

## ABS Diagnostics

<http://www.landyzone.co.uk/lz/f8/discovery-300-abs-problem-please-help-63758.html>

Here's an easy DIY way to read and reset these diagnostic codes. And you don't need a testbook computer - all you need is a bit of wire, or a paperclip!

There is nothing new in this document. All I have done is gathered together various other Internet documents, and added some notes on where the various connectors are on my Discovery. Many of the internet document relate to US-spec vehicles, where the components are located elsewhere.

The ABS ECU itself is a standard Bosch/Wabco part. If you do some googling, you'll find that the same techniques and codes apply to many other vehicles that use this unit.

First of all, we need to find the ABS warning light relay. On mine, it's in the passenger footwell, under the glove compartment. Lever out the 3 press-in studs, and the trim panel can drop. There are half a dozen relays in there. The one we're looking for is (on mine!) nearest to you, but in the second row, "behind" some others. Difficult to explain, but obvious when you get in there. The relay bases slide onto brackets, push them about an inch "away from the wires" and they'll come free.

The one we're looking for has a green base, and has 2 black wires, 1 black/green wire and 1 brown/red wire.

Disconnect this relay - pull it out of the socket.

Now we need to find the ABS diagnostic connector. This is where I struggled. All of the internet info says it's a blue connector under a seat, but that's just on US-spec vehicles. Rave says it's a 5-pin connector near the fuse box. But I couldn't find that either. I believe that earlier (pre-95) models used this, but later ones moved it to the main diagnostic connector. This is a 16-pin socket, located under the steering wheel, just above the clutch. You don't need to remove any trim panels to get to it - although you may want to pop out the panel it's mounted on - it's not immediately clear how the pins are numbered, so look at the colours of the wires.

The 2 pins we're interested in are pin4 (black) - ground, and pin15 (red/green) which goes to the ABS unit. If the internet sources are to be believed, the abs diagnostic wire may be black/pink on some models, and on the 5-pin connector we're interested in pins 2 and 5. But this has not been verified.

You need some way of bridging the 2 pins. A paper clip or a piece of solid-core wire is ideal.

Make sure the relay is disconnected. Turn on the ignition. The ABS warning light should come on, as usual.

Bridge the 2 pins on the diagnostic connector.

After 5 seconds, the ABS warning light should go out. It will then flash a pattern. From this, we can obtain the 2-digit fault code.

First of all there will be 2 slow flashes - one longer than the other, with a gap of about 2 seconds.

Then the interesting bit. The lamp will then flash, at about one flash per second. Count these flashes - that's your first digit. Then a pause, then it will flash out the second digit. This sequence will then repeat indefinitely (start, digit 1, digit 2).

If you disconnect the link when the lights are flashing, it will clear the fault. Reconnecting it will show the next stored fault. If you have patience, you can read out and clear the entire contents of the ABS memory.

## LANDROVER FAULT CODES

[http://www.bba-reman.com/content.aspx?content=landrover\\_abs\\_ecu\\_fault\\_code\\_identification](http://www.bba-reman.com/content.aspx?content=landrover_abs_ecu_fault_code_identification)

1-1	At start of sequence
2-6	(BPP)Brake pedal position switch
2-7	In system relay, when ignition is off the ECU supply is continuous.
2-8	In system relay, there is no solenoid valve supply.
2-12	Is an air gap, right hand front wheel speed sensor.
2-13	Is an air gap, left hand rear wheel speed sensor.
2-14	Is an air gap, left hand front wheel speed sensor.
2-15	Is an air gap, right hand rear wheel speed sensor
3-0	The ECU connection/wiring to right hand front inlet, hydraulic modulator solenoid valve.
3-1	The ECU connection or wiring to right hand front outlet, hydraulic modulator solenoid valve.
3-2	The ECU connection or wiring to left hand front inlet, hydraulic modulator solenoid valve.
3-3	The ECU connection or wiring to left hand front outlet, hydraulic modulator solenoid valve.
3-4	The ECU connection or wiring to right hand rear inlet, hydraulic modulator solenoid valve.
3-5	The ECU connection or wiring to right hand rear outlet, hydraulic modulator solenoid valve.
3-6	The ECU connection or wiring to left hand rear inlet, hydraulic modulator solenoid valve.
3-7	The ECU connection or wiring to left hand rear outlet, hydraulic modulator solenoid valve.
3-8	The ECU connection or wiring to inlet, isolating, hydraulic modulator solenoid valve.
3-9	The ECU connection or wiring to outlet, isolating, hydraulic modulator solenoid valve.
4-0	The ECU connection or short circuit to right hand front inlet, hydraulic modulator solenoid valve.(HMSV)
4-1	The ECU connection or short circuit to right hand front outlet, HMSV.
4-2	The ECU connection or short circuit to left hand front inlet, HMSV.
4-3	The ECU connection or short circuit to left hand front outlet, HMSV.
4-4	The ECU connection or short circuit to right hand rear inlet, HMSV.
4-5	The ECU connection or short circuit to right hand rear outlet, HMSV.
4-6	The ECU connection or short circuit to left hand rear inlet, HMSV.
4-7	The ECU connection or short circuit to left hand rear outlet, HMSV.
4-8	The ECU connection or short circuit to inlet, isolating, HMSV.
4-9	The ECU connection or short circuit to outlet, isolating, HMSV.
5-0	The ECU or solenoid valve supply short circuit to right hand front inlet, HMSV.
5-1	The ECU or solenoid valve supply short circuit to right hand front outlet, HMSV.
5-2	The ECU or solenoid valve supply short circuit to left hand front inlet, HMSV.
5-3	The ECU or solenoid valve supply short circuit to left hand front outlet, HMSV.
5-4	The ECU or solenoid valve supply short circuit to right hand rear inlet, HMSV.
5-5	The ECU or solenoid valve supply short circuit to right hand rear outlet, HMSV.
5-6	The ECU or solenoid valve supply short circuit to left hand rear inlet, HMSV.

5-7	The ECU or solenoid valve supply short circuit to left hand rear outlet, HMSV.
5-8	The ECU or solenoid valve supply short circuit to inlet, isolating, HMSV.
5-9	The ECU or solenoid valve supply short circuit to outlet, isolating, HMSV.
5-12	Sensor or wiring on right hand front wheel speed sensor.
5-13	Sensor or wiring on left hand rear wheel speed sensor.
5-14	Sensor or wiring on left hand front wheel speed sensor.
5-15	Sensor or wiring on right hand rear wheel speed sensor.
6-0	Short circuit of two ECU or solenoid connections to right hand front inlet, HMSV.
6-1	Short circuit of two ECU/ solenoid connections to right hand front outlet, HMSV.
6-2	Short circuit of two ECU or solenoid connections to left hand front inlet, HMSV.
6-3	Short circuit of two ECU or solenoid connections to left hand front outlet, HMSV.
6-4	Short circuit of two ECU or solenoid connections to right hand rear inlet, HMSV.
6-5	Short circuit of two ECU or solenoid connections to right hand rear outlet, HMSV.
6-6	Short circuit of two ECU or solenoid connections to left hand rear inlet, HMSV.
6-7	Short circuit of two ECU or solenoid connections to left hand rear outlet, HMSV.
6-8	Short circuit of two ECU or solenoid connections to inlet, isolating, HMSV.
6-9	Short circuit of two ECU or solenoid connections to outlet, isolating, HMSV.
6-12	Is no output or an air gap with right hand front wheel speed sensor.
6-13	Is no output or a large air gap with left hand rear wheel speed sensor.
6-14	Is no output or a large air gap with left hand front wheel speed sensor.
6-15	Is no output or a large air gap with right hand rear wheel speed sensor.