

## **ANCILLARY & SYSTEM OPERATION TESTING**

In the event that a vehicle does not produce the expected improvements when the nitrous system is used but the nitrous system tests perfectly, it will be necessary to carry out the following checks;

### **Ignition spark strength measurement.**

1) Remove the king lead from the centre distributor cap connection but leave it connected to the coil.

2) Connect the free end of the king lead to a spark tester and clip the spark tester to ground. Then spin the engine on the starter motor whilst watching for the spark across the tester contacts. Keep widening the tester until the spark becomes inconsistent. Make a note of the gap measurement at this point.



3) Refit the king lead to the distributor cap and remove number 1 cylinder lead from the spark plug.

4) Connect the free end of the plug lead to a spark tester and clip the spark tester to ground. Then spin the engine on the starter motor whilst watching for the spark across the tester contacts. Keep widening the tester until the spark becomes inconsistent. Make a note of the gap measurement at this point.

5) Reconnect the first lead and repeat step 4 to test all the remaining leads.

6) In all cases the spark should jump at least a 20mm gap to be adequate, anything less and the appropriate component/s should be replaced with either stock new or upgraded aftermarket part/s.

7) In the event that new parts are fitted, do not assume they will perform correctly. Repeat the above test procedure to ensure they perform as required.

### **Ignition Electrical system supply checks**

Assuming all the above test results are acceptable, the ignition should produce good results under nitrous use conditions. However, if that is not the case, it is more than likely that with the engine under load and the additional current draw caused by the activation of the solenoids etc., that the reduced available current, has seriously reduce the performance of the ignition system. The following tests should be carried out to determine if this is the case.

1) Connect a Volt meter across the ignition coil (or across the power supply to each coil in COP – coil over plug arrangements) and measure the voltage with the ignition on and then with the engine running at idle and at high RPM noting any difference.

2) With the Volt meter still connected across the coil and with the ignition on, energise the nitrous system (with the solenoids blanked off or inputs not connected) and make a note of the reading. It should be very similar, if not the same as the reading without the system energised.

## Electrical system supply checks

Assuming all the above test results are acceptable the ignition should produce acceptable results when the system is in use. However, if the vehicle still doesn't perform correctly, it is now necessary to check the remaining electrical supply system and measure the current/voltage available at key points in the system as follows;

1) Connect a meter in an appropriate way to check each component (switches, relays, wiring, ignition components, fuel pump, nitrous Pulsoids, Max Extreme, etc.), is getting a **sustained** supply as close to the component as possible.

2) Energise each component **alone** and measure the voltage across that component for approx. one minute and make a note of the results and any changes.

3) If the voltage significantly drops on any component, carry out a test to determine if the drop is occurring on the earth or the power side of the circuit. Do this by connecting one of the test probes to either a permanent ground or permanent live (the car battery is best for this) depending on which side of the circuit is being testing.

E.g. - If the nitrous solenoid drops voltage during a test, leave one probe connected to the ground side of the circuit and connect the other probe to +12V (ideally from the battery) and perform the test again. If the voltage still drops the problem is on the ground side of the circuit. If it doesn't the problem is on the live side.

4) To determine where the fault on the circuit is, the next junction in the circuit will need a similar test (e.g. a relay, switch or Max Extreme)

5) When possible repeat all the measurements with the vehicle under as close to maximum load as possible and make a note of the results and any changes.

6) Report all figures to WON