

Pico Scope Diagnostics by Andy Cape (Cape Auto Diagnostics in Cape Town)

DIAGNOSTICS REPORT FOR:

DATE: 30.03.2011

MODEL: E46 BMW 318i M43TU

VIN: NA95468

Model 2000 with BMS46 engine control version

Engine M43TU

COMPLAINTS:

Engine does not start and a diagnostic scan can not be performed due to none communication to the modules.

Background Information

The engine block was previously replaced due to a crack in the block, but could not be started after the engine overhaul. The car was towed into our workshop. As I understand the client – Somebody drove the car in a deep water pot hole and flooded the air intake. The car cut out with the engine flooded in the water. The water came into the hot cylinder block and let the block crack do to thermal shock.

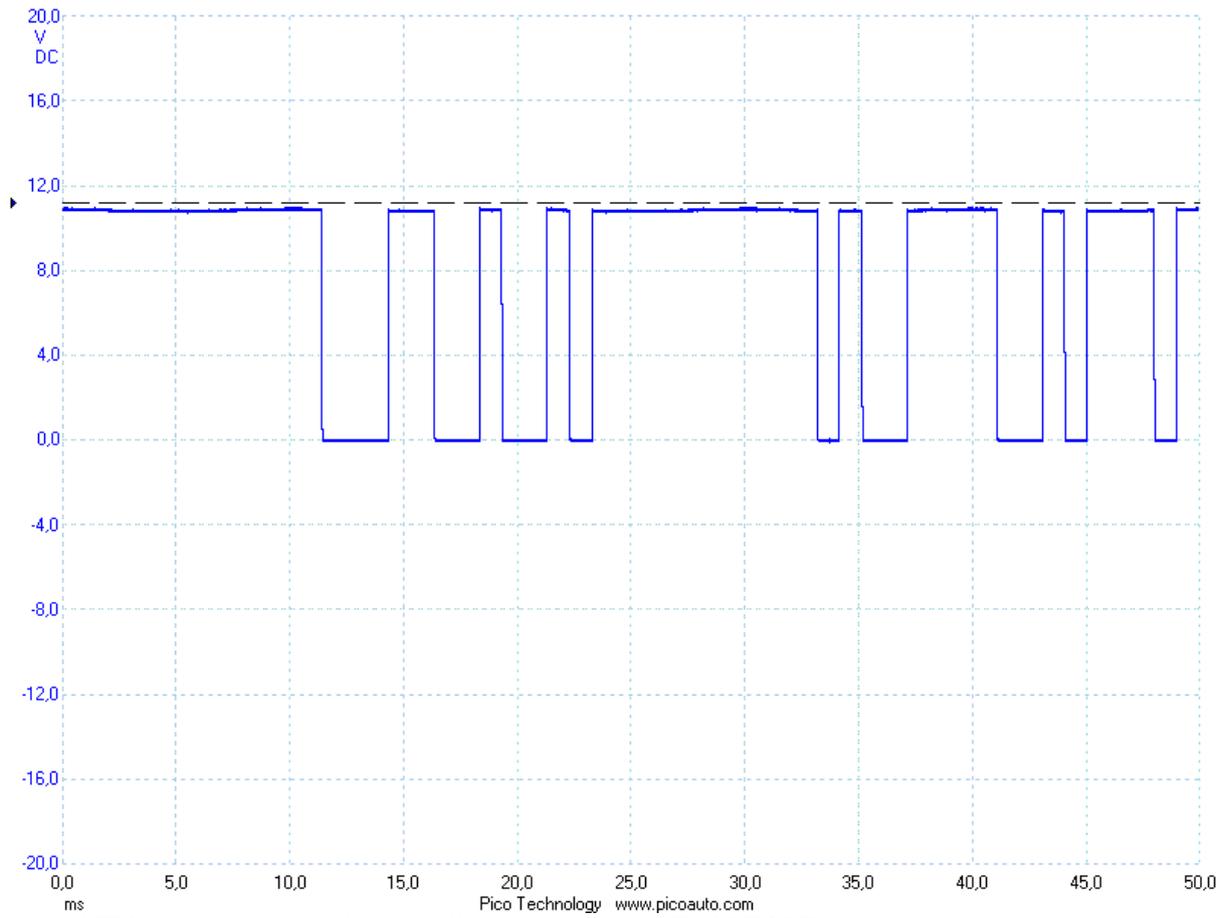
The Investigation

After checking the basics like:

- Relevant Fuses
- Supply voltage to the ECU
- GND to the ECU
- the EWS signal (Immobilizer) to the ECU
- The primary Ignition Voltage

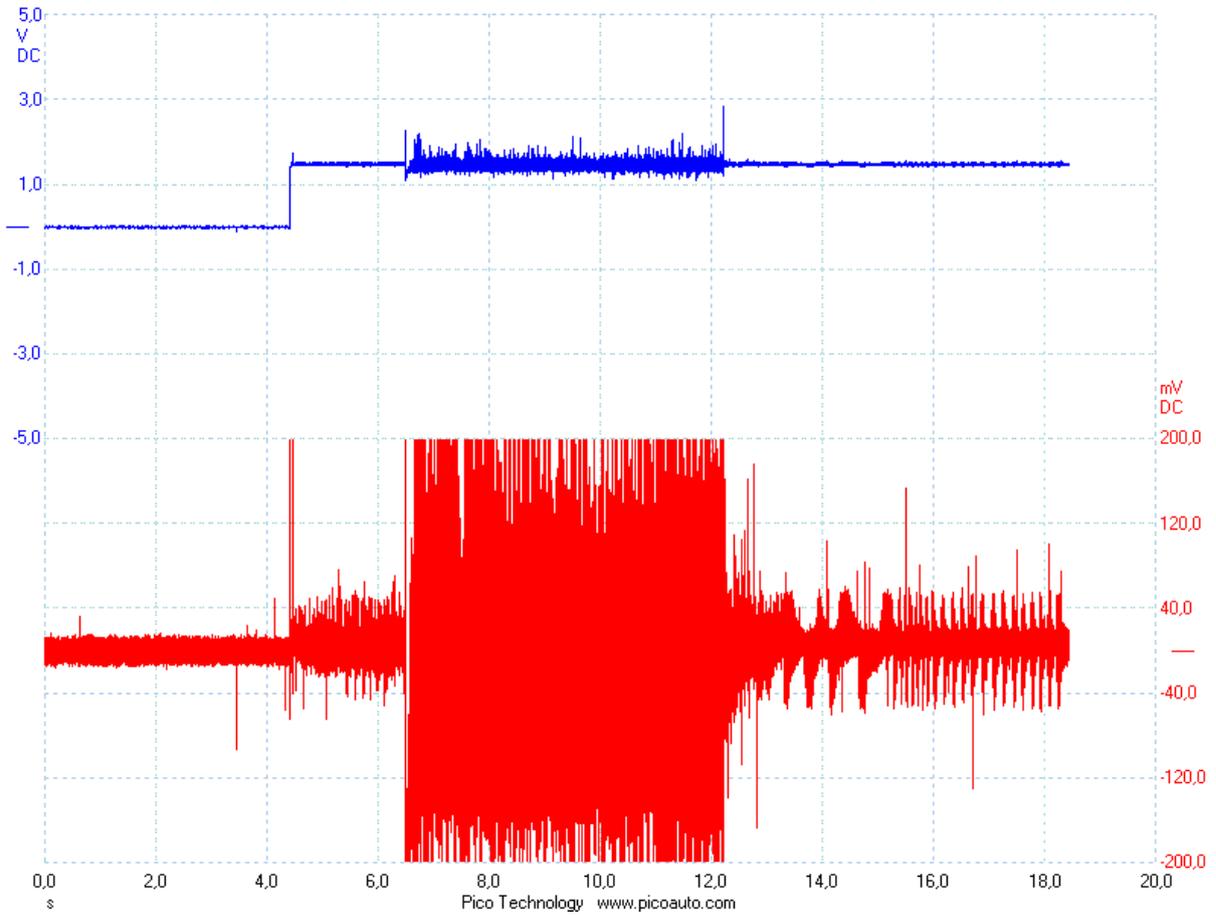
The primary ignition was supplied with 12 V but the ECU did not trigger the coils. Therefore no spark was produced.

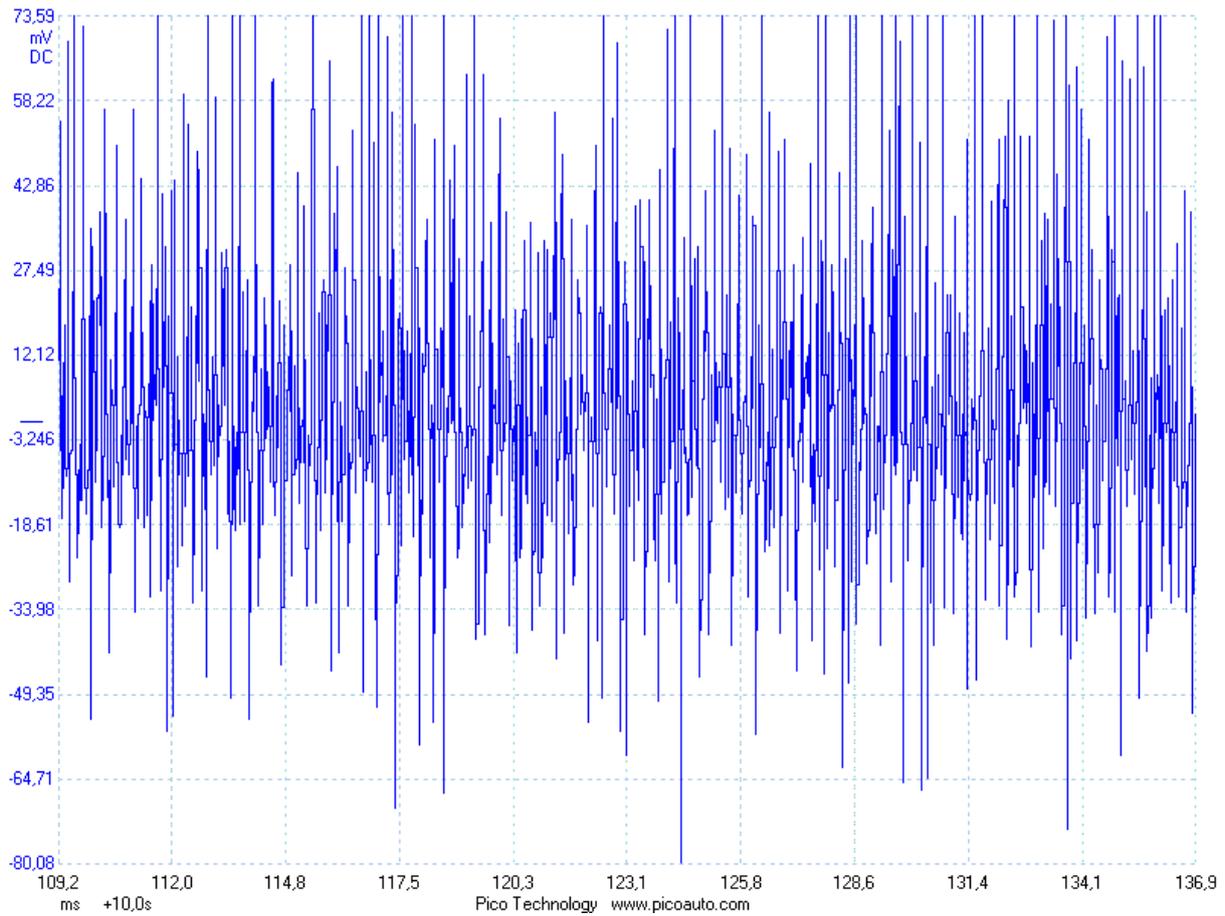
The EWS signal was available as soon the ignition key was turned and therefore it could not to be considered as faulty:



Good EWS signal from immobilizer module to ECU DME input

But the Crankshaft Sensor did not deliver a valid signal and also the power supply for the sensor was only 500 mV once the car was started. Blue =Crank shaft sensor, Red = supply of Hall sensor (should be 12V).





The crank shaft signals zoomed – does not make any sense.

The Solution

We did check the wiring of the Crank shaft sensor and could not find any faults. The sensor itself was replaced by the client already. But also without the sensor connected- there was no sufficient power supply to the sensor from the ECU. Therefore the ECU must be faulty.

The Result

We opened the ECU and found the proof. The Power connector was destroyed by extreme overload. Wonder that all the fuses did not trip to protect the ECU.

