

DIY ECU Checker Box (200SX CA18DET S13)

ECU Self Diagnosis?

There's just got to be an easier way to pull error codes from the ECU other than removing the kick panel and the ECU itself. The FSM document showed a possibility with a checker-box that can be connected to a check-connector that's located at the driver side kick-panel where the fuses are.

Somehow, if we can access this connector and connect the correct pins to some LEDs, one is able to pull codes conveniently without removing the ECU from its home. This simple DIY project is a result of some research and great information obtained from the SXOC (SX Owner's Club) Forum (www.sxoc.com).

NOTE: While DIY is fun, cheap and allows you to gain heaps of knowledge, be aware that it also carry some risk! DIY is also DIAYOR (Do it at your own risk!). GOOD LUCK!

What will you need?

Everyday stuff can be used!

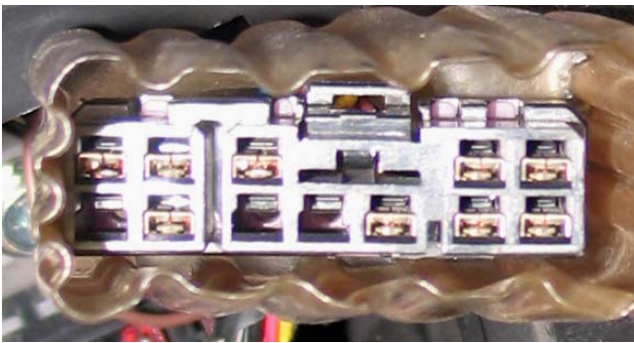
- Small plastic box
- A flick switch
- 1 x green LED
- 1 x red LED
- 2 x 4.7kOhms resistor
- 2 male + 2 female 9 pin Serial Port connector (optional, really)
- a soldering iron, wire cutter, solder etc.

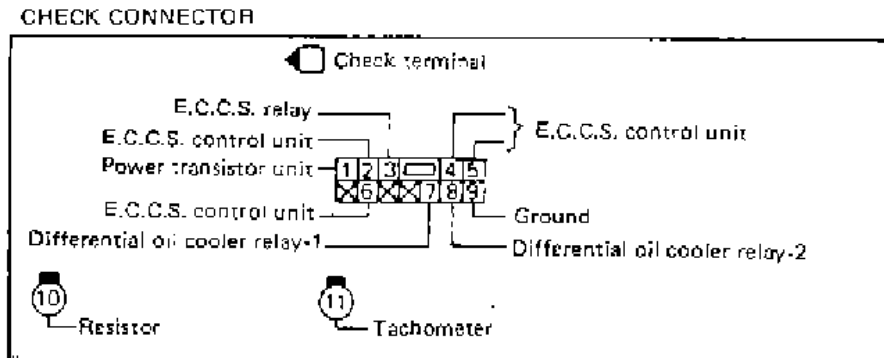
Total cost: *cheap (not more than 10 bucks?)!*

Where's the check connector??

Here's the check connector, with the driver's side kick-panel removed, where the fuses are.

You may need to put your hand in there to 'feel' for it as it may be hiding in the mess of wires in there.



What does the pins designate?

- Pin 1 - Ignition coil feed from relay (NOT ignition coil 1, 12v when on)
- Pin 2 - mode switch
- Pin 3 - ECCS relay (12v = ECCS self test OK, switches power to parts of EECS, CAS, AFM and ign relay)
- Pin 4 - Green wire - Green led + 4.7K resistor to +12v (pin 3 is good)
- Pin 5 - Red wire - Red led + as above
- Pin 6 - mode switch
- Pin 7 - Diff oil cooler relay 1 (12v when relay is off, 0v when on, switch to ground will operate relay)
- Pin 8 - Diff oil cooler relay 2 (12v when pump on, relay 2 is switched by speed)
- Pin 9 - Black wire – Ground

I got this from the FSM itself (and the full pin definition from SXOC forums). There're some other signals that you can get as you can see from the description above but for the purpose of this DIY, we'll just focus on how to conveniently pull error codes from the ECU.

How it all works

Pins 4 and 5 are the error code indicators. The number of blinks the RED LED indicates the number of 10's and the GREEN LED, number of 1's (eg. If RED blinks 2 times and GREEN blinks 5 times, the error code is 25, refer to the FSM for details on the error code).

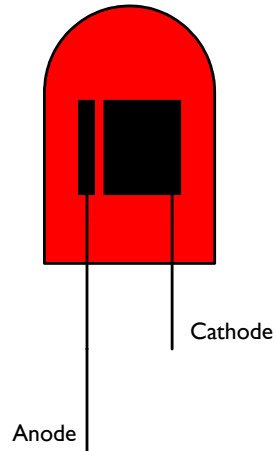
Pins 2 and 6 sets the ECU into various modes. For self-diagnosis, you need to set the ECU to mode III. When 2 and 6 are shorted/connected, the ECU will cycle through the various modes, blinking 1 time for mode I, 2 times for mode II etc, there will be a pause after each set of blinks. Right after it has blink 3 times, disconnect 2 and 6 and the ECU will be in mode III.

You will start to see the LEDs blinking. For more details, refer to the FSM on how to interpret/observe the blinks. Just too tiresome to write it all down here!

[I attached a part of the FSM that details the use of a checker box at the end of this document!](#)

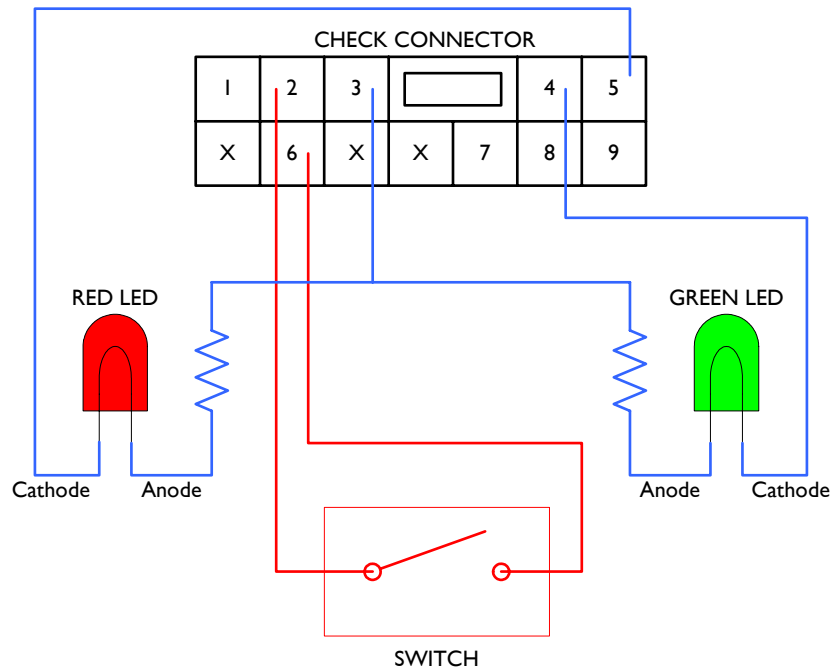
Connections

Here's where the soldering iron comes in handy and its very simple. Only tricky thing is the LED. You must connect this correctly for it to light up. The LED consists of an anode and cathode. Please make sure to observe this fact. The cathode has a shorter lead and larger plate as shown in the LED construction diagram below.



The Cathode needs to be connected to the negative side and the anode to the positive (voltage supply). You will need to connect the cathode to a 4.7kOhms resistor to limit the current so as not too draw too much current from the ECU.

The schematic is as below.

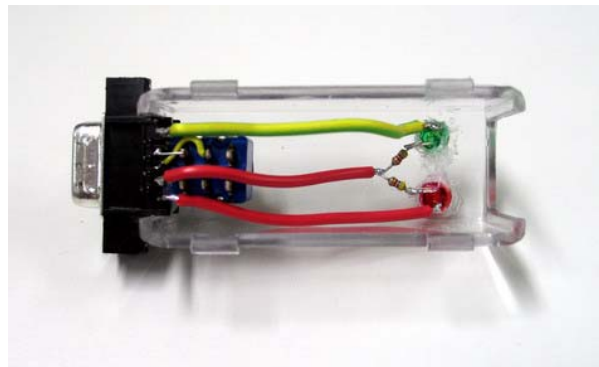


- The switch is connected to pins 2 and 6
- RED LED to pins 5 and 3 (via 4.7kOhms resistor)
- GREEN LED to pins 4 and 3 (via 4.7kOhms resistor)

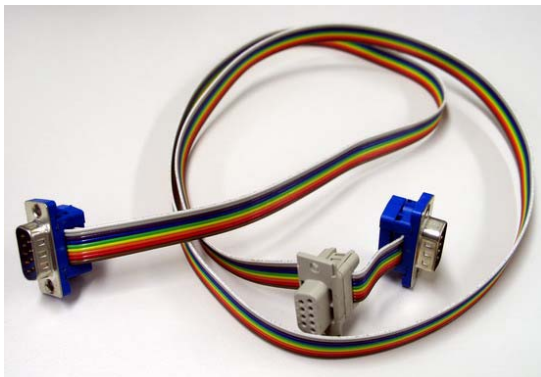
How mine looks like finished...



This neat plastic casing is part of a grounding/power distribution block. I bought it when I did my DIY grounding but did not need the casing. You can run the wires out directly to the ECU but I opted to have something that I can take out and use anytime.



Bottom view.



Interconnect between Checker Box and ECU



Connector to ECU

This way I can leave the connector to ECU permanently in the kick-panel and whenever I want to check codes, I just use the interconnect to connect to the checker box. I find this most convenient.

Thoughts...

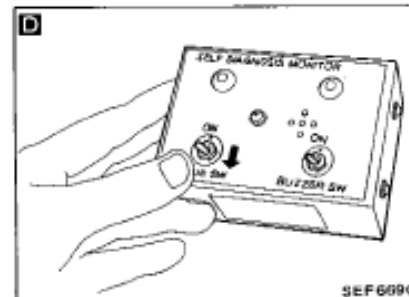
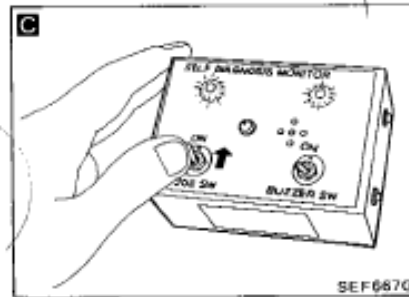
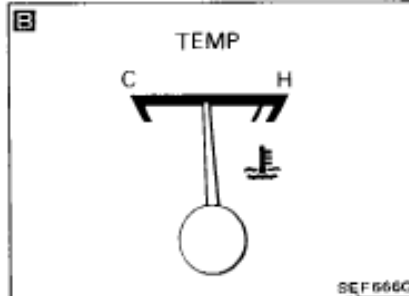
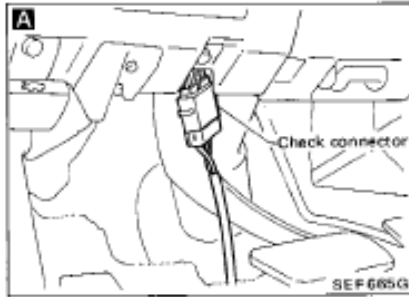
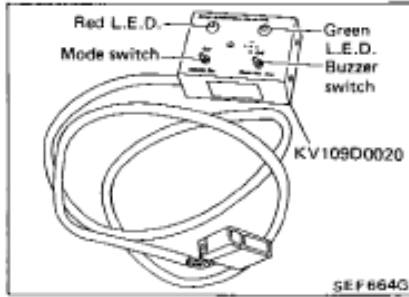
Now, you can do your ECU diagnosis at anytime, easily. Anytime you have a problem while cruising around, you can just stop by the road and pull codes. Especially helpful if you have some intermittent problems that simple refuse to show up when you are at the workshop!

Self-diagnosis — Description (Cont'd)

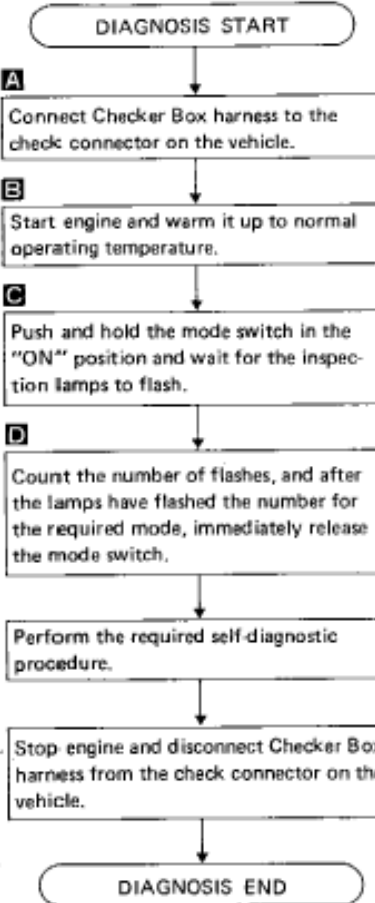
CHECKER BOX

The Checker Box is used to control and read the self-diagnosis systems on models equipped with the "check connector" harness. It is a tool which can be used to operate the self-diagnosis system easily.

The Checker Box switch is used to trigger each of the self-diagnosis modes. You can read the red and green light emitting diode (L.E.D.) codes in the Checker Box, so it is not necessary to remove the E.C.U. The Checker Box also has an audible tone for each L.E.D. signal, so you can "hear" the codes instead of looking at the L.E.D. if necessary.



Self-diagnostic procedure



- Connect the Checker Box to the check connector only when the ignition key is in the "OFF" position.

- You can erase the stored memory by changing from diagnostic mode to Mode IV using the mode switch on the Checker Box.

- Disconnect the Checker Box from the check connector only when the ignition key is in the "OFF" position and the inspection lamps turn off.

Service procedures and instructions except for the above are the same as those where Checker Box is not used.

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