifold air control solenoid 1 - current circuit	Wiring, intake manifold air control solenoid
17920	P1512	Intake manifold air control solenoid 1 - short to positive	Wiring short to positive, intake manifold air control solenoid
17921	P1513	Intake manifold air control solenoid 2 - short to positive	Wiring short to positive, intake manifold air control solenoid
17922	P1514	Intake manifold air control solenoid 2 - short to earth	Wiring short to earth, intake manifold air control solenoid
17923	P1515	Intake manifold air control solenoid 1 - short to earth	Wiring short to earth, intake manifold air control solenoid
17924	P1516	Intake manifold air control solenoid 1 - open circuit	Wiring open circuit, intake manifold air control solenoid
17925	P1517	Engine control (EC) relay - circuit malfunction	Wiring, engine control (EC) relay
17926	P1518	Engine control (EC) relay - short to positive	Wiring short to positive, engine control (EC) relay
17927	P1519	Camshaft position (CMP) control, bank 1 - malfunction	Cylinder head oil pressure too low, CMP actuator sticking/defective
-	P151A	Control module incorrectly coded	-
-	P151B	Ignition switch supply voltage - signal malfunction	-
-	P151D	Ignition interruption due to engine speed	-
17928	P1520	Intake manifold air control solenoid 2 - open circuit	Wiring open circuit, intake manifold air control solenoid
17930	P1522	Camshaft position (CMP) control, bank 2 - malfunction	Cylinder head oil pressure too low, CMP actuator sticking/defective
17931	P1523	SRS crash signal received	Airbag triggered
17932	P1524	Fuel pump relay - open circuit/short to earth	Wiring open circuit/short to earth, fuel pump (FP) relay
17933	P1525	Camshaft position (CMP) actuator, bank 1 - circuit malfunction	Wiring, CMP actuator
17934	P1526	Camshaft position (CMP) actuator, bank 1 - short to positive	Wiring short to positive, CMP actuator
17935	P1527	Camshaft position (CMP) actuator, bank 1 - short to earth	Wiring short to earth, CMP actuator

17936	P1528	Camshaft position (CMP) actuator, bank 1 - open circuit	Wiring open circuit, CMP actuator
17937	P1529	Camshaft position (CMP) actuator - short to positive	Wiring short to positive, CMP actuator
17938	P1530	Camshaft position (CMP) actuator - short to earth	Wiring short to earth, CMP actuator
17939	P1531	Camshaft position (CMP) actuator - open circuit	Wiring open circuit, CMP actuator
17940	P1532	Idle control - lean running speed below specification	Throttle control unit
17941	P1533	Camshaft position (CMP) actuator, bank 2 - circuit malfunction	Wiring, CMP actuator
17942	P1534	Camshaft position (CMP) actuator, bank 2 - short to positive	Wiring short to positive, CMP actuator
17943	P1535	Camshaft position (CMP) actuator, bank 2 - short to earth	Wiring short to earth, CMP actuator
17944	P1536	Camshaft position (CMP) actuator, bank 2 - open circuit	Wiring open circuit, CMP actuator
17945	P1537	Fuel shut-off solenoid - malfunction	Fuel shut-off solenoid (leaking/sticking)
17946	P1538	Fuel shut-off solenoid - open circuit/short to earth	Wiring open circuit/short to earth, fuel shut-off solenoid
17947	P1539	Clutch pedal position (CPP) switch - range/performance problem	Wiring, CPP switch
17948	P1540	Vehicle speed signal - high input	Excessive vehicle speed, instrument panel defective
17949	P1541	Fuel pump relay - open circuit	Wiring open circuit, fuel pump (FP) relay
17950	P1542	Throttle motor position sensor 1 - range/performance problem	Throttle valve requires cleaning, wiring, throttle motor position sensor
17951	P1543	Throttle motor position sensor 1 - low input	Wiring short to earth, throttle motor position sensor
17952	P1544	Throttle motor position sensor 1 - high input	Wiring short to positive, throttle motor position sensor
17953	P1545	Throttle valve control - malfunction	Throttle valve tight/sticking, wiring, throttle control unit
17954	P1546	Turbocharger (TC) wastegate regulating valve - short to positive	Wiring short to positive, TC wastegate regulating valve
17955	P1547	Turbocharger (TC) wastegate regulating valve - short to earth	Wiring short to earth, TC wastegate regulating valve
17956	P1548	Turbocharger (TC) wastegate regulating valve - open circuit	Wiring open circuit, TC wastegate regulating valve
17957	P1549	Turbocharger (TC) wastegate regulating valve - open circuit/short to earth	Wiring open circuit/short to earth, TC wastegate regulating valve
-	P154D	Charge pressure regulation, boost pressure charger 2 - malfunction	-
-	P154E	Charge pressure regulation, bank 2 - malfunction	-
-	P154F	Turbocharger (TC) boost pressure control - malfunction	Wiring, TC boost pressure sensor, TC boost pressure control valve, ECM
17958	P1550	Turbocharger (TC) pressure - control difference	Intake/exhaust leak, hoses interchanged/not connected, MAP sensor, TC wastegate regulating valve, turbocharger (TC) wastegate actuator, TC
17961	P1553	Manifold absolute pressure (MAP) sensor/barometric pressure (BARO) sensor - range/performance problem	Intake/exhaust leak, EGR system, EVAP canister purge valve, throttle control unit, wiring, MAP sensor, BARO sensor
17962	P1554	Throttle control unit - basic setting conditions	Basic setting conditions not met
17963	P1555	Turbocharger (TC) pressure - upper limit exceeded	Hoses interchanged/not connected, TC wastegate regulating valve, turbocharger (TC) wastegate actuator, TC
17964	P1556	Turbocharger (TC) pressure - control limit not reached	TC wastegate regulating valve, intake leak, TC defective

17965	P1557	Turbocharger (TC) pressure - control limit exceeded	Hose connection interchanged/not connected, TC boost pressure sensor, TC wastegate regulating valve
17966	P1558	Idle speed control (ISC) actuator/throttle motor - circuit malfunction	Wiring, ISC actuator/throttle motor, throttle control unit
17967	P1559	Throttle control unit - basic setting malfunction	Accelerator pedal or starter motor operated during basic setting
-	P155A	Turbocharger (TC) system pressure control - pressure charge performance	-
-	P155B	Turbocharger (TC) system pressure control - adaptation value too low	-
-	P155C	Turbocharger (TC) system pressure control - adaptation value exceeded	-
-	P155D	Turbocharger (TC)/supercharger (SC) boost pressure control, bank 2 - pressure too high	-
17968	P1560	Maximum engine RPM exceeded	Incorrect gear shift, wiring open circuit, CKP/RPM sensor
17969	P1561	Fuel quantity adjuster - control difference	Wiring, fuel injection pump
17970	P1562	Fuel quantity adjuster - upper stop value	Fuel quantity adjuster blocked/defective, stop value reached
17971	P1563	Fuel quantity adjuster - lower stop value	Fuel quantity adjuster blocked/defective, lower stop value reached
17972	P1564	Throttle control unit - voltage low during basic setting	Battery, wiring
17973	P1565	Throttle control unit - lower stop not reached	Throttle valve tight/sticking, ISC actuator
17974	P1566	AC compressor, load signal - implausible signal	Wiring, AC system
-	P1567	AC compressor signal - malfunction	Wiring, AC compressor, AC control module
17976	P1568	Throttle control unit - mechanical fault	Throttle valve tight/sticking
17977	P1569	Cruise control master switch	Wiring, cruise control master switch
-	P156A	Throttle control unit - malfunction	Wiring, throttle control unit, ECM
-	P156B	Throttle motor position sensor - implausible signal	Wiring, throttle control unit
17978	P1570	Engine control module (ECM) - immobilizer active	Incorrect/damaged key, incorrectly coded, ECM/immobilizer replacement without coding, wiring, immobilizer defective
17979	P1571	Engine mounting control solenoid, bank 2 - short to positive	Wiring short to positive, engine mounting control solenoid
17980	P1572	Engine mounting control solenoid, bank 2 - short to earth	Wiring short to earth, engine mounting control solenoid
17981	P1573	Engine mounting control solenoid, bank 2 - open circuit	Wiring open circuit, engine mounting control solenoid
17983	P1575	Engine mounting control solenoid, bank 1 - short to positive	Wiring short to positive, engine mounting control solenoid
17984	P1576	Engine mounting control solenoid, bank 1 - short to earth	Wiring short to earth, engine mounting control solenoid
17985	P1577	Engine mounting control solenoid, bank 1 - open circuit	Wiring open circuit, engine mounting control solenoid
17987	P1579	Throttle control unit - basic setting	Basic setting not carried out
17988	P1580	Throttle motor, bank 1 - circuit malfunction	Wiring, throttle motor
17989	P1581	Throttle control unit - basic setting	Basic setting not carried out
17990	P1582	Idle speed adaptation - limit reached	Intake/exhaust leak, AIR system, fuel pressure/pump, injector(s), EVAP canister purge valve
-	P1583	Transmission mounting control valve - short circuit to positive	Wiring, transmission mounting control valve
-	P1584	Transmission mounting control valve - short circuit to earth	Wiring, transmission mounting control valve

17993	P1585	Throttle control unit - lower stop not reached	Throttle motor, throttle control unit
-	P1585	Transmission mounting control valve - open circuit	Wiring, transmission mounting control valve
17994	P1586	Engine mounting control solenoid, bank 1 & 2 - short to positive	Wiring short to positive, engine mounting control solenoid
-	P1587	Engine mounting control solenoid, bank 1 & 2 - short circuit to earth	Wiring
-	P1588	Engine mounting control solenoid, bank 1 & 2 - open circuit	Wiring
17997	P1589	AC/heater air temperature control switch - short to earth	Wiring short to earth, AC/heater air temperature control switch
17998	P1590	AC/heater air temperature control switch - open circuit	Wiring open circuit, AC/heater air temperature control switch
-	P1591	Turbocharger (TC) wastegate regulating valve - not working correctly	-
18000	P1592	Barometric pressure (BARO) sensor/manifold absolute pressure (MAP) sensor - implausible signal	TC system, MAP sensor
18001	P1593	Altitude adaption - signal outside tolerance	Intake leak, MAF sensor, throttle control unit
-	P1596	CAN data bus - implausible signal	Wiring, suspension ride height control module
-	P1597	CAN data bus - missing information	Wiring, suspension ride height control module
18007	P1599	Idle control - lean running speed below specification	IAC valve
-	P159B	Engine oil sensor - short to positive	Wiring, engine oil sensor
-	P159C	Engine oil sensor - short circuit to earth	Wiring, engine oil sensor
-	P159D	Engine oil sensor - implausible signal	Wiring, engine oil sensor, ECM
-	P159E	Engine oil sensor - no signal	Wiring, engine oil sensor
-	P159F	Transmission control module (TCM) - TCM function restriction	-
-	P15A0	Neutral position (NP) sensor - malfunction	Wiring, NP sensor
-	P15A1	Neutral position (NP) sensor - implausible signal	Wiring, NP sensor
-	P15A2	Neutral position (NP) sensor - short circuit to earth	Wiring, NP sensor
-	P15A4	Engine management system - engine disabled	-
18008	P1600	Engine control module (ECM) - supply voltage low from ignition switch	Battery, alternator, wiring open circuit
18009	P1601	Engine control module (ECM) - supply voltage	Wiring, engine control (EC) relay
18010	P1602	Engine control module (ECM) - supply voltage low from battery	Battery was disconnected, battery discharged, alternator, wiring open circuit, fuse
18011	P1603	Engine control module (ECM) - defective	ECM
18012	P1604	Engine control module (ECM) - defective	ECM
-	P1605	Rough road signal - circuit malfunction	ABS control module trouble code(s) stored, wiring, CAN data bus
18014	P1606	Rough road signal - circuit malfunction	ABS control module trouble code(s) stored, wiring, CAN data bus
-	P1607	VSS signal - error message from instrument panel	ABS control module trouble code(s) stored, wiring, CAN data bus
18016	P1608	Power steering pressure (PSP) switch - circuit malfunction	Wiring, PSP switch

18017	P1609	Engine control module (ECM) - crash switch-off triggered	Airbag triggered
-	P160A	Engine control module (ECM) - internal fault	ECM
18018	P1610	Engine control module (ECM) - defective	ECM
18019	P1611	Malfunction indicator lamp (MIL) - short to earth	Wiring short to earth
18020	P1612	Engine control module (ECM) - coding	Incorrectly coded
18021	P1613	Malfunction indicator lamp (MIL) - open circuit/short to positive	Wiring open circuit/short to positive
-	P1614	Engine malfunction indicator lamp (MIL) - open/short circuit to positive/earth	Wiring, instrument panel, ECM
18023	P1615	Engine oil temperature (EOT) sensor - range/performance problem	Engine oil level, wiring, EOT sensor
18024	P1616	Glow plug warning lamp - short to positive	Wiring short to positive
18025	P1617	Glow plug warning lamp - open circuit/short to earth	Bulb, wiring open circuit/short to earth
18026	P1618	Glow plug relay - short to positive	Wiring short to positive, glow plug relay
18027	P1619	Glow plug relay - open circuit/short to earth	Wiring open circuit/short to earth, glow plug relay
-	P161A	Glow plug 1 - circuit malfunction	Wiring, glow plug, glow plug control module
-	P161B	Glow plug 2 - circuit malfunction	Wiring, glow plug, glow plug control module
-	P161C	Glow plug 3 - circuit malfunction	Wiring, glow plug, glow plug control module
-	P161D	Glow plug 4 - circuit malfunction	Wiring, glow plug, glow plug control module
18028	P1620	Instrument panel, ECT signal - open circuit/short to positive	Wiring open circuit/short to positive, instrument panel
18029	P1621	Instrument panel, ECT signal - short to earth	Wiring short to earth, instrument panel
18030	P1622	Instrument panel, ECT signal - implausible signal	Wiring, instrument panel, ECT sensor
18031	P1623	CAN data bus - no signal	Trouble code(s) stored in other system(s), wiring, matching resistor in ECM
18032	P1624	Malfunction indicator lamp (MIL) - request signal active	Trouble code(s) stored in other system(s)
18033	P1625	CAN data bus, TCM - incorrect signal	TCM trouble code(s) stored, TCM incorrectly coded, wiring, matching resistor in ECM
18034	P1626	CAN data bus, TCM - no signal	TCM trouble code(s) stored, TCM incorrectly coded, wiring, matching resistor in ECM
-	P1628	CAN data bus, steering position sensor - no signal	Wiring, steering position sensor, ABS fault
18037	P1629	CAN data bus, cruise control - no signal	Cruise control trouble code(s) stored, wiring, matching resistor in ECM
18038	P1630	Accelerator pedal position (APP) sensor 1 - low input	Wiring short to earth, APP sensor, TP sensor
18039	P1631	Accelerator pedal position (APP) sensor 1 - high input	Wiring short to positive, APP sensor, TP sensor
18040	P1632	Accelerator pedal position (APP) sensor - supply voltage	Operating voltage too high/low, wiring
18041	P1633	Accelerator pedal position (APP) sensor 2 - low input	Wiring short to earth, APP sensor
18042	P1634	Accelerator pedal position (APP) sensor 2 - high input	Wiring short to positive, APP sensor
18043	P1635	CAN data bus, AC - no signal	AC control module trouble code(s) stored, wiring, matching resistor in ECM

18044	P1636	CAN data bus, SRS - no signal	SRS control module trouble code(s) stored, wiring, matching resistor in ECM
18045	P1637	CAN data bus, electronic CE - no signal	Trouble code(s) stored, wiring, matching resistor in ECM
18047	P1639	Accelerator pedal position (APP) sensor 1/2 - range/performance problem	Wiring, APP sensor, TP sensor
-	P163B	Wake-up request - continuous signal	-
-	P163D	Drive program indicator lamp - malfunction	Wiring
-	P163E	Engine control module (ECM) - malfunction	ECM
-	P163F	Glow plug control module 2	-
18048	P1640	Engine control module (ECM) - defective	ECM
-	P1641	AC control module	Trouble code(s) stored
18050	P1642	SRS control module - system malfunction	Trouble code(s) stored
-	P1643	Multifunction control module	Trouble code(s) stored
18053	P1645	CAN data bus, 4WD - no signal	4WD trouble code(s) stored, wiring, matching resistor in ECM
-	P1646	Four wheel drive control module	Trouble code(s) stored
-	P1647	CAN data bus, ECM/TCM coding	ECM/TCM incorrectly coded
18056	P1648	CAN data bus - defective	Wiring, matching resistor in ECM
18057	P1649	CAN data bus, ABS - no signal	ABS control module trouble code(s) stored, wiring, matching resistor in ECM
-	P164A	Engine oil pressure switch - implausible signal	Wiring, engine oil pressure switch, ECM
-	P164B	Engine oil pressure switch - malfunction	Wiring, engine oil pressure switch
-	P164C	Engine oil pressure switch - implausible signal	Wiring, engine oil pressure switch
-	P164D	Engine oil pressure switch - malfunction	Wiring, engine oil pressure switch
-	P164E	Engine oil pressure control valve - malfunction	Wiring, engine oil pressure control valve
18058	P1650	CAN data bus, instrumentation - no signal	Instrumentation control module trouble code(s) stored, wiring, matching resistor in ECM
-	P1651	CAN data bus - no communication with other control modules	CAN data bus, connected control modules
18060	P1652	Transmission control module (TCM) - system malfunction	Trouble code(s) stored
18061	P1653	ABS control module - system malfunction	Trouble code(s) stored
18062	P1654	Instrumentation control module - system malfunction	Trouble code stored for engine oil level/temperature sensor
-	P1655	Cruise control distance range control module - malfunction	Trouble code(s) stored
18064	P1656	AC signal - short to earth	Wiring short to earth
18065	P1657	AC signal - short to positive	Wiring
18066	P1658	CAN data bus, cruise control - incorrect signal	Cruise control trouble code(s) stored, wiring, matching resistor in ECM
18067	P1659	Engine coolant blower motor, speed 1 - short to positive	Wiring short to positive, engine coolant blower motor
-	P165B	Outside air temperature sensor - short circuit to earth	Wiring, outside air temperature sensor
-	P165C	Outside air temperature sensor - malfunction	Wiring, outside air temperature sensor
-	P165D	AC refrigerant pressure sensor - AC refrigerant pressure too high	Wiring, AC refrigerant charge high, AC refrigerant pressure sensor, AC compressor

-	P165E	AC refrigerant pressure sensor - AC refrigerant pressure too low	Wiring, AC refrigerant charge low, AC refrigerant pressure sensor, AC compressor
-	P165F	Engine oil pressure control valve - short circuit to earth	Wiring, engine oil pressure control valve
18068	P1660	Engine coolant blower motor, speed 1 - short to earth	Wiring short to earth, engine coolant blower motor
18069	P1661	Engine coolant blower motor, speed 2 - short to positive	Wiring short to positive, engine coolant blower motor
18070	P1662	Engine coolant blower motor, speed 2 - short to earth	Wiring short to earth, engine coolant blower motor
18071	P1663	Injector, activation - short to positive	Wiring short to positive, ECM
18072	P1664	Injector, activation - current circuit	Wiring open circuit/short to earth
18073	P1665	Injector - mechanical fault	Injector
18074	P1666	Injector 1 - current circuit	Wiring open circuit/short to earth
18075	P1667	Injector 2 - current circuit	Wiring open circuit/short to earth
18076	P1668	Injector 3 - current circuit	Wiring open circuit/short to earth
18077	P1669	Injector 4 - current circuit	Wiring open circuit/short to earth
-	P166A	Engine oil temperature sensor - malfunction	Wiring, engine oil temperature sensor
-	P166B	Engine oil temperature sensor - short to earth	Wiring, engine oil temperature sensor
-	P166C	Engine oil temperature sensor - implausible signal	Wiring, engine oil temperature sensor, ECM
-	P166D	Engine control module (ECM) - incorrect installation	-
-	P166F	Partial engine operation deactivated	-
18080	P1672	Engine coolant blower motor, speed 1 - open circuit/short to earth	Wiring open circuit/short to earth
18081	P1673	CAN data bus, ABS - implausible VSS signal	ABS control module trouble code(s) stored, wiring, matching resistor in ECM
18082	P1674	CAN data bus, instrumentation - incorrect signal	Wiring, instrumentation control module trouble code(s) stored, matching resistor in ECM
18084	P1676	ETS warning lamp - circuit malfunction	Instrumentation control module trouble code(s) stored, wiring, matching resistor in ECM
18085	P1677	ETS warning lamp - short to positive	Instrumentation control module trouble code(s) stored, wiring short to positive, matching resistor in ECM
18086	P1678	ETS warning lamp - short to earth	Instrumentation control module trouble code(s) stored, wiring short to earth, matching resistor in ECM
18087	P1679	ETS warning lamp - open circuit	Instrumentation control module trouble code(s) stored, wiring open circuit, matching resistor in ECM
-	P167A	Stop-start system indicator lamp - malfunction	Wiring
-	P167B	Driver's seat belt pretensioner - signal error	-
-	P167C	Drive program switch - malfunction	-
-	P167D	Stop-start system switch - malfunction	Wiring, stop-start system switch
-	P167E	Stop-start system - maximum cranking time exceeded	-
18088	P1680	Limp-home mode - active	Throttle control unit, APP sensor
18089	P1681	Engine control module (ECM) - programming incomplete	ECM
18090	P1682	CAN data bus, ABS - implausible signal	ABS control module trouble code(s) stored, wiring, matching resistor in ECM
18091	P1683	CAN data bus, SRS - implausible signal	SRS control module trouble code(s) stored, wiring, matching resistor in ECM
-	P1684	Engine control module (ECM) - programming error	ECM incorrectly/not programmed

-	P1685	CAN data bus, steering position sensor - implausible signal	Wiring, steering position sensor, ABS fault
-	P1686	Engine control module (ECM) - programming error	ECM incorrectly/not programmed
-	P1687	CAN data bus, AC control module - implausible signal	Wiring, AC system
-	P1688	CAN data bus - implausible signal	Wiring, four wheel drive control module
18097	P1689	CAN data bus, multifunction control module - implausible signal	Multifunction control module trouble code(s) stored, wiring, matching resistor in ECM
-	P168B	Engine oil pressure switch 3 - implausible signal, engine not running	Wiring, engine oil pressure switch
-	P168C	Engine oil pressure switch 3 - implausible signal, engine running	Wiring, engine oil pressure switch
-	P168D	Engine oil pressure switch 3 - malfunction	Wiring, engine oil pressure switch
18098	P1690	Malfunction indicator lamp (MIL) - circuit malfunction	Instrumentation control module trouble code(s) stored, wiring, matching resistor in ECM
18099	P1691	Malfunction indicator lamp (MIL) - open circuit	Instrumentation control module trouble code(s) stored, wiring open circuit, matching resistor in ECM
18100	P1692	Malfunction indicator lamp (MIL) - short to earth	Instrumentation control module trouble code(s) stored, wiring short to earth, matching resistor in ECM
18101	P1693	Malfunction indicator lamp (MIL) - short to positive	Instrumentation control module trouble code(s) stored, wiring short to positive, matching resistor in ECM
-	P1694	Engine malfunction indicator lamp (MIL) - open/short circuit to earth	Instrumentation control module trouble code(s) stored, wiring, matching resistor in ECM
18104	P1696	CAN data bus, steering column electronics - incorrect signal	Wiring, matching resistor in ECM
-	P1697	Steering position sensor - malfunction	Wiring, steering position sensor
18106	P1698	Steering column electronics	Trouble code(s) stored, steering column control module
-	P1699	CAN data bus, steering column electronics - missing information	Other trouble codes stored, wiring
-	P169A	Loading mode active	-
-	P16B3	Intercooler coolant pump 2 - open circuit	Wiring
-	P16B4	Intercooler coolant pump 2 - short circuit to earth	Wiring
-	P16B5	Intercooler coolant pump 2 - short circuit to positive	Wiring
-	P16B6	Intercooler coolant pump 2 - temperature shut-off	-
-	P16B8	Intercooler coolant pump 2 - mechanical malfunction	-
-	P16B9	Intercooler coolant pump 2 - dry running	-
-	P16BA	Intercooler coolant pump - dry running	-
-	P16BB	Coolant pump 3 - open circuit	Wiring
-	P16BD	Coolant pump 3 - short circuit to earth	Wiring
-	P16BE	Coolant pump 3 - short circuit to positive	Wiring
-	P16C1	Engine control module (ECM)/transmission control module (TCM) - internal temperature too high	-
-	P1701	Transmission control module (TCM) locked	-
-	P1702	Transmission control module (TCM) - malfunction	TCM
-	P1703	Engine control module (ECM) - in emergency mode	Carry out ECM programming, ECM
-	P1704	Kick-down switch - circuit malfunction	Wiring, kick-down switch

-	P1705	Gear ratio monitoring - adaptive limit reached	-
-	P1708	Engine control module (ECM) 1 & 2 - transposed	-
-	P1719	Engine control module (ECM) - ECM function restriction	-
-	P171E	Transmission input shaft speed sensor 2 - no signal	-
-	P171F	Transmission input shaft speed sensor 2 - implausible signal	-
-	P1720	Transmission output shaft speed sensor 1 - implausible signal	-
-	P1722	Transmission output shaft speed sensor 2 - implausible signal	-
-	P1723	Starter circuit, signal for starter lock - open circuit	-
-	P1724	Starter circuit, signal for starter lock - short circuit to earth	-
-	P1725	Comparison of transmission output shaft speed sensors 1 & 2 - implausible signal	-
-	P1727	Transmission direction of rotation/vehicle directional movement - correlation malfunction	-
-	P1729	Starter circuit, signal for starter lock - short circuit to positive	-
-	P172A	Clutch adjuster valve - open circuit	-
-	P172B	Clutch adjuster valve - short circuit to earth	-
-	P172C	Clutch adjuster valve - short circuit to positive	-
-	P172F	Transmission gear position sensor 1 - malfunction	-
-	P1730	Transmission gear position sensor 2 - malfunction	-
-	P1731	Transmission gear position sensor 3 - malfunction	-
-	P1732	Transmission gear position sensor 4 - malfunction	-
-	P1733	Transmission shift control switch - short circuit to earth	-
-	P1734	Starter released by the selector lever position sensor	-
-	P1735	Clutch position sensor 1 - malfunction	-
-	P1736	Clutch position sensor 2 - malfunction	-
-	P1739	Transmission upshift control switch - short circuit to earth	-
-	P173A	Gear selector travel sensor 1 - implausible signal	-
-	P173B	Gear selector travel sensor 2 - implausible signal	-
-	P173C	Gear selector travel sensor 3 - implausible signal	-
-	P173D	Gear selector travel sensor 4 - implausible signal	-
-	P173E	Transmission control valve 1 - electrical malfunction	-
-	P173F	Transmission control valve 2 - electrical malfunction	-

-	P1740	Clutch temperature sensor - over-temperature condition	Clutch temperature sensor, transmission fluid quality/level
-	P1741	Clutch pressure adaptation - at limit	-
-	P1742	Clutch torque adaptation - limit reached	-
-	P1743	Clutch slip monitoring - signal too high	-
-	P1744	Transmission shift control switch, recognition - short circuit to earth	-
-	P1748	Engine control module (ECM) - internal fault	ECM
-	P1749	Transmission control module (TCM) - incorrect code	-
-	P174A	Transmission control valve 3 - electrical malfunction	-
-	P174B	Transmission control valve 4 - electrical malfunction	-
-	P174C	Transmission control valve 1 - electrical malfunction	-
-	P174D	Transmission control valve 2 - electrical malfunction	-
-	P174E	Transmission control valve 3 - electrical malfunction	-
-	P174F	Transmission control valve 4 - electrical malfunction	-
-	P1750	Engine control module (ECM) - supply voltage low	Battery, alternator
-	P1751	Engine control module (ECM) - supply voltage high	Battery, alternator
-	P1752	Engine control module (ECM), battery supply voltage - implausible signal	Wiring, battery, alternator, ECM
-	P1753	Transmission shift control switch - implausible signal	-
-	P1754	Transmission shift control switch - open circuit/short to positive	-
-	P1755	Transmission shift control switch - open circuit/short to positive	-
-	P1756	Transmission shift control switch - open circuit/short to positive	-
-	P1757	Engine control module (ECM), battery supply voltage - open circuit	Wiring, alternator
-	P1758	ECM - supply voltage circuit malfunction	Wiring, ignition switch
-	P175A	Gear control actuator 1 - signal outside tolerance	-
-	P175B	Gear control actuator 2 - signal outside tolerance	-
-	P175C	Dual clutch actuator - signal outside tolerance	-
-	P175D	Clutch 1 - clutch opens unintentionally	-
-	P175E	Clutch 1 - clutch closes unintentionally	-
-	P175F	Transmission control module (TCM) - basic setting not carried out	-
-	P1761	Transmission park position interlock solenoid - short circuit to earth	-
-	P1762	Transmission park position interlock solenoid - short circuit to positive	-
-	P1764	Transmission fluid temperature (TFT) sensor - out of range	-

-	P1765	Transmission hydraulic pressure sensor 2 - control limit reached	-
-	P1766	Throttle motor position sensor - open circuit/short to positive	Wiring, throttle control unit, ECM
-	P1767	Throttle motor position sensor - open/short circuit to earth	Wiring, throttle control unit, ECM
-	P176A	Gear selector 1 cannot be regulated	-
-	P176B	Gear selector 2 cannot be regulated	-
-	P176C	Gear selector 3 cannot be regulated	-
-	P176D	Gear selector 4 cannot be regulated	-
-	P176E	Clutch 2 - clutch opens unintentionally	-
-	P176F	Clutch 2 - clutch closes unintentionally	-
-	P1770	Engine load - implausible signal	Wiring, ECM
-	P1771	Engine load - open circuit/short to positive	Wiring, throttle control unit, ECM
-	P1772	Engine load - open/short circuit to earth	Wiring, throttle control unit, ECM
-	P1773	Transmission hydraulic pressure sensor 1 - signal too high	-
-	P1775	Transmission hydraulic pressure sensor 1 - control limit reached	-
-	P1777	Transmission hydraulic pressure sensor 2 - implausible signal	-
-	P1779	Transmission input shaft 1 - shaft over speed condition	-
-	P177A	Transmission input shaft 2 - shaft over speed condition	-
-	P177B	Clutch 1 - signal outside tolerance	-
-	P177C	Clutch 2 - signal outside tolerance	-
-	P177D	Clutch - torque too high	-
-	P177E	Function restriction due to pressure drop	-
-	P177F	Hydraulic pump system - supply voltage low	-
-	P1780	Engine torque monitoring - torque reduction malfunction	ECM
-	P1781	Engine torque control - torque reduction malfunction, open/short circuit to earth	Wiring, ECT sensor, APP sensor, IAT sensor, MAP sensor, throttle control unit
-	P1782	Engine torque control - torque reduction malfunction, open/short circuit to positive	Wiring, ECT sensor, APP sensor, IAT sensor, MAP sensor, throttle control unit
-	P1786	Reversing lamp signal - open circuit	Wiring
-	P1787	Reversing lamp signal - short to earth	Wiring
-	P1788	Reversing lamp signal - short to positive	Wiring
-	P1789	Idle speed control (ISC) system - malfunction	ECM
-	P178A	Hydraulic pump system - electrical malfunction	-
-	P178B	Hydraulic pump system - unexpected component operation	-
-	P178C	Clutch 1 to clutch 2 correlation - implausible value	-
-	P178D	Synchroniser ring wear	-
-	P178E	Transmission function restriction - over-temperature condition	-
-	P178F	Transmission pressure control valve - tight/sticking	-
-	P1790	Transmission gear selection display - signal not received	-

-	P1791	Transmission gear selection display - signal short to earth	-
-	P1792	Transmission gear selection display - signal short to positive	-
-	P1793	Transmission output shaft speed sensor 2 - no signal	-
-	P1794	Selector lever incorrectly operated	-
-	P1795	Vehicle speed sensor (VSS) - open circuit	Wiring, VSS
-	P1796	Vehicle speed sensor (VSS) - short circuit to earth	-
-	P1797	Vehicle speed sensor (VSS) - short circuit to positive	-
-	P1798	Transmission output shaft speed sensor 2 - implausible signal	-
-	P179C	Transmission fluid pressure (TFP) control valve - malfunction	-
-	P179D	Transmission oil cooling valve - malfunction	-
-	P179E	Transmission shift control module - electrical malfunction	-
-	P179F	Transmission shift control module - malfunction	-
-	P17BF	Hydraulic pump system - overload protection	-
-	P17C3	Selector lever - malfunction	-
-	P17C5	Selector lever - implausible signal	-
-	P17C7	Transmission input shaft speed sensor 3 - malfunction	-
-	P17CA	Basic setting conditions - implausible value	-
-	P17CD	Clutch 1 - drag torque too high	-
-	P17CE	Clutch 2 - drag torque too high	-
-	P17CF	Clutch 1 - excessive clutch slip	-
-	P17D0	Clutch 2 - excessive clutch slip	-
-	P17D1	Clutch 1 - maximum control pressure exceeded	-
-	P17D2	Clutch 2 - maximum control pressure exceeded	-
-	P17D3	Transmission control module (TCM) - control deviation	-
-	P17D4	Transmission control valve 3 - mechanical malfunction	-
-	P17D5	Transmission control valve 3 - mechanical malfunction	-
-	P17D6	Clutch 1 - pressure too high	-
-	P17D7	Clutch 2 - pressure too high	-
-	P17D8	Clutch temperature too high - torque limitation	-
-	P17D9	Selector lever - control deviation	-
-	P17DA	Transmission gear position sensor 1 - implausible	-
-	P17DB	Transmission gear position sensor 2 - implausible	-
-	P17DC	Transmission gear position sensor 3 - implausible	-

-	P17DD	Transmission gear position sensor 4 - implausible	-
-	P17DE	Gear selector travel sensor 1 & 3 - malfunction	-
-	P17DF	Gear selector travel sensor 2 & 4 - malfunction	-
-	P17E0	Selector lever 1 - mechanical malfunction	-
-	P17E1	Selector lever 2 - mechanical malfunction	-
-	P17E2	Selector lever 3 - mechanical malfunction	-
-	P17E3	Selector lever 4 - mechanical malfunction	-
-	P17F3	Transmission park position interlock solenoid - short circuit to positive	-
-	P17F4	Transmission park position interlock solenoid - short circuit to earth	-
-	P17F5	Transmission park position interlock solenoid - open circuit	-
-	P17F6	Transmission park position interlock solenoid - malfunction	-
-	P17F9	Transmission park position interlock solenoid - mechanical malfunction	-
-	P17FF	Transmission park position interlock solenoid - malfunction	-
-	P1810	Incorrect gear ratio - 8th gear	-
-	P1811	Torque converter clutch (TCC) lock-up - temperature limit reached	-
-	P1812	Torque converter clutch (TCC) lock-up - temperature limit exceeded	-
-	P1813	Transmission pressure control valve 1 - malfunction	-
-	P1816	Auxiliary transmission fluid pump motor - oil temperature too high	-
-	P1817	Auxiliary transmission fluid pump temperature sensor - oil temperature too high	-
-	P1818	Transmission pressure control valve 2 - malfunction	-
-	P181B	Gear recognition sensor - malfunction	-
-	P181C	Gear recognition sensor - implausible signal	-
-	P181D	Gear recognition sensor - error	-
-	P181E	Gear recognition sensor - implausible gear position	-
-	P181F	Auxiliary transmission fluid pump motor activated - oil temperature too high	-
-	P1821	Forced cooling/emergency cooling active	-
-	P183A	Torque request to engine - implausible signal	-
-	P183C	Clutch activation - implausible value	-
-	P1841	Engine control module (ECM)/transmission control module (TCM) - not compatible	Wiring, ECM/TCM
-	P1842	Instrument panel - trouble code(s) stored	CAN data bus, instrument panel

-	P1844	Multifunction control module - trouble code(s) stored	CAN data bus, multifunction control module
-	P1845	Steering column electronics - trouble code(s) stored	CAN data bus, steering column electronics
-	P1847	ABS control module	Trouble code(s) stored
-	P1848	Engine control module (ECM) - trouble code(s) stored	ECM
-	P1849	Transmission control module (TCM) - trouble code(s) stored	-
-	P184A	Transmission main pressure adaptation - offset upper limit exceeded	-
-	P184B	Transmission main pressure adaptation - malfunction	-
-	P1850	CAN data bus, ECM - missing information	Wiring, matching resistor in ECM
18259	P1851	CAN data bus, ABS - incorrect signal	ABS trouble code(s) stored, wiring, matching resistor in ECM
-	P1852	CAN data bus, ECM - implausible signal	CAN data bus, ECM
18261	P1853	CAN data bus, ABS - incorrect signal	ABS trouble code(s) stored, wiring, matching resistor in ECM
18262	P1854	CAN data bus, ABS - defective	ABS trouble code(s) stored, wiring, matching resistor in ECM
-	P1855	CAN data bus, software version monitoring	Wiring, instrumentation control module, matching resistor in ECM
-	P1856	Throttle motor position sensor - malfunction	Wiring, throttle control unit, ECM
-	P1857	Engine control module (ECM) - load signal	Wiring, intake leak, MAF sensor
-	P1858	Engine control module (ECM) - no RPM signal	ECM
-	P1859	Brake pedal position (BPP) switch - signal malfunction	Wiring, BPP switch, ECM
-	P1861	Engine control module (ECM), throttle control system - signal malfunction	Wiring, APP sensor, TP sensor
-	P1862	CAN data bus, instrument panel - implausible signal	CAN data bus, instrument panel, ECM
-	P1863	CAN data bus, steering position sensor - missing information	CAN data bus, steering position sensor, ECM
-	P1865	CAN data bus, missing information	Wiring, matching resistor in ECM
-	P1866	CAN data bus, missing information	Wiring, matching resistor in ECM
-	P1867	CAN data bus, steering column electronics - implausible signal	CAN data bus, steering column electronics, ECM
-	P1868	Transmission mounting control valve, left - short circuit to positive	-
-	P1869	Transmission mounting control valve, left - short circuit to earth	-
-	P1870	Transmission mounting control valve, left - open circuit	-
-	P1871	Transmission mounting control valve, right - short circuit to positive	-
-	P1872	Transmission mounting control valve, right - short circuit to earth	-
-	P1873	Transmission mounting control valve, right - open circuit	-
-	P1880	CAN data bus, missing information	Wiring, matching resistor in ECM
-	P1881	CAN data bus, target acceleration signal - missing information	-
-	P1882	CAN data bus, electric parking brake (EPB) control module - missing information	CAN data bus

-	P1883	Park/neutral position (PNP) switch - implausible signal	Wiring, PNP switch
-	P1887	Anti-lock brake system (ABS) control module, vehicle speed - implausible signal	-
-	P1888	Engine coolant heater regulator valve - short circuit to positive	-
-	P1889	Engine coolant heater regulator valve - open/short circuit to earth	-
-	P188A	Engine coolant heater regulator valve - malfunction	-
-	P1890	Transmission shift control switch - malfunction	-
-	P1891	Transmission shift control switch - implausible signal	-
-	P1892	Selector lever - signal out of range	-
-	P1893	Transmission gear selection display - malfunction	-
-	P1894	Transmission gear selection display - implausible signal	-
-	P1895	Function restriction due to pressure drop	-
-	P1896	Clutch 1 - operating temperature malfunction	-
-	P1897	Clutch 2 - operating temperature malfunction	-
-	P1898	Clutch 1 - function restriction	-
-	P1899	Clutch 2 - function restriction	-
-	P189A	Clutch 1 - insufficient clearance	-
-	P189B	Clutch 2 - insufficient clearance	-
-	P189C	Function restriction due to insufficient pressure build up	-
-	P18A2	Transmission gear set - mechanical malfunction	-
18308	P1900	Engine coolant blower motor, speed 2 - open circuit/short to earth	Wiring open circuit/short to earth, engine coolant blower motor
18309	P1901	Engine coolant blower motor run-on relay - short to positive	Wiring short to positive, engine coolant blower motor run-on relay
18310	P1902	Engine coolant blower motor run-on relay - open circuit/short to earth	Wiring open circuit/short to earth, engine coolant blower motor run-on relay
18311	P1903	Engine coolant hydraulic blower motor solenoid - short to positive	Wiring short to positive, engine coolant hydraulic blower motor solenoid
18312	P1904	Engine coolant hydraulic blower motor solenoid - open circuit/short to earth	Wiring open circuit/short to earth, engine coolant hydraulic blower motor solenoid
18313	P1905	Charge air coolant pump relay - short to positive	Wiring short to positive, charge air coolant pump relay
18314	P1906	Charge air coolant pump relay - open circuit/short to earth	Wiring open circuit/short to earth, charge air coolant pump relay
18315	P1907	Data bus, ECM 1/2 - defective	Wiring
18316	P1908	Data bus, ECM 1/2 - software version monitoring	Data in ECM 1 & ECM 2 does not match
18317	P1909	Data bus, ECM 1/2 - no signal from ECM 1	Wiring, ECM 1
-	P190A	Intercooler coolant pump - malfunction	-
-	P190B	Intercooler coolant pump - temperature shut-off	-
-	P190C	Intercooler coolant pump - no signal	-

-	P190D	Intercooler coolant pump - mechanical malfunction	-
-	P190E	Intercooler coolant pump - supply voltage	-
-	P190F	Intercooler coolant pump - malfunction	-
-	P1910	Data bus, ECM 1/2 - no signal from ECM 2	Wiring, ECM 2
18318	P1911	Data bus, ECM 1/2 - circuit malfunction	Wiring, ECM 1/2
18320	P1912	Brake servo pressure sensor - open circuit/short to positive	Wiring open circuit/short to positive, brake servo pressure sensor
18321	P1913	Brake servo pressure sensor - short to earth	Wiring short to earth, brake servo pressure sensor
18322	P1914	Brake servo pressure sensor - range/performance problem	Vacuum leak, wiring, brake servo pressure sensor
-	P1915	Engine coolant pump relay - short circuit to positive	Wiring, engine coolant pump relay
-	P1916	Engine coolant pump relay - short circuit to earth	Wiring, engine coolant pump relay
-	P1917	Engine coolant pump relay - open circuit	Wiring, engine coolant pump relay
-	P1918	Alternator load signal - open/short circuit to positive	Wiring, alternator
-	P1919	Alternator load signal - short to earth	Wiring, alternator
-	P191B	Engine coolant blower motor control module 1 - implausible signal	Wiring, ECT sensor, engine coolant blower control module, ECM
-	P191C	Engine coolant blower motor control module 2 - implausible signal	Wiring, engine coolant blower control module
-	P191D	Intercooler coolant pump - implausible signal	-
-	P191F	Brake servo pressure sensor - malfunction	-
18328	P1920	Engine mounting control solenoid, bank 1 & 2 - open circuit/short to earth	Wiring open circuit/short to earth, engine mounting control solenoid
18331	P1923	Engine control module (ECM) 2 - malfunction	Trouble code(s) stored
-	P1924	Engine control module (ECM), coding - implausible signal	ECM
-	P1925	Auxiliary cooling pump relay - short circuit to positive	Wiring, auxiliary cooling pump relay
-	P1926	Auxiliary cooling pump relay - short circuit to earth	Wiring, auxiliary cooling pump relay
-	P1927	Auxiliary cooling pump relay - open circuit	Wiring, auxiliary cooling pump relay
-	P1928	Immobilizer control module/ECM incorrectly coded	Incorrectly programmed/not programmed
-	P1929	Engine coolant blower motor control module 1 - open circuit	Wiring, ECT sensor, engine coolant blower motor control module, ECM
-	P192A	Auxiliary cooling pump, high temperature system - dry running	Coolant level
-	P192B	Auxiliary cooling pump, high temperature system - mechanical malfunction	Auxiliary cooling pump
-	P192C	Auxiliary cooling pump, high temperature system - temperature limit exceeded	Coolant level, auxiliary cooling pump
-	P192D	Auxiliary cooling pump, low temperature system - dry running	Coolant level
-	P192E	Auxiliary cooling pump, low temperature system - mechanical malfunction	Auxiliary cooling pump

-	P192F	Auxiliary cooling pump, low temperature system - temperature limit exceeded	Coolant level, auxiliary cooling pump
-	P1930	Engine coolant blower motor 2 - open circuit	Wiring, ECT sensor, engine coolant blower motor, ECM
-	P1931	Engine coolant blower motor control module - malfunction	Wiring, ECT sensor, engine coolant blower control module, ECM
-	P1932	CAN data bus, immobilizer control module - implausible signal	CAN data bus, immobilizer control module, ECM
-	P1936	Alternator - open/short circuit to earth	Wiring, alternator
-	P1937	Alternator - short circuit to positive	Wiring, alternator
-	P1939	CAN data bus, immobilizer control module - implausible signal	CAN data bus, immobilizer control module, ECM
-	P193E	Engine over speed condition	Incorrect gear change
-	P1940	CAN data bus, battery control module - missing information	Wiring, battery control module
-	P1941	CAN data bus, battery control module - implausible signal	Wiring, battery control module
-	P1943	CAN data bus, suspension control module - implausible signal	Wiring, suspension control module
-	P1944	Engine coolant blower motor control module 1 - operating temperature malfunction	Wiring, ECT sensor, engine coolant blower control module 1, ECM
-	P1945	Engine coolant blower motor control module 1 - short circuit	Wiring, engine coolant blower motor, engine coolant blower motor control module 1
-	P1946	Engine coolant blower motor control module 1 - internal fault	Engine coolant blower motor control module
-	P1947	Engine coolant blower motor control module 2 - operating temperature malfunction	Wiring, ECT sensor, engine coolant blower control module 2, ECM
-	P1948	Engine coolant blower motor control module 2 - short circuit	Wiring, engine coolant blower motor, engine coolant blower motor control module 2
-	P1949	Engine coolant blower motor control module 2 - internal fault	Engine coolant blower motor control module
-	P194A	Coolant pump - maximum RPM exceeded	-
-	P194B	Coolant pump seized	-
-	P194C	Coolant pump overheated	-
-	P194D	Coolant pump - engine rpm too low	-
-	P1950	Engine coolant blower motor - malfunction	Wiring, engine coolant blower motor, engine coolant blower motor control module
-	P1951	Engine coolant blower motor 2 - malfunction	Wiring, engine coolant blower motor 2, engine coolant blower motor control module 2
-	P1953	Turbocharger (TC) control module 2 - malfunction	Turbocharger
-	P1954	Glow plug control module 2 - circuit malfunction	Wiring, glow plug control module
-	P1955	Glow plug control module 2, ECM communication - range/performance problem	Wiring, glow plug control module, ECM
-	P1957	Exhaust gas temperature sensor - short circuit to earth	Wiring, exhaust gas temperature sensor
-	P1958	Exhaust gas temperature sensor - short circuit to positive	Wiring, exhaust gas temperature sensor
-	P1959	Exhaust gas temperature sensor - implausible signal	Exhaust gas temperature sensor
-	P197C	Secondary air injection (AIR) system - bank 1 & 2 transposed	-

-	P1987	Brake system - operating temperature malfunction	Wiring, mechanical fault
-	P1988	Engine coolant blower motor relay 3 - open circuit	-
-	P1989	Engine coolant blower motor relay 3 - short circuit to positive	-
-	P1990	Engine coolant blower motor relay 3 - short circuit to earth	-
-	P1991	Engine control module (ECM) - internal fault	ECM
-	P1992	Exhaust gas recirculation (EGR) system - basic setting conditions	EGR system
-	P1995	Door open warning - signal not recognised	-
-	P199C	Coolant thermostat - short circuit to positive	-
-	P199D	Coolant thermostat - short circuit to earth	-
-	P199E	Coolant thermostat - open circuit	-
-	P199F	Coolant thermostat - operating temperature malfunction	-
-	P19A0	Transmission fluid thermostat - short circuit to positive	-
-	P19A1	Transmission fluid thermostat - short circuit to earth	-
-	P19A2	Transmission fluid thermostat - open circuit	-
-	P19A3	Transmission fluid thermostat - operating temperature malfunction	-
-	P1B17	DC to DC converter - high voltage system - voltage too high	-
-	P1B18	DC to DC converter - high voltage system - voltage too low	-
-	P1B19	DC to DC converter - low voltage system - excessive current	-
-	P1B1C	Coolant pump - mechanical malfunction	-
19456	P3000	CAN data bus, instrumentation - glow plug warning lamp	Wiring, matching resistor in ECM
19458	P3002	Accelerator pedal position (APP) sensor - transmission kick-down switch	APP sensor
19459	P3003	Engine coolant heater relay 1, low output	Wiring, engine coolant heater relay
19460	P3004	Engine coolant heater relay 1, low output - open circuit/short to earth	Wiring, engine coolant heater relay
19461	P3005	Engine coolant heater relay 2, high output	Wiring, engine coolant heater relay
19462	P3006	Engine coolant heater relay 2, high output - open circuit/short to earth	Wiring, engine coolant heater relay
19463	P3007	Camshaft position (CMP) sensor - no signal	Air gap, insecure sensor/rotor, wiring, CMP sensor
19464	P3008	Camshaft position (CMP) sensor - signal limit exceeded	Insecure rotor, camshaft alignment
19465	P3009	Fuel cooling pump relay - short to positive	Wiring short to positive, fuel cooling pump relay
19466	P3010	Fuel cooling pump relay - open circuit/short to earth	Wiring open circuit/short to earth, fuel cooling pump relay
19467	P3011	Fuel pump relay - short to positive	Wiring short to positive, fuel pump (FP) relay

19468	P3012	Fuel pump relay - open circuit/short to earth	Wiring open circuit/short to earth, fuel pump (FP) relay
19469	P3013	Turbocharger (TC) wastegate regulating valve B - short to positive	Wiring short to positive, TC wastegate regulating valve
19470	P3014	Turbocharger (TC) wastegate regulating valve B - open circuit/short to earth	Wiring open circuit/short to earth, TC wastegate regulating valve
19471	P3015	Fuel bypass valve - short to positive	Wiring short to positive, fuel bypass valve
19472	P3016	Fuel bypass valve - open circuit/short to earth	Wiring open circuit/short to earth, fuel bypass valve
-	P3017	Exhaust gas control solenoid 1 - short circuit to positive	-
-	P3018	Exhaust gas control solenoid 1 - short circuit to earth	-
-	P3019	Exhaust gas control solenoid 1 - open circuit	-
-	P301A	Exhaust gas control solenoid position sensor, bank 2 - malfunction	-
-	P301B	Exhaust gas control actuator position sensor, bank 2 - implausible signal	-
-	P301C	Exhaust gas control actuator position sensor, bank 2 - short circuit to positive	-
-	P301D	Exhaust gas control solenoid, bank 2 - malfunction	-
-	P301E	Exhaust gas control solenoid, bank 2 - control difference	-
-	P3021	Exhaust gas control solenoid 2 - short circuit to positive	-
-	P3022	Exhaust gas control solenoid 2 - short circuit to earth	-
-	P3023	Exhaust gas control solenoid 2 - open circuit	-
-	P3025	Throttle motor position sensor 2, throttle control unit 1 - implausible signal	Wiring, throttle control unit
-	P3026	Throttle motor position sensor 2, throttle control unit 1 - signal too low	Wiring, throttle control unit
-	P3027	Throttle motor position sensor 2, throttle control unit 1 - signal too high	Wiring, throttle control unit
-	P3028	Throttle motor position sensor 2, throttle control unit 2 - implausible signal	Wiring, throttle motor position sensor, throttle control unit
-	P3029	Throttle motor position sensor 2, throttle control unit 2 - signal too low	Wiring, throttle control unit
-	P302A	Engine coolant heater relay 1, low output - open circuit	Wiring, engine coolant heater relay
-	P302B	Engine coolant heater relay 1, high output - open circuit	Wiring, engine coolant heater relay
-	P302C	Engine coolant heater relay 1, low output - short circuit to earth	Wiring, engine coolant heater relay
-	P302D	Engine coolant heater relay 1, high output - short circuit to earth	Wiring, engine coolant heater relay
-	P302E	Fuel cooling pump relay - open circuit	Wiring, fuel cooling pump relay
-	P302F	Fuel cooling pump relay - short circuit to earth	Wiring, fuel cooling pump relay
-	P3030	Throttle motor position sensor 2, throttle control unit 2 - signal too high	Wiring, throttle control unit
-	P3031	Throttle motor 2 - circuit malfunction	Wiring, throttle motor, throttle control unit
-	P3032	Throttle control unit 2 - basic setting	Basic setting not carried out
-	P3035	Throttle control unit 2 - mechanical fault	Throttle valve tight/sticking, throttle motor, throttle control unit

-	P3036	Throttle control unit 2 - voltage low during basic setting	Battery discharged
-	P3037	Throttle control unit 2 - basic setting malfunction	Basic setting not carried out
-	P303D	Cold start injector - open circuit	Wiring
-	P303E	Cold start injector - short circuit to positive	Wiring
-	P303F	Cold start injector - short circuit to earth	Wiring
19496	P3040	Gear ratio - implausible	Transmission fault
19497	P3041	CAN data bus, instrumentation - implausible ECT signal	Wiring, matching resistor in ECM
-	P3042	Heater regulation - implausible signal	-
-	P3043	Fuel pump (FP) - mechanical fault	Fuel pump (FP)
-	P3044	Fuel pump (FP) - short circuit	Wiring, FP relay, fuel pump (FP), ECM
-	P3045	Fuel pump (FP) - circuit malfunction	Wiring, fuel pump (FP), fuel pump (FP) control module
-	P3046	Starter motor relay 1 - malfunction	Starter motor relay
-	P3047	Starter motor relay 2 - short circuit to positive	Wiring, starter motor relay
-	P3048	Starter motor relay 2 - short circuit to earth	Wiring, starter motor relay
-	P3049	Starter motor relay 2 - open circuit	Wiring, starter motor relay
-	P304B	Heater control potentiometer - malfunction	-
-	P304C	Clutch disengagement adaptation - adaptation value too high	-
-	P304D	Clutch disengagement adaptation - adaptation value too low	-
-	P304F	Electric driving switch	-
-	P3050	Starter motor relay 2 - malfunction	Starter motor relay
-	P3051	Starter circuit - implausible signal	Wiring, ignition switch, starter motor relay
-	P3052	Starter circuit - short circuit to positive	Wiring, ignition switch, starter motor relay
-	P3053	Starter circuit - open/short circuit to earth	Wiring, ignition switch, starter motor relay
-	P3054	Starting system - mechanical failure/electrical malfunction	Wiring, starter motor
-	P3058	Exhaust gas recirculation (EGR) system - insufficient flow detected	Hose leak/blockage, wiring, EGR valve/solenoid
-	P3059	Exhaust gas recirculation (EGR) system - excessive flow detected	Wiring, EGR valve/solenoid
-	P305A	Random/multiple cylinder(s) - misfire detected	Wiring, injector(s)
-	P305B	Transmission control module - limp-home mode activated	-
-	P305C	Intake air temperature (IAT) sensor 2 - circuit low	Wiring, IAT sensor
-	P305D	Intake air temperature (IAT) sensor 2 - circuit high	Wiring, IAT sensor
-	P305E	Intake air temperature (IAT) sensor 2 - range/performance problem	Wiring, IAT sensor
-	P305F	Instrument panel - shut-off time	-
-	P3062	Turbocharger (TC) - boost pressure high	Hoses interchanged/not connected, hoses blocked/leaking, intake leak, MAP sensor, TC wastegate control motor, TC
-	P3063	Turbocharger (TC) - low boost	Hoses interchanged/not connected, hoses blocked/leaking, intake leak, MAP sensor, TC wastegate control motor, TC
-	P306A	Reverse drive switch - short circuit to positive	-

-	P306B	Reverse drive switch - open/short circuit to earth	-
-	P306D	Glow plug circuit - cylinder shut-off	Wiring, glow plug
-	P306E	Glow plug circuit - brief output reduction	-
-	P306F	Glow plug circuit - continuous output reduction	-
-	P3073	Fuel pump (FP) - circuit malfunction	Wiring, FP relay, fuel pump (FP), ECM
-	P3074	Fuel pump (FP) 2 - malfunction	Wiring, FP relay, fuel pump (FP)
-	P3076	Engine control module (ECM) - incorrectly coded	ECM incorrectly/not programmed
-	P3077	Fuel pump (FP) control - malfunction	-
19534	P3078	Throttle control system - insufficient air flow at idle speed	Throttle valve housing requires cleaning, intake leak, wiring, MAF sensor, TP sensor, throttle control unit, ECM
-	P307A	Intake system - implausible value	Wiring, intake air leak, throttle control unit, MAP sensor, ECM
-	P307B	Fuel pump (FP) control module - electrical malfunction/open circuit	-
-	P307D	Fuel pump (FP) control module - short circuit to earth	-
-	P307E	Fuel pump (FP) control module - short circuit to positive	-
-	P307F	Function restriction due to circuit over current	-
-	P3081	Engine coolant temperature too low	Run engine until normal operating temperature, cooling system fault
-	P3082	Clutch pedal position (CPP) sensor - implausible signal	Wiring, CPP sensor
-	P3087	Engine control (EC) relay - malfunction	Wiring, EC relay
-	P3088	Starter motor relay - circuit malfunction	Wiring, ignition switch, starter motor relay
-	P3089	Fuel pump (FP) control - malfunction	Wiring, FP relay
-	P308D	Fuel pump (FP) control - engine rpm too low	-
-	P308E	Fuel pump (FP) control - over-temperature condition	-
-	P308F	Throttle control unit 2 - insufficient air flow at idle speed	-
-	P3090	Auxiliary heater - signal not recognised	-
-	P3091	Auxiliary heater - continuous signal detected	-
-	P3092	Engine control module (ECM) - internal fault	ECM
-	P3093	Engine control module (ECM) - internal fault	ECM
-	P3094	Engine control module (ECM) - internal fault	ECM
-	P3095	Engine control module (ECM) - internal fault	ECM
-	P3096	Engine control module (ECM) - internal fault	ECM
-	P3097	Engine control module (ECM) - internal fault	ECM
-	P3098	Engine control module (ECM) - internal fault	ECM
-	P3099	Engine control module (ECM) - internal fault	ECM
-	P309A	Clutch disengagement pressure sensor - implausible signal	-

-	P309C	Clutch disengagement actuator - mechanical fault	-
-	P309D	Clutch disengagement actuator - insufficient slip with disengaged clutch	-
-	P309E	Clutch disengagement actuator position sensor - implausible signal	-
-	P309F	Clutch disengagement actuator - slip with clutch engaged	-
-	P30A1	Engine start interruption - upper limit exceeded	-
-	P30A2	Brake pedal position (BPP) switch/sensor signal - implausible	Wiring, BPP switch/sensor
-	P30A3	Cylinder deactivation system control valve 1 - valve stuck open	-
-	P30A4	Cylinder deactivation system control valve 1 - valve stuck closed	-
-	P30A5	Cylinder deactivation system control valve 2 - valve stuck open	-
-	P30A6	Cylinder deactivation system control valve 2 - valve stuck closed	-
-	P30A7	Cylinder deactivation system control valve 3 - valve stuck open	-
-	P30A8	Cylinder deactivation system control valve 3 - valve stuck closed	-
-	P30A9	Cylinder deactivation system control valve 4 - valve stuck open	-
-	P30AA	Cylinder deactivation system control valve 4 - valve stuck closed	-
-	P30AB	Cylinder deactivation system control valve 5 - valve stuck open	-
-	P30AC	Cylinder deactivation system control valve 5 - valve stuck closed	-
-	P30AD	Cylinder deactivation system control valve 6 - valve stuck open	-
-	P30AE	Cylinder deactivation system control valve 6 - valve stuck closed	-
-	P30AF	Cylinder deactivation system control valve 7 - valve stuck open	-
-	P30B0	Cylinder deactivation system control valve 7 - valve stuck closed	-
-	P30B1	Cylinder deactivation system control valve 8 - valve stuck open	-
-	P30B2	Cylinder deactivation system control valve 8 - valve stuck closed	-
-	P30BB	Fuel pump (FP) control 2 - malfunction	-
-	P30BC	Fuel pump (FP) control 2 - over-temperature condition	-
-	P30BD	Fuel pump (FP) 2 - engine rpm too low	-
-	P30BE	Fuel pump (FP) 2 - mechanical fault	Fuel pump (FP)
-	P30BF	Fuel pump (FP) 2 - short circuit	Wiring, fuel pump (FP)
-	P30C0	Poor quality fuel	Poor quality fuel
-	P30C5	Heat exchanger coolant temperature sensor 1 - signal high	-
-	P30C6	Heat exchanger coolant temperature sensor 1 - signal low	-
-	P30C7	Heat exchanger coolant temperature sensor 2 - signal high	-

-	P30C8	Heat exchanger coolant temperature sensor 2 - signal low	-
-	P30C9	Heat exchanger coolant temperature sensor 3 - signal high	-
-	P30CA	Heat exchanger coolant temperature sensor 3 - signal low	-
-	P30CB	Heat exchanger coolant temperature sensor 4 - signal high	-
-	P30CC	Heat exchanger coolant temperature sensor 4 - signal low	-
-	P30CD	Heat exchanger coolant temperature sensor 5 - signal high	-
-	P30CE	Heat exchanger coolant temperature sensor 5 - signal low	-
19556	-	Intake manifold air control actuator - short circuit to positive	Wiring short to positive, intake manifold air control actuator
19557	-	Intake manifold air control actuator - short circuit to earth	Wiring short to earth, intake manifold air control actuator
19559	-	Intake manifold air control actuator	Intake manifold air control actuator
19560	P3104	Intake manifold air control solenoid - short to positive	Wiring short to positive, intake manifold air control solenoid
19561	P3105	Intake manifold air control solenoid - open circuit/short to earth	Wiring open circuit/short to earth, intake manifold air control solenoid
19586	-	Exhaust gas recirculation (EGR) system - limit exceeded	EGR solenoid, turbocharger (TC) boost pressure control
19587	-	Exhaust gas recirculation (EGR) system - limit not reached	EGR solenoid, turbocharger (TC) boost pressure control
-	P310A	Fuel system, low pressure - out of range	Wiring, fuel low pressure sensor, fuel pressure regulator control solenoid, fuel pump (FP), ECM
-	P310B	Fuel system, low pressure - intermittent/erratic pulses	Wiring, fuel low pressure sensor, fuel pressure regulator control solenoid, fuel pump (FP), ECM
-	P310C	Fuel system, low pressure - malfunction	Wiring, fuel low pressure sensor, fuel pressure regulator control solenoid, fuel pump (FP), ECM
-	P3137	Intake manifold air control system - basic setting	Basic setting not carried out, wiring, intake manifold air control actuator, intake manifold air control actuator position sensor
-	P3138	Intake manifold air control system - system deviation	Wiring, intake manifold air control actuator, intake manifold air control actuator position sensor
-	P3157	Heated oxygen sensor (HO2S) 1, bank 1 - signal voltage low	Wiring, HO2S
-	P3161	Heated oxygen sensor (HO2S) 1, bank 1 - open circuit	Wiring, HO2S
-	P3191	Intake manifold air control system, bank 1 - basic setting/actuator stuck closed	Basic setting not carried out, mechanical fault, wiring, intake manifold air control actuator, intake manifold air control actuator position sensor
-	P3192	Intake manifold air control system, bank 1 - basic setting/actuator stuck open	Basic setting not carried out, mechanical fault, wiring, intake manifold air control actuator, intake manifold air control actuator position sensor
-	P3193	Intake manifold air control system, bank 1 - circuit malfunction	Wiring, intake manifold air control actuator, intake manifold air control actuator position sensor
-	P3211	Heated oxygen sensor (HO2S) 1, bank 1 - heater circuit malfunction	Wiring, HO2S, ECM
-	P3227	Heated oxygen sensor (HO2S) 1, bank 1 - sensor malfunction	Wiring, HO2S, ECM
-	P3228	Heated oxygen sensor (HO2S) 1, bank 1 - system too lean	Wiring, HO2S
-	P3229	Heated oxygen sensor (HO2S) 1, bank 1 - system too rich	Wiring, HO2S
-	P3243	Throttle control unit - malfunction	Wiring, throttle control unit, ECM

-	P3255	Heated oxygen sensor (HO2S) 1, bank 1, heater circuit - upper limit reached	Wiring, HO2S, ECM
-	P3256	Heated oxygen sensor (HO2S) 1, bank 1, heater circuit - lower limit reached	Wiring, HO2S, ECM
19717	P3262	Heated oxygen sensor (HO2S) 2, bank 1 & 2 - interchanged	HO2S 2 on bank 1 & 2 incorrectly installed
-	P3266	Heated oxygen sensor (HO2S) 1, bank 1 - internal resistance too high	Wiring, HO2S, ECM
-	P3323	Engine control module (ECM) - supply voltage high	Wiring, battery, alternator
-	P3324	Engine control module (ECM) - supply voltage missing	Wiring, ignition switch
-	P3325	Engine control module (ECM) - supply voltage out of range	Wiring, ignition switch, alternator
-	P3328	Intake air flap control actuator 2 - short to positive	Wiring short to positive, intake air flap control actuator
-	P3329	Intake air flap control actuator 2 - open circuit/short to earth	Wiring open/short to earth, intake air flap motor
-	P3330	Intake air flap control actuator 2 - no signal	Wiring, intake air flap control actuator
-	P3331	Intake air flap control actuator 2 - malfunction	Wiring, air control flap tight/sticking, intake air flap control actuator
-	P3337	CAN data bus - implausible signal	CAN data bus, ECM
-	P3339	Glow plug timer relay 2 - circuit malfunction	Wiring, relay
-	P3350	Mixture adaption, gas fuel operation - range 1, limit not reached	Intake air leak, wiring, HO2S, throttle control unit, EVAP system
-	P3351	Mixture adaption, gas fuel operation - range 1, limit exceeded	Wiring, HO2S, throttle control unit, EVAP system, exhaust system
-	P3352	Mixture adaption, gas fuel operation - range 2, limit not reached	Intake air leak, wiring, HO2S, throttle control unit, EVAP system
-	P3353	Mixture adaption, gas fuel operation - range 2, limit exceeded	Wiring, HO2S, throttle control unit, EVAP system, exhaust system
-	P3354	Mixture adaption, gas fuel operation - range 3, limit not reached	Intake air leak, wiring, HO2S, throttle control unit, EVAP system
-	P3355	Mixture adaption, gas fuel operation - range 3, limit exceeded	Wiring, HO2S, throttle control unit, EVAP system, exhaust system
-	P3356	Catalytic converter, gas fuel operation - efficiency below threshold	Exhaust system leak, catalytic converter
-	P3357	Lambda control, gas fuel operation - control limit reached	Wiring, EVAP system, throttle control unit, exhaust system, HO2S
-	P3358	Heated oxygen sensor (HO2S) 1, bank 1, gas fuel operation - signal too slow	Wiring, HO2S, ECM
-	P3359	Heated oxygen sensor (HO2S) 1, bank 1, gas fuel operation - heater sense circuit	Wiring, HO2S, ECM
-	P335A	Lambda control, gas fuel operation - system too lean	Wiring, EVAP system, throttle control unit, exhaust system, HO2S
-	P335B	Lambda control, gas fuel operation - system too rich	Wiring, EVAP system, throttle control unit, exhaust system, HO2S
-	P3360	Heated oxygen sensor (HO2S) 1, bank 1, gas fuel operation - malfunction	Wiring, HO2S, ECM
-	P3361	Misfire detected, gas fuel operation	Wiring, KS, CKP sensor, CMP sensor, ignition coil
-	P3362	Cylinder 1, gas fuel operation - misfire detected	Wiring, KS, CKP sensor, CMP sensor, ignition coil
-	P3363	Cylinder 2, gas fuel operation - misfire detected	Wiring, KS, CKP sensor, CMP sensor, ignition coil

-	P3364	Cylinder 3, gas fuel operation - misfire detected	Wiring, KS, CKP sensor, CMP sensor, ignition coil
-	P3365	Cylinder 4, gas fuel operation - misfire detected	Wiring, KS, CKP sensor, CMP sensor, ignition coil
-	P3366	Gas fuel pressure monitoring - gas fuel pressure high	Wiring, gas fuel pressure sensor, gas fuel rail pressure sensor
-	P3367	Gas fuel pressure monitoring - gas fuel pressure low/implausible signal	Wiring, gas fuel pressure sensor, gas fuel rail pressure sensor
-	P3376	Intake air temperature (IAT) sensor - signal too low	Wiring, IAT sensor, ECM
-	P3377	Intake air temperature (IAT) sensor - high input	Wiring, IAT sensor, ECM
-	P3378	Intake air temperature (IAT) sensor - implausible signal	Wiring, IAT sensor, ECM
-	P3379	Gas fuel pressure regulator shut-off valve - open circuit	Wiring, gas fuel pressure regulator shut-off valve
-	P3380	Gas fuel pressure regulator shut-off valve - short circuit to positive	Wiring, gas fuel pressure regulator shut-off valve
-	P3381	Gas fuel pressure regulator shut-off valve - short circuit to earth	Wiring, gas fuel pressure regulator shut-off valve
-	P3382	Gas fuel tank pressure sensor - open circuit	Wiring, gas fuel tank pressure sensor, ECM
-	P3383	Gas fuel tank pressure sensor - short circuit to positive	Wiring, gas fuel tank pressure sensor, ECM
-	P3384	Gas fuel tank pressure sensor - short circuit to earth	Wiring, gas fuel tank pressure sensor, ECM
-	P3385	Gas fuel rail pressure sensor - open circuit	Wiring, gas fuel rail pressure sensor, ECM
-	P3386	Gas fuel rail pressure sensor - short circuit to positive	Wiring, gas fuel rail pressure sensor, ECM
-	P3387	Gas fuel rail pressure sensor - short circuit to earth	Wiring, gas fuel rail pressure sensor, ECM
-	P3388	Gas fuel injector, cylinder 1 - open circuit	Wiring, gas fuel injector, ECM
-	P3389	Gas fuel injector, cylinder 1 - short circuit to positive	Wiring, gas fuel injector, ECM
-	P338A	Gas fuel tank pressure sensor - implausible signal	Wiring, gas fuel tank pressure sensor, ECM
-	P338E	ETS warning lamp - short circuit to positive	Instrumentation control module trouble code(s) stored, wiring, ECM
-	P338F	ETS warning lamp - short circuit to earth	Instrumentation control module trouble code(s) stored, wiring, ECM
-	P3390	Gas fuel injector, cylinder 1 - short circuit to earth	Wiring, gas fuel injector, ECM
-	P3391	Gas fuel injector, cylinder 2 - open circuit	Wiring, gas fuel injector, ECM
-	P3392	Gas fuel injector, cylinder 2 - short circuit to positive	Wiring, gas fuel injector, ECM
-	P3393	Gas fuel injector, cylinder 2 - short circuit to earth	Wiring, gas fuel injector, ECM
-	P3394	Gas fuel injector, cylinder 3 - open circuit	Wiring, gas fuel injector, ECM
-	P3395	Gas fuel injector, cylinder 3 - short circuit to positive	Wiring, gas fuel injector, ECM
-	P3396	Gas fuel injector, cylinder 3 - short circuit to earth	Wiring, gas fuel injector, ECM
-	P3397	Gas fuel injector, cylinder 4 - open circuit	Wiring, gas fuel injector, ECM

-	P3398	Gas fuel injector, cylinder 4 - short circuit to positive	Wiring, gas fuel injector, ECM
-	P3399	Gas fuel injector, cylinder 4 - short circuit to earth	Wiring, gas fuel injector, ECM
-	P339A	Gas fuel tank shut-off valve, gas fuel tank 1 - short circuit to positive	Wiring, gas fuel tank shut-off valve, ECM
-	P339B	Gas fuel tank shut-off valve, gas fuel tank 1 - short circuit to earth	Wiring, gas fuel tank shut-off valve, ECM
-	P339C	Gas fuel tank shut-off valve, gas fuel tank 1 - open circuit	Wiring, gas fuel tank shut-off valve, ECM
-	P339D	Gas fuel tank shut-off valve, gas fuel tank 2 - short circuit to positive	Wiring, gas fuel tank shut-off valve, ECM
-	P339E	Gas fuel tank shut-off valve, gas fuel tank 2 - short circuit to earth	Wiring, gas fuel tank shut-off valve, ECM
-	P339F	Gas fuel tank shut-off valve, gas fuel tank 2 - open circuit	Wiring, gas fuel tank shut-off valve, ECM
-	P33A0	Gas fuel tank shut-off valve, gas fuel tank 3 - short circuit to positive	Wiring, gas fuel tank shut-off valve, ECM
-	P33A1	Gas fuel tank shut-off valve, gas fuel tank 3 - short circuit to earth	Wiring, gas fuel tank shut-off valve, ECM
-	P33A2	Gas fuel tank shut-off valve, gas fuel tank 3 - open circuit	Wiring, gas fuel tank shut-off valve, ECM
-	P33A3	Gas fuel tank shut-off valve, gas fuel tank 4 - short circuit to positive	Wiring, gas fuel tank shut-off valve, ECM
-	P33A4	Gas fuel tank shut-off valve, gas fuel tank 4 - short circuit to earth	Wiring, gas fuel tank shut-off valve, ECM
-	P33A5	Gas fuel tank shut-off valve, gas fuel tank 4 - open circuit	Wiring, gas fuel tank shut-off valve, ECM
65280	-	CAN data bus, ABS - defective	ABS trouble code(s) stored, wiring, matching resistor in ECM
65535	-	Engine control module (ECM) - defective	ECM

