



ECU / TCU / HVAC / ABS Diagnostics Reference Guide

ECU – Check Engine Codes

The "**Check Engine Light**" indicates **engine** related codes.
Long blinks = 10, short blinks = 1.

(Ex. two long and two short blinks is a code 22. One long and one short is code 11.)
The following self diagnosis will show any fault codes for the engine:

1. Remove the kick panel just beside the left foot rest on the driver's side.
2. Locate blue wires.
3. Locate black connector (smaller of the 2 black ones). Hold it notch up.
4. With ignition off, insert one of the wires into top row, 2nd pin from left.
5. Turn key to on position, but do not start the car.
6. Count the blinks from check engine light on dashboard.

To clear codes (after problem has been resolved):

1. With engine off, stick the blue wires to 1st and 2nd pin in the top row counting from left on the black connector, with notch facing up.
2. Start car. Shut off car. Remove pins.
3. Read codes to make sure they are clear. No codes = steady blinks at ¼ second intervals.

CODE	ITEM	DIAGNOSIS
11	Crank angle sensor 1	No signal from crank angle sensor 1 for more than 3 seconds after start switch on.
12	Starter switch	Abnormal signal from ignitions switch.
13	Cam angle sensor	No signal from can angle sensor, but signal from crank angle sensor 1.
14	Fuel Injector #1	Fuel Injector Inoperative. (Abnormal signal from monitor circuit).
15	Fuel Injector #2	
16	Fuel Injector #3	
17	Fuel Injector #4	
18	Fuel Injector #5	
19	Fuel Injector #6	
21	Water Temp. Sensor	Abnormal signal from water temperature sensor.
22	Knock sensor #1 (RH)	Abnormal voltage in knock sensor monitor circuit.
23	Air flow sensor	Abnormal voltage from air flow sensor.
24	By-pass air control solenoid valve	By-pass air control solenoid valve inoperative. (Abnormal signal in monitor circuit.)
28	Knock sensor #2 (LH)	Abnormal voltage in knock sensor monitor circuit.
29	Crank angle sensor 2	No signal from crank angle sensor 2, but two signals from crank angle sensor 1.
31	Throttle sensor	Abnormal voltage from throttle sensor.
32	Oxygen Sensor 1 (RH)	Oxygen sensor 1 inoperative.
33	Vehicle speed sensor 2	No signal from vehicle speed sensor 2.
34	EGR solenoid valve	EGR solenoid valve inoperative.
35	Purge control solenoid	Purge control solenoid valve inoperative.
37	Oxygen sensor 2 (LH)	Oxygen sensor 2 inoperative.
38	Engine torque control	Wiring harness between ECU and TCU is in short circuit.
41	A/F learning control	Faulty learning control function.
45	Atmospheric pressure sensor	Faulty atmospheric pressure sensor inside ECU.
51	Neutral switch	Abnormal signal from inhibitor switch.
52	Parking switch	Abnormal signal from parking switch.
55	EGR gas temperature sensor (CAL)	Abnormal signal from EGR gas temperature sensor.
56	EGR system (CAL)	EGR valve open/close stick, EGR hose disconnect or exhaust power valve damaged.

TCU – Check Transmission Codes

The "**Power Light**" indicates **transmission** codes.
Long blinks = 10, short blinks = 1.

(Ex. two long and two short blinks is a code 22. One long and one short is code 11.)
The following self diagnosis will show any fault codes for the transmission:

The most common trouble code is "11" and is almost always caused by a faulty transmission resistor located between the battery and fender.

To perform the self diagnosis test for EXISTING problems:

1. Warm up engine by driving at speeds greater than 12mph.
2. Stop vehicle and turn ignition switch OFF.
3. Turn ignition switch ON and make sure POWER indicator lamp comes on.
4. Turn ignition switch OFF.
5. Move selector lever to D and turn manual switch ON.
6. Turn ignition switch ON.
7. Move selector lever to "3" and turn manual switch OFF.
8. Move selector level to "2" and turn manual switch ON.
9. Move selector lever to "1" and turn manual switch OFF.
10. Partially depress accelerator pedal (to turn idle switch off).
11. Check code as displayed on POWER light. Blinking once every 1/4sec is normal.

To perform the self diagnosis test for PREVIOUS problems:

1. Warm up engine by driving at speeds greater than 12mph.
2. Stop vehicle and turn ignition switch OFF.
3. Turn ignition switch ON and make sure POWER indicator lamp comes on.
4. Turn ignition switch OFF.
5. Move selector lever to "1" and turn manual switch ON.
6. Turn ignition switch ON.
7. Move selector lever to "2" and turn manual switch OFF.
8. Move selector lever to "3" and turn manual switch ON.
9. Move selector lever to "D" and turn manual switch OFF.
10. Partially depress accelerator pedal (to turn idle switch off).
11. Check code as displayed on POWER light. Blinking once every 1/4sec is normal.

CODE	ITEM
11	Duty solenoid A
12	Duty solenoid B
13	Shift solenoid 3
14	Shift solenoid 2
15	Shift solenoid 1
21	ATF temperature sensor
22	Atmospheric sensor
23	Engine revolution signal
24	Duty solenoid C
31	Throttle sensor
32	Vehicle speed sensor #1
33	Vehicle speed sensor #2

PROGRAM NEW KEYFOB

To begin programming keyfob:

1. Turn the dashboard Security switch off (no light).
2. Turn the ignition switch on-off, leave off with key in ignition.
3. Immediately and -quickly- repeatedly tap the dashboard security switch on-off until the horn starts to beep.

The system will indicate programming mode by the parking lights flashing and control unit clicking.

When in programming mode:

Push the remote button 4 times.

For one remote: push the remote button slowly and firmly 4x
For two remotes: push each remote button slowly and firmly 2x, for a total of 4x

When done:

Complete by turning the ignition switch on-off and make sure the parking lights aren't flashing anymore and remove the key

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HVAC – Check Heater/AC Codes

There is no light indicating any problems with the climate control system. There is a method to pull any error codes from the system.

The following self diagnosis will show any fault codes for the climate control system:

1. Run the car until the engine is warmed up to at least 40°C/104°F then turn off the engine.
2. While holding both "AUTO" and "OFF" on the climate control system turn the key on.
3. Any codes detected will be shown on the temperature display.

NOTE: An error code 13 will always be returned if these steps are not performed in clear daylight as the sun load sensor requires a certain amount of light to be considered operational.

NOTE: Anytime codes 13, 33, 34 or 35 are displayed, the condition is one which is currently occurring.

CODE	ITEM	DIAGNOSIS
00	No errors	Operational
11	In-vehicle sensor	Open
21		Shorted
12	Ambient sensor	Open
22		Shorted
13	Sun load sensor	Open
23		Shorted
14	Evaporator sensor	Open
24		Shorted
15	Refrigerant temp sensor	Open
25		Shorted
16	Water temp sensor	Open
26		Shorted
31	Air mix door (PBR)	Faulty
32	Mode door (PBR)	Faulty
33	Mix door motor	Faulty engine
34	Mode door motor	Faulty engine
35	Intake door motor	Faulty engine

ABS TROUBLE CODES

The "ABS" instrument panel light indicates the existence of an ABS code(s). However, it does not indicate the code(s) itself. There is an LED on the ABS control unit (located under the right front seat) that will indicate the detected code. Unlike the other codes the ABS control unit will blink the exact code. There is no long/short blink.

The following self diagnosis will show any fault codes for the engine:

1. Drive the vehicle at speeds greater than 30kph/19mph for at least one minute.

The vehicle must be stopped with the engine running.

2. If a problem is detected the ABS warning light in the instrument panel will come on. Approximately 5 - 12 seconds after the warning light has come on, the ABS control unit LED will flash the error code.

Note: Both the warning light and the LED remain activated unless the ignition is turned off. Turning the ignition off will erase any codes stored in memory.

Note: Only one trouble code is displayed at a time. If multiple problems exist only the first problem detected is displayed.

CODE	ITEM	DIAGNOSIS
0	Improper power line voltage or faulty harness.	
1	Broken or shorted solenoid valve circuit(s) in hydraulic unit.	Left front wheel control
2		Right front wheel control
3		Right rear wheel control
4	Faulty wheel ABS sensor.	Left rear wheel control
5		Left front wheel speed
6		Right front wheel speed
7	Left rear wheel speed	Right rear wheel speed
8		Left rear wheel speed
9	Faulty motor and/or motor relay broken or shorted harness circuit.	
10	Faulty valve relay or broken or shorted harness circuit or interrupted ABS (causing brakes to function as a conventional brake system). Unidentified fault that is not equivalent to trouble codes 1-16	
16	Faulty ABS control unit or broken or shorted harness circuit. Malfunctioning system or line unidentified by vehicle ABS sensor fail-safe function.	