Cleaning the spark plugs

... or why this may lead to defective spark plugs

Almost all maintenance manuals for gasoline engines state that the spark plugs should be checked and cleaned regularly. The Line Maintenance Manual for Rotax engines states:
Dismantle all spark plugs, check thermal value, clean, check electrode gap and adjust if necessary.
Replace if necessary.

If you look around the WWW, you will find a number of cleaning methods and the topic almost seems like a religious war.
Here is an overview of the methods found:

1. cleaning with wire brush
2. cleaning with a brass brush
3. cleaning with sandpaper
4. Clean with acid (acetic acid, citric acid)
5. Clean with brake cleaner
6. clean with a flame
7. cleaning in ultrasonic bath
8. clean with an abrasive
9. do nothing but simply renew

After more than 50 years of mechanic experience, I have stuck with the last 4 methods.
I generally rule out methods 1 - 3 because there is a possibility that the insulator will be damaged.
It may be scratched by the brushes or the sandpaper and can form cracks during further operation, causing the ceramic parts to fly through the combustion chamber and cause major damage.
— Doesn't have to be, but can be —

Method 4: I haven't tried this yet, so I can't say anything about it.

Method 5: helps if the engine has run down and you can dry the spark plugs with the brake cleaner and then blow them out and use them again.
The method is no good for more possibilities.

With the necessary care, **method 6:** is an effective way of burning away all deposits.
Here, the tip of the spark plug is heated with a Bunsen burner or similar device until the insulator is white.
This will cause the tip of the spark plug to glow.
All residues and deposits are then safely removed without damaging the insulator and the electrodes.
A huge advantage is that any cracks or damage to the insulator of the center electrode can be detected and the spark plug can be disposed of.
One disadvantage is the appearance after the spark plug has cooled down. To put it mildly, it looks really modest after the procedure.
From a technical point of view, however, this is not a problem apart from the susceptibility to rust

caused by the destruction of the surface coating of the spark plug.

Method 7: is probably the gentlest and safest way to clean a spark plug properly.
Unfortunately, an ultrasonic bath is not a cheap investment, but can also be used for all kinds of cleaning work, such as carburetors.
However, you should bear in mind that such a device belongs in every reasonably equipped workshop.
However, it is clear that a professional device is meant here and that an appropriate cleaning agent should also be used.

Method 8: Even as an apprentice in 1969, I learned that you must not clean a spark plug mechanically.
In my VW training company in Goslar, we had a special spark plug testing and blasting device.
My journeyman gave me a good earful when I tried to clean a spark plug with a brass brush. He was pretty sneaky because he just put the spark plug in my hand and watched what I was doing. But it has stuck with me to this day 😉
Today there are very cheap devices that allow good and gentle cleaning with glass beads or nutshells.

Method 9: Replacing the spark plugs is still the most reliable method and the quickest way to rule out a source of error in the spark plugs before puzzling around for a long time.

From:
http://www.kleinjung.de/rotax/ - **Ralle's ROTAX FAQ**

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Last update: **11.02. 2025 17:28**