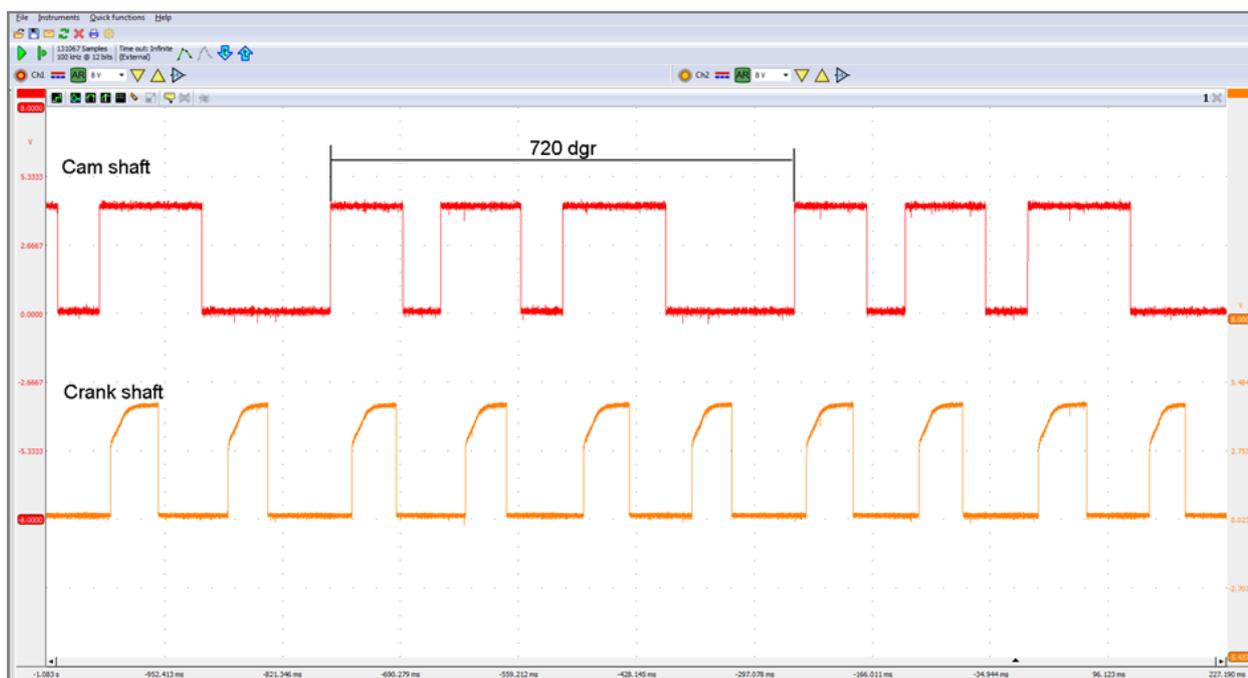


Polo don't Go....

This article is a true description of an **AECS** technical help desk problem and how it was solved.

Vehicle
2001 VW Polo AHW 1.4 Ltr Petrol.



Picture 1: ATS 5000 scope recording of Crank vs Cam.

Problem presented to the Helpdesk

This car refuses to fire up, it winds over, but not one beat of fire. There are no fault codes. We received the car from another workshop, which is a VW specialist.

They determined that the fault was an immobiliser fault, and proceeded to remove parts of the dashboard and steering cowling. They spent days on this vehicle and plenty of parts; all to no avail.

We are Japanese car specialist and have your ATS scope and would like you to assist us, on this foreign car. We have no ignition and no injection, so measured the crank and cam shaft signals. (Picture 2 & 3)



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Measure, but ahead?

The pattern in picture 1 was posted on the AECS technical support forum.

At AECS, we looked at the pattern and saw 2 oddities, one was the rising slope on each pulse of the crank shaft pattern, and the other was that we did not recognise the 4 pulse crank pattern as normal.

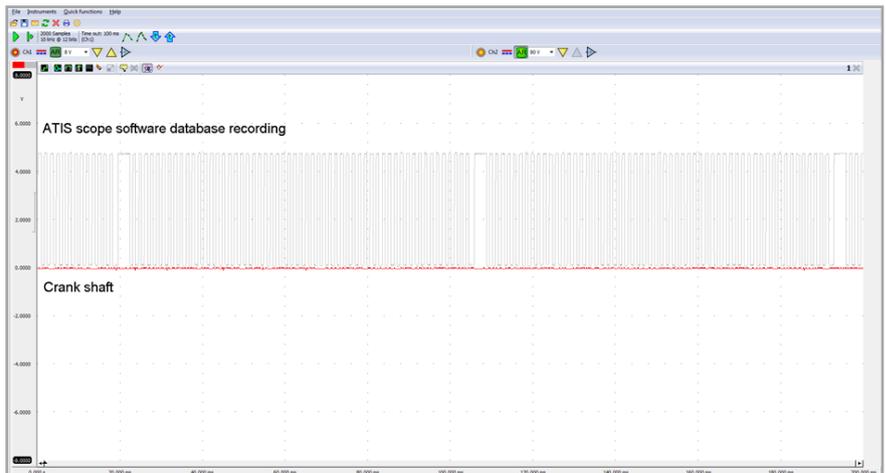
We looked in the ATS scope software's data base (ATIS) to see what pattern the boys of GMTO in Holland had recorded on this car.

Lite

This diagnostician has purchased the ATS scope with ATIS Lite software, which only has 100's of generic patterns and pre-sets for every possible sensor, not brand specific recordings and wiring diagrams.

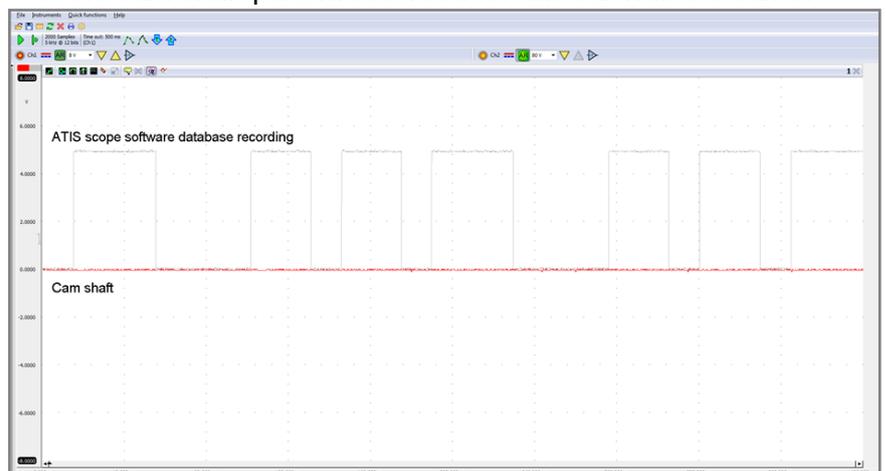
The ATIS Pro software comes with around 35,000 pre-recorded patterns of new or almost new cars, gathered over a period of 15 years, giving a wealth of information in detailed data for scope owners. In addition, these pre-recorded patterns are set up in the scope correctly right from the start.

We saw a very different crank shaft pattern in ATIS.



Picture 2: ATIS data base VW AHW engine **crank shaft** recording and scope pre-set.

Yet the cam shaft pattern recorded for this car was the same:



Picture 3: ATIS data base VW AHW engine **cam shaft** recording and scope pre-set.

The fact that only the crank pattern was different made us think that the fault was in the sensor, tone wheel or wiring, until the diagnostician told us that there were variations of tone wheels on VW. It made us doubt.

Start at the beginning

Before a new sensor or full out hunt on the crank pattern was unleashed (with the signal generator), we felt it was necessary for the technician to start at the beginning.

He told us that there was no ignition and no Injection, many people tell us that there is 'nothing' but they mean almost nothing or some other variant of nothing... I guess that this is a language thing. We wanted to see the recording.

It was clear to see what the diagnostician meant with nothing! Yes, the injectors had power supply, but no activation. In addition, no activation on the ignition trigger wire to the coil.

Immobiliser?

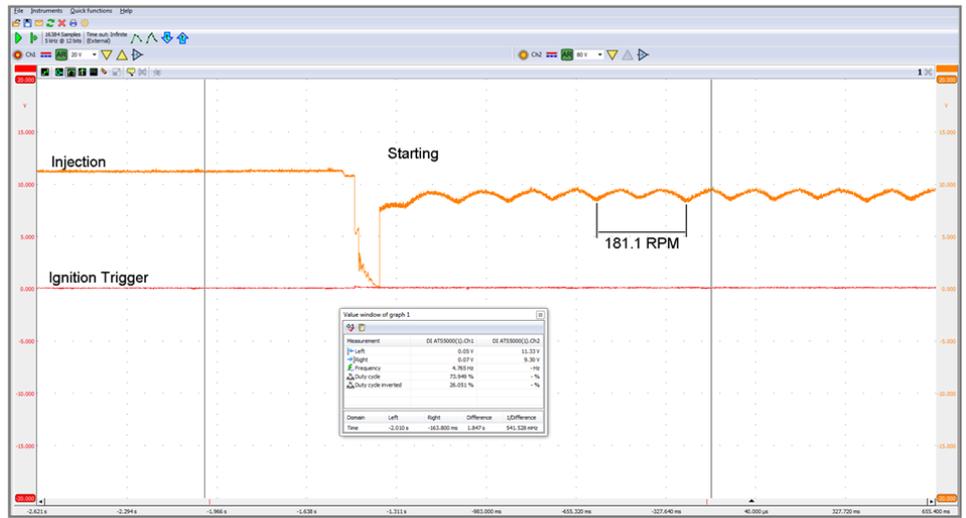
When there is in that era vehicle an immobiliser fault, there is almost always brief ignition and injection, so combined with no codes we could rule that out.

5 Volt

The ECU could have lost its power supply, for example through a blown fuse, making the processor (CPU) switch entirely off. The quickest way, as we teach in the AED training is to see if for example the 3 wire TPS sensor has 5V present during winding over. The 5 Volt was present during winding over. This means that the CPU is ready and waiting for something to happen before it switches ignition and injection. That only pointed again in the direction of the Crank/Cam sensors.

Circles?

We were going to feed the ECU the pre-recorded pattern of ATIS to see if that would get ignition and injection back. Were we



Picture 4: ATS scope recording of Injection over ignition while cranking.

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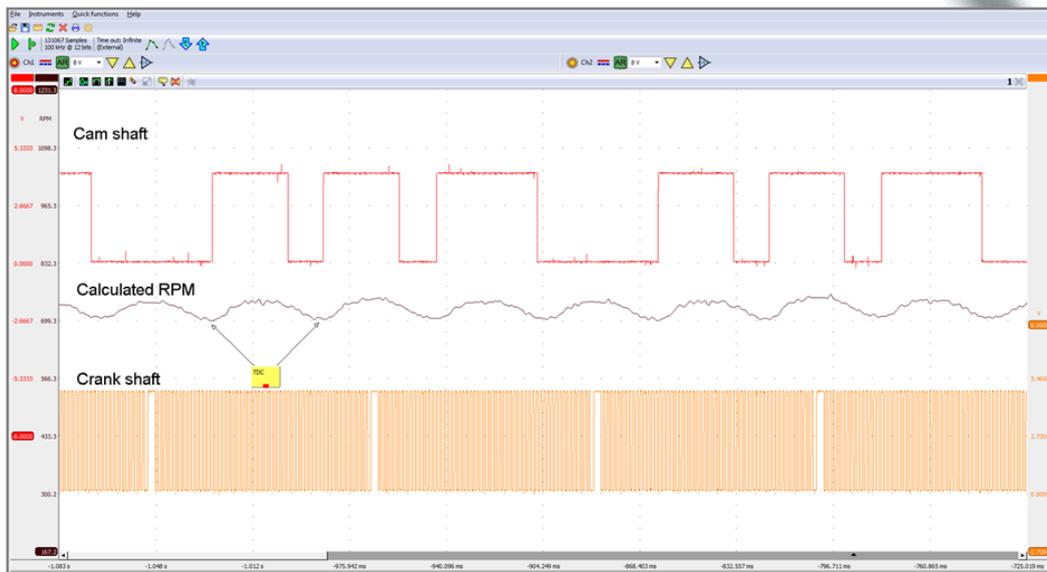
Our training schedule is extended to **Nov 2015**. Most are full, still places on some, please check web.

running around in circles?

The diagnostician made a judgement call and ordered a new sensor anyway, before we had a chance to assist him with setting up the signal generator. The fact that the old sensor had mechanical damage to it made him take that risk.

The car ran beautiful straight away without any further faults!

He was so kind to record the 'after' pattern: (Picture 5)



Picture 5: ATS scope recording of cam vs crank after the repair.

Conclusion

The car runs fine now. This case shows how important a good data base is and how important it is to buy your equipment from people who can support the equipment when you get stuck. The AECS helpdesk are very busy with assistance more than ever before, the amount of electronic faults seems ever increasing as we have never dealt with so many problems at the same time!

More than ever before, we turn technicians away who do not use our equipment. They strangely still turn to us for support. Yes, we have been trying to assist them too out of kindness, even though the equipment they use comes from our competitors.

Please realise that good quality equipment as used in this case, like the ATS scope and Launch scan tool, is just as important as quality technical support.

for **AECS** Ltd:
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