SPARKPLUGS FOR OILHEADS
08 June 16
Ben Barkow
Toronto

Choice of sparkplug… as with other matters, the priorities of The Factory may not be the same as yours or mine. There are only two significant reasons for BMW to choose multi-electrode sparkplugs, the kind that come installed in an Oilhead. In likely order of importance these are (1) they seem more contemporary and *with-it* than the old, single electrode kind and (2) they maintain their electrode spark gap against the forces of erosion for a very long time.

The multi-electrode plugs maintain their gaps because they have two to four large ground electrodes — those bits of the metal sparkplug body that are bent over towards the centre electrode; they serve as the ground (or chassis or earth) electrode. With each spark, there is a tiny amount of electrode eaten away – depending on the metal the electrode is made of. Thus these large ground electrodes provide a massive amount of metal from which to wear away during use. Therefore, the size of the gap doesn't enlarge until the whole nearest bit of metal has been eroded. Of course as a serious downside, this massive amount of metal also shields the plug from the combustible gases in the cylinder that it is supposed to ignite.

When a high voltage is impressed across a sparkplug gap, only one single spark of lightning forms and no more. It doesn't matter if you have six electrodes, there's just one spark. That spark is typically from the sharpest points and the closest together points.

Most authorities think that a spark will have the same potency whatever the kind of plug. However, a new and sharp-pointy plug may fire at a slightly lower voltage. That is an advantage under when the bike is operating under marginal conditions of low battery or wet sparkplug wires or something like that. Spark plugs do not enhance power unless, again, you are operating in the margins.

The multi-electrode plug will keep the prescribed gap for a long time without eroding larger. But that doesn't mean it is nice and pointy and sharp after the first month of use.

Just considering reason 2, it seems reasonable enough for BMW to want to provide extended maintenance intervals for their bike customers, perhaps as long as for cars. But ordinary sparkplugs last plenty long already. So those eternal multi-electrode plugs would have long since gotten tired, carbon-clogged, and rusty by the time their gap enlarged enough to need replacing. Indeed, somebody will probably have invented a better kind of sparkplug by the time replacement due to gap enlargement is needed. So I'd say, just find a nice cheap Autolite sparkplug and change it once every year or three.

A better idea is to install iridium or platinum sparkplugs. These metals are very hard and have high melting points. Probably to limit the amount of these precious metals used in the plug, both the core and the ground electrodes are quite small and sharp. Being small, they are better exposed to the fuel mixture actively swirling in the cylinder and so they interfere with the gas access to the spark less. Being pointy and hard, they make a better spark at a lower voltage (always a good thing) and they keep their pointy character through their long service lifetime. I suspect they have broader heat ranges too, which is an important feature for bikes. Thus they last a long time and justify their premium price.

They even top multi-electrode plugs in the contemporary *bling* or *with-it* status race.

These plugs come correctly pre-gapped and you'll just never have to fool with them ever. Sounds good to me.

BTW, BMW has gone from recommending a three-electrode plug to a two-electrode plug. If they go down to a one-electrode plug someday, it may further help reduce surging, just as I believe iridium plugs do. But then again, BMW does not acknowledge that surging exists.

In my 1999 R1100S, I use "NGK BKR7EIX (8)" (the "(8)" is the correct gap for the Oilheads) and after 23,000 miles, are still pleasantly pointy and without a bit of gap erosion.

Notes

Can iridium plugs be helpful in the dual-spark models, even at twice the total cost? If there is no shortcoming of the existing sparkplug and if there is no shortcoming of the cylinder design (as revealed by surging, for example), then it may be hard to detect any improvement by using iridium plugs. But it can't hurt.