

# Spark plug change – the most common mistakes

## Errors and possible consequences

- Working on the hot engine:
- ▶ **Danger of burns**
  - ▶ **Damage to the spark plug thread**



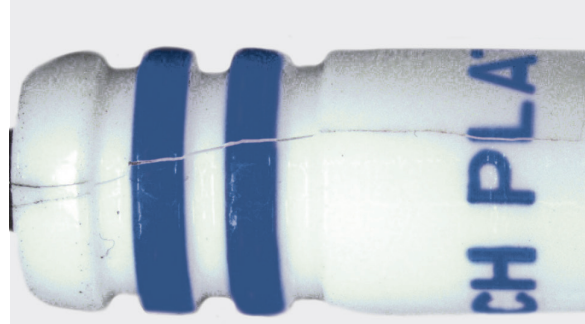
Molten aluminum of the cylinder head in the steel thread of the spark plug

- Polluted environment: particles can get into the combustion chamber
- ▶ **Engine damage**



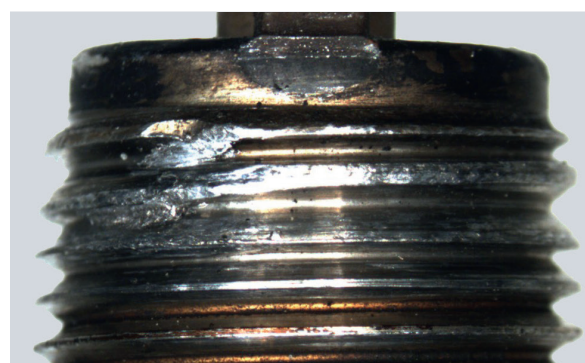
Dirt on the spark plug

- Unsuitable tool: spark plug falls out or tilts while screwing it in and out
- ▶ **Damage to spark plug or cylinder head**



Damage to the ceramic due to the use of unsuitable tools

- Use of oil and lubricating grease: can cause incorrect torque
- ▶ **Damage to spark plug or cylinder head**



Grease has acted as an adhesive and torn out parts of the thread

- Tightening the spark plug without torque wrench:
- ▶ **Damage to spark plug and cylinder head**
  - ▶ **Lack of gas-tightness**
  - ▶ **Engine damage**



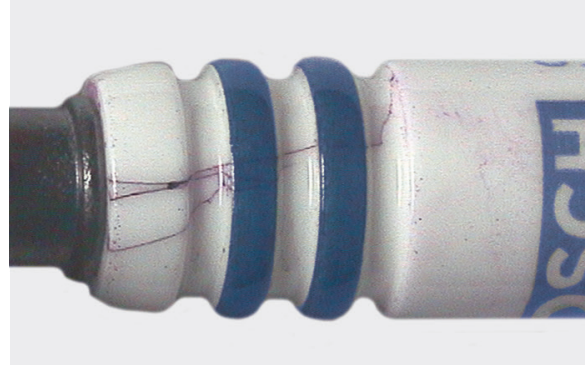
Corrosion inside the spark plug, caused by lack of gas-tightness.

- Cleaning and reinstalling of sooted spark plugs:
- ▶ **Wear or sooting can be indications of engine malfunction or incorrect spark plug**



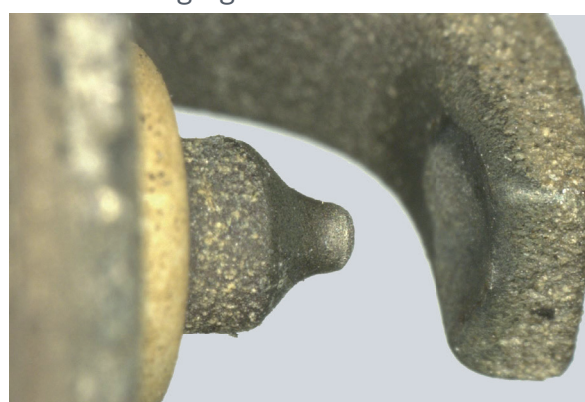
Electrodes damaged by cleaning with a wire brush

- Installation of a dropped spark plug: Visible damage (broken ceramic, bent electrodes) and invisible damage (hairline cracks in the ceramic):
- ▶ **Malfunction of the spark plug or engine damage**



Microcracks in the ceramic made visible with staining agent

- Selecting spark plug according to external characteristics such as shape or thread length:
- ▶ **Malfunction of the spark plug**
  - ▶ **Premature wear**



Extremely high wear on the electrodes

- Not replacing the entire spark plug set:
- ▶ **Spark plugs that are not changed can fail a short time later or lead to misfiring**



Electrode gap in new and used condition (graphic illustration)

- Reinstalling used spark plugs: compressible sealing ring might lose its sealing function
- ▶ **Lack of gas-tightness**
  - ▶ **Malfunction, increased wear or engine damage**



Comparison of a used and a new spark plug

## How it's done right

**Let the engine cool down**

**After removing the ignition coils clean the surroundings**

**Use spark plug wrench or socket with special design to secure and protect the spark plug (magnet, rubber, etc.)**

**Do not use grease, oil or anti-seize on Bosch spark plugs**

- ▶ **Tighten new spark plugs hand tight**
- ▶ **Refer to the torque on the packaging and set on torque wrench**
- ▶ **Tighten with torque wrench and stop at the click sound**

**Do not clean, spark plugs should be replaced. The correct spark plug can be identified e.g. by referring to the Bosch catalog**

**No reuse of dropped spark plugs**

**Identification of the correct spark plug the application e.g. by referring to the Bosch catalog**

**Always all spark plugs should be replaced at once**

**Always new spark plugs should be installed**