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ntelligent Engine Analyzer

Training

1995 Jetta Crank / no start

by Rusty Flake - Beck Service Center

Complaint: Car will turn over, but wont start.

Verification: Indeed, did crank, would not start. Nothing else noted by technician looking at car.

This Jetta has a 2.0L engine with a little over 90 K miles on it. I did not start out working on this vehicle, so I do not know exactly what all was checked or replaced on it.

I know this car was in the shop for two days before I was asked to do a compression wave form on it to see if it was either in or out of cam timing. It also had an ignition rotor and cap installed prior to determining that there surely has to be a possible timing belt jump concern or something along that line.

The technician that was working on this car is very good at diagnostics normally, and I don't know what the process was that led to the point of him asking me to do the compression waveform analysis, but even though I'm not what I consider great, I do have some cool equipment and am glad he asked so that I get yet another chance to look at some interesting waveforms and analyze them as to what I believe is the problem.

Pressure transducers are fairly new to me, and I am still in the learning curve, but these things are great. I connected to cylinder 1 since it was already with out the spark plug installed. And I synced off of that cylinder also. This waveform was interesting to me and only took about 30 seconds to capture on this car.

I called the technician working on the car over and told him I know that the ignition firing event is happening at the wrong time which would indicate to me that something in the timing components on this engine wasn't correct.

At this point he talked to the service writer working with this cars owner to get approval for the inspection of the timing components.

The approval was given, and the car was taken down to our heavy line tech for disassembly and inspection. Once the cover was removed, the tech came and got me since he thought everything was in time or at least really close and wanted a second opinion, along with knowing I wanted to see it anyway.

I thought that the cam sprocket mark and the rotor position in the distributor were both off by a tooth. That however did not make sense when compared to where the firing

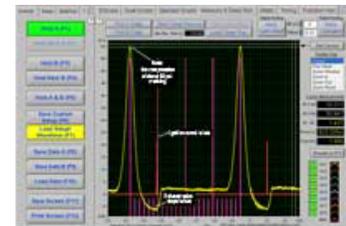


Fig. 1



Fig. 2

event was taking place in the compression waveform.

I then suggested that the sprockets be removed to make sure that the dowel and or woodruff key had not broken or elongated the slots they go in. Figures 2 & 3 show the main problem with this car.

A new crankshaft sprocket was ordered and installed with a new timing belt, and the car started.



Fig. 3