Reading Spark Plugs

The following information is directly from the NGK website.

Normal Condition

An engine's condition can be judged by the appearance of the spark plug's firing end. If the firing end of a spark plug is brown or light gray, the condition can be judged to be good and the spark plug is functioning optimally

Dry and Wet Fouling

Although there are many different cases, if the insulation resistance between the center electrode and the shell is over 10 ohms, the engine can be started normally. If the insulation resistance drops to 0 ohms, the firing end is fouled by either wet or dry carbon.

Overheating

When a spark plug overheats, deposits that have accumulated on the insulator tip melt and give the insulator tip a glazed or glossy appearance.

Deposits
The accumulation of deposits on the firing end is influenced by oil leakage, fuel quality and the engine's operating duration.

Lead Fouling
Lead fouling usually appears as yellowish brown deposits on the insulator nose. This can not be detected by a resistance tester at room temperature. Lead compounds combine at different temperatures. Those formed at 370-470°C (700-790°F) having the greatest influence on lead resistance.

Breakage
Breakage is usually caused by thermal expansion and thermal shock due to sudden heating or cooling.

Normal Life

A worn spark plug not only wastes fuel but also strains the whole ignition system because the expanded gap (due to erosion) requires higher voltages. Normal rates of gap growth are as follows:
Four Stroke Engines: 0.01~0.02 mm/1,000 km (0.00063~0.000126 inches/1,000 miles)
Two Stroke Engines: 0.02~0.04 mm/1,000 km (0.000126~0.00252 inches/1,000 miles)

Abnormal Erosion

Abnormal electrode erosion is caused by the effects of corrosion, oxidation and reaction with lead - all resulting in abnormal gap growth.

Melting

Melting is caused by overheating. Mostly, the electrode surface is rather lustrous and uneven. The melting point of nickel alloy is 1,200~1,300°C (2,200~2,400°F).

Melting

Melting is caused by overheating. Mostly, the electrode surface is rather lustrous and uneven. The melting point of nickel alloy is 1,200~1,300°C (2,200~2,400°F).

Lead Erosion

Lead erosion is caused by lead compounds in the gasoline which react chemically with the material of the electrodes (nickel alloy) as high temperatures; crystal of nickel alloy fall off because of the lead compounds permeating and separating the grain boundary of the nickel alloy. Typical lead erosion causes the surface of the ground electrode to become thinner, and the tip of the electrode looks as if it has been chipped.

MOTORCYCLE PARTS & ACCESSORIES

Click on links below

- Motorcycle Parts & Accessories
- Dirt Bike Parts & Accessories
- Motorcycle Helmet Closeout Sale
- Honda Motorcycle Original Equipment Parts
- Kawasaki Motorcycle Original Equipment Parts
- Suzuki Motorcycle Original Equipment Parts
- Yamaha Motorcycle Original Equipment Parts
- Save On All Motorcycle Tires
- Motorcycle Gear Closeout Sale
- High Visibility Motorcycle Safety Gear
- Cycle Gear – Free Shipping
- Free Shipping On All Motorcycles
- Save Up To 80% On All Car Parts