Calibrate Spark Timing

This section discusses how to set the ECU timing to be accurate with Engine timing. This is important to see realistic timing values on the software and also settings that use the timing real-time bar to protect the engine.

First get the engine to start and idle smoothly as discussed in the Start-up Procedure. Make sure that you have the timing marks on the pulley checked for accuracy. If this is wrong it means timing will not be accurate on the software. Make a 10-degree mark or select a mark on the pulley that is close to that degree.

Now set the Maximum engine timing at 10 degrees or at the preferred mark on your pulley.

Make sure that the real time bar is on 10 degrees or you will need to lift it on the Dynamic timing graph.

Now take your timing light to the engine. Put it on the HT lead of cylinder 1. If it does not trigger on the light loosen the HT lead so that it creates a little gap on the spark plug tip. Not too much! You may also clip the sensor over the coil negative wire if it has COP coils. If that doesn't work, then wind the trigger wire 3 times in the same direction as the arrow around the sensor and close the clip. This will amplify the trigger signal. Sometimes you may need to use an extension wire piece to do this.

Put the timing light on zero and see where the timing flashes. It should be on the mark you set. If it is not there, then you need to make adjustments in the software. Do not adjust the distributor (if it has one.) It will adjust Rotor fazing which will then have a problem later.

You may ask someone to assist by looking at the light while you adjust the software. Start with the Timing Sensor setting.

Make small adjustment and see what happens at the front if you are going in the right direction. If not adjust to the other side. If you get to the end of the adjustment range, then you need to adjust the Gear teeth setting to make a course change. These settings react different for different firmware. On the gear teeth programs more teeth mean slower timing by the pitch of the teeth. For a 36-1 gear the timing will jump 10 degrees slower if you add a tooth. The Timing sensor wall advances with higher values. It can adjust from 0 to 9 degrees.

Once you get the timing light spot-on with software timing, you can check if your adjustable timing light works correctly. Put it on 10 degrees for a distributor then the flash should fall on TDC. If you have wasted spark or COP coils, then 20 degrees on the timing light will fall on TDC. If you have a Rotary with wasted spark leading coil the 40 degrees on the timing light should fall on TDC.

Now put your maximum timing back to where it was and save the data to the device. It is good practice that after setup of the software before tuning, save a base map. Should something go wrong then you save a lot of time.