INSTALLATION INSTRUCTION

Installation of Shielded MOTORTECH® Ignition Coil with Diagnostic Interface

Install the ignition coil as follows:

Risk of destruction!

Wires that are not properly installed can be damaged or destroyed while the engine is running.

The cables of the primary and the secondary wiring must not be bent or come in contact with hot surfaces.

1. Install the ignition coil with two M8 screws and two M8 washers.
2. Plug in the connector of the secondary wiring (torque 5 Nm [3.7 lb-ft] ±10 %).
3. Plug in the connector of the primary wiring (torque 3 Nm [2.2 lb-ft] ±10 %)
   - ▸ The ignition coil has been installed.

High voltage! Danger to life!

While the engine is running, the area around the ignition system especially holds the risk of danger due to high voltage!

The residual energy on the central electrode of the diagnostic interface amounts to a maximum of 3.6 mJ. The central electrode of the diagnostic interface must not be touched while the engine in running.

Function of the Diagnostic Interface

The diagnostic interface offers the opportunity to measure the high voltage requirements and the spark duration of the spark plug while the engine is running. The measured values can be used to derive the condition of the spark plug and the ignition coil.

The capacitive measuring process can be used for preventive maintenance or for supportive analysis in the event of a problem. Measurements in regular intervals can also reduce maintenance costs. The measured values are displayed on a SparkView high voltage indicator from MOTORTECH or on an oscilloscope.

Measuring High Voltage

1. Remove the lid from the diagnostic interface of the ignition coil.
2. Use a MOTORTECH measuring cable to connect the ignition coil to the SparkView (see SparkView operating manual) or to a grounded oscilloscope that has the following characteristics:
   - Bandwidth: ≥ 20 MHz
   - Inputs: ≥ 1
   - Input resistance: ≥ 1 MΩ
   - Input capacity: ≤20 pF

3. Set up the oscilloscope for the measurement:
   - Sensitivity: 1 to 10 V/div DC
   - Time: 10 to 100 µs/div
   - Triggering: Declining flank
   - Triggering: Around 10 kV (1 V corresponds to a secondary voltage of 1 kV)
4. Record the measured values with the oscilloscope.
5. Disconnect the measuring cable from the ignition coil.
6. Mount the lid onto the diagnostic interface of the ignition coil.
   - ▸ You can evaluate the measured values.

Measured Values

The voltage measured by the oscilloscope can be assigned to a high voltage level. The measured voltage represents the actual high voltage level with the following range of tolerance:

- From 10 kV to 30 kV the tolerance is ± 1.0 kV.
- From 30 kV to 35 kV the tolerance is ± 1.5 kV.
- From 35 kV to 45 kV the tolerance is ± 2.0 kV.