



IGNITION COIL TROUBLESHOOTING

IS THE ISSUE DOWN LOW IN THE RPM BAND?

1) Potential issues down low in the rpm band have been related to improper voltage to the ignition system, excessive timing as well as EMI issue causing interference with the engines sensors. Due to the higher output of the ignition coils, they are able to bridge the spark gap (fire) easier than other designs in low load situations causing a small artificial advance in timing. By backing off timing low in the rpm/load band where the issue occurs the engine should smooth out. Certain tuners over advance timing down low in the rpm band causing erratic running from 1500-2000 rpm when using our ignition coils.

Due to the high output nature of the ignition coils, voltage issues can also cause the ignition coils to “starve” for energy. Making sure voltage levels never drop below 13 volts will allow the ignition coils to fire more reliable and with maximum charge.

Other probable causes have been the removal of the OE Ford ignition coil condensers (small black boxes) that come stock on the engine. If the issue still persists remove any non-resistor spark plugs and install standard resistor style spark plugs. If that does not work please see our EMI troubleshooting technical documentation to further diagnose and resolve any EMI related issues.

IS THE PROBLEM UP HIGH IN THE RPM BAND?

1) Possible ignition related issues have been overtaxed alternators that cause the ignition system voltage to drop at WOT. Aftermarket add on accessories that draw more than 20 amps will overtax the OE alternator causing voltage loss at WOT. WeaponX has also diagnosed that the Ford EDIS runs in a sequential firing pattern when the cam sensor is working properly. This allows the EDIS to charge the coils to their proper capacity during WOT runs. If the sensor is malfunctioning the EDIS fires in waste spark causing the ignition coil charge time to drop in half. This does not provide adequate charge time for the WeaponX high output coils. If after exhausting those options EMI is the last potential cause of poor running high in the rpm band. In that case using standard resistor style spark plugs and referring to our EMI troubleshooting technical documentation will help resolve any issues.

Other issues we have seen on the 4V is when the cam covers are not sitting on the engine properly they do not allow the interference fit ignition coils to snap on the spark plugs. In this case, it is generally a good idea to pull out the ignition coils and manually install the ignition coils on a spark plug to make sure they are clipping onto the spark plug properly. Typically when the ignition coils are installed properly a tight snap is felt.

Typical tests a customer can also perform are a visual inspection to make sure the case of the ignition coil is in tact. Also a continuity test can be performed on the ignition coils which should read ~1.4 ohms at the harness connector (primary coil) and ~13.9k/ohms from the positive and/or negative terminal to the spark plug terminal (secondary coil).

Other ignition related issues seen have been ignition coil polarity. There have been reported cases due to extraneous reasons, such as other manufacturer ignition coils, engine swap, dealer work, where customers have improper ignition coil polarity. This can potentially reduce ignition coil output by as much as 25%.

For additional TowerEFX related issues please see the TowerEFX manual.

DOES THE PROBLEM STILL PERSIST?

If the problem still persists an ignition coil may need to be replaced. In order to properly process your ignition coils replace one ignition coil at a time until the culprit ignition coil causing an issue is found. Individual ignition coils can be ordered or warrantied by emailing support@weaponxperformance.com