



TIPS AND TRICKS

Ignition coil

Application

Audi / Seat / Skoda / VW

Part Number

245141

IGNITION COIL 245 141

Electrical pinout

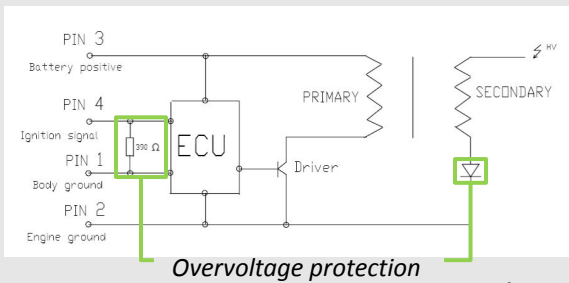


Fig. 1

DESCRIPTION

This Technical Service Bulletin describe the the different steps to install correctly the ignition coil 245 141.

Technical service receive some calls concerning this part number with a problem of engine won't start or don't work properly, after analysis the degradation of the coil is probably due to an overvoltage.

As you see in the electrical pinout, if the engine ground potential is not conform with the electric body potential you are on risk to damage the internal ECU or the driver controller.

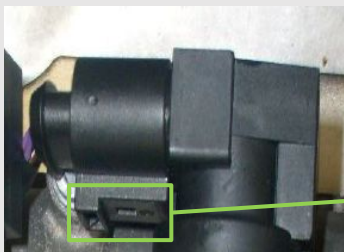


Fig. 2

Installation procedures

- Save the DTC (**D**iagnostic **T**rouble **C**ode) before the repair procedures
- Remove the negative battery cable in order to avoid any electric shock which could happen in damaging the Engine ECU (Engine Control Unit)
- Visual inspection the ignition coil for damage and check the harness for damage, if damage found repair it before proceeding to next step
- Install the new ignition coil tighten accordingly
- Using the old spark plugs and ignition coils must be installed in same cylinder
- Check the ground line fixation for any dirt or looseness as shown in **Fig 3**, repair if need.
- Connect the negative battery cable and connect the vehicle again to the scan tool and erase the DTC (**D**iagnostic **T**rouble **C**ode).
- Start the engine and monitor if there is a misfire occurs via using Scan tool.

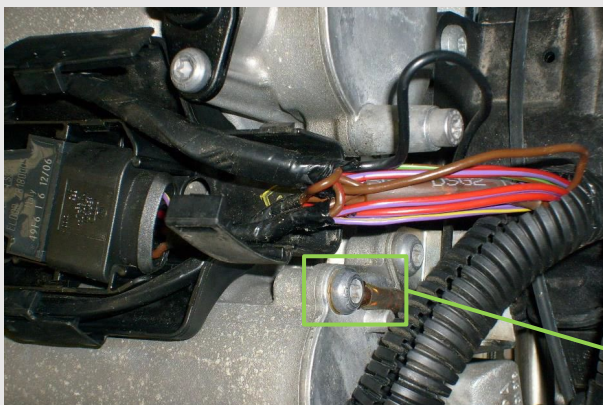


Fig. 3



Electrical pinout

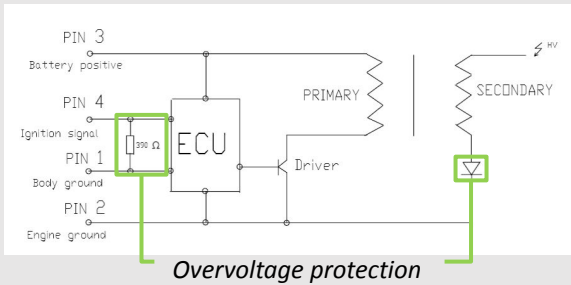


Fig. 1



Fig. 4

Recommendations

- It is preferable to replace the all ignition coils as complete set to be the same lifetime.
- Check the conditions of all spark plugs for any oil residuals, carbons or burned electrode. replace if needed
- Always tighten & clean the engine ground line which provide ground line to **pin 2** (Fig.3) . Fault in ground line fixation may cause misfire or no start.
- Measure the internal resistance of the **primary** coil by using the multimeter, connect positive & negative probe of multimeter on **pin 3 & pin 2** respectively, standard value should be **0.5 to 0.9 ohms** (as shown in Fig.1)
- Measure the **secondary** coil resistance by adjusting the the multimeter on **diode resistance** mode (Fig. 4) and connect the positive & negative probe of multimeter on HV (High-Voltage) & PIN 2 respectively (as shown in Fig. 1) , the measured value should be more than **6000 ohms**.
- Measure the **protective** resistance 390 ohms by connecting the multimeter probes on PIN 1 & PIN 4 (Fig. 1)

Overvoltage phenomena

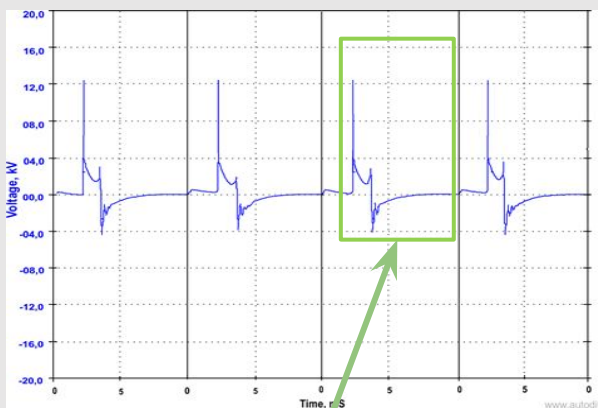
Before you verify there is no overvoltage in the engine system. we should know the cause of this phenomena.

- 1st cause:- The voltage regulator inside Alternator is damaged allowing providing more voltage than the standard which is should be around 12.5v to 14v.
- 2nd cause:- Internal failure in Ignition coil:- the protective resistance in the primary coil is damaged and high back EMF (ElectroMotive Force) generated which damage the primary coil.

Overvoltage Verification

There are 2 procedures to verify that the system doesn't have overvoltage.

- Start the engine connect both probe of multimeter on the battery plugs and monitor output voltage of the battery at idle speed and engine speed at 4000 rpm, meanwhile Monitor the charging voltage on scan tool. the two reading should be the same.
- With a Oscilloscope device: Connect positive probe on the battery line PIN 3 and the negative probe on PIN 2 Fig.1) . This method will confirm the supply standard voltage and the correct operation of the ECU Engine Control Unit by monitoring the PWM (Pulse Width Modulator) pattern (as shown in Fig. 5)



Standard Ignition coil PWM pattern

Fig. 5

