INSTRUCTIONS

ZEX™ V8 Spark Plug Tuning Guide

Thank you for choosing ZEX™; we are proud to be your manufacturer of choice. If at any time you have questions regarding this or any of our products please call our toll free product support line at 1-888-817-1008.

Quick Start Reference Guide

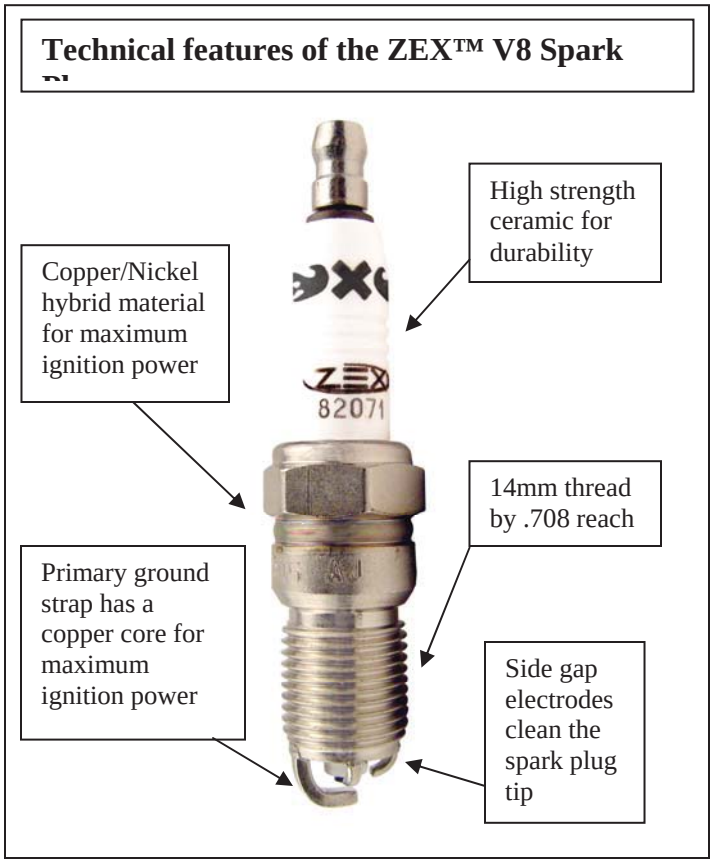
Your spark plugs are a "window" into the combustion process within your engine. With an observant eye, you can dial in your engine's air/fuel ratio and spark plug parameters for maximum horsepower and reliability.

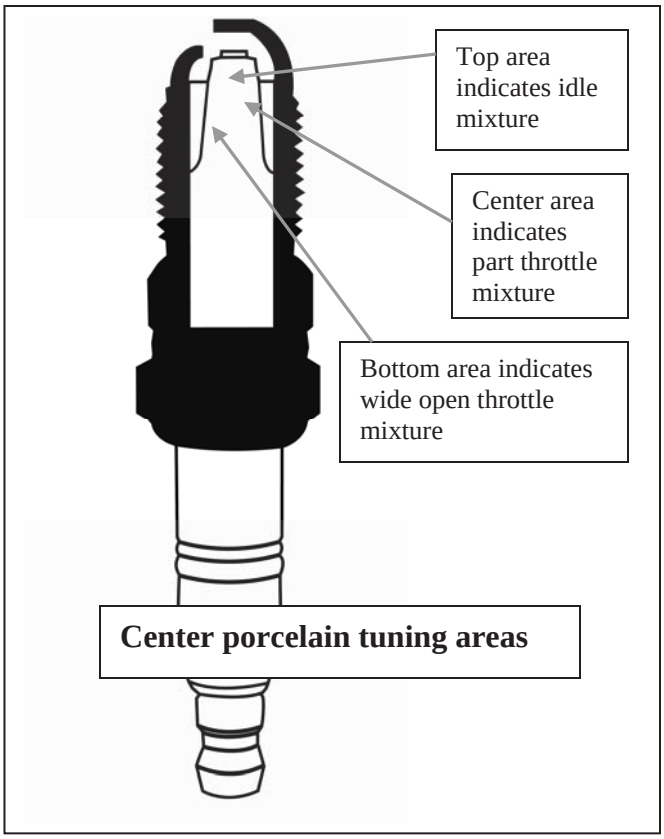
Use New Plugs for Tuning:
Once plugs have been used for more than a few hours, deposits start to form that make it more difficult to observe the true air/fuel mixture. The most accurate tuning will be achieved with a fresh set of spark plugs that have a few passes on them.

Wide Open Throttle Tuning:
The optimum method for checking your wide open throttle air/fuel ratio is to make a full throttle pass, shut the motor off at wide open throttle, coast to a safe spot, then remove the plugs and inspect. It may take several runs on a fresh set of plugs to begin the coloration process.

Use Anti-Sieze:
A small dab of anti-sieze compound on the plug threads will ensure there are no cylinder head thread galling problems with repeated plug removal. Anti-sieze also ensures your plugs will be easy to remove if left in the engine for extended periods of time.

Fuel:
Pump gas tends to be very difficult to tune with. Very little deposits are left behind when pump gas is burned, so it may take quite a bit more time for plug coloration to occur, compared to a leaded racing fuel.





Tuning Fundamentals

The spark plug has two main areas you should observe when dialing in your engine's air fuel mixtures:

Reading the Center Porcelain:

- Top area indicates your idle mixture. With racing fuel, this should be a dark grey color. With pump gas, this area will be off white to light tan in appearance.

- Center area indicates your part throttle air/fuel mixture. With racing fuel, this should be a dark grey color. With pump gas, this area will be off white to light tan in appearance.

- Bottom area indicates your wide open throttle air/fuel mixture. With racing fuel, this area should have a dark grey or tan ring at it's base, after a sustained wide-open throttle pass. With pump gas, this area should have some light deposits, forming a ring around the base of the center porcelain.

Reading the Primary Firing Ground Strap:

- Coloration and it's location on the ground strap is an indicator of the heat in the combustion chamber. It is ideal to have some discoloration around the 90 deg. turn in the ground strap. If the discoloration is farther down the strap, towards the base of the plug, it is an indicator that the mixture may be leaner than optimum. If the discoloration is more toward the tip, the mixture may be a bit richer than optimum.

The spark plug gap requirement is largely determined by the power of the ignition system and the density of the air/fuel mixture in the combustion chamber. Too little gap and you give up some power, too much gap and the engine misfires. There are two significantly different engine combinations that we need to concern ourselves with:

Setting the Spark Plug Gap:

- For normally aspirated engine combinations, a good place to start is a .045 plug gap. If no misfire is detected at wide open throttle, increase the gap .003 and retest. Once a misfire is detected, back off the gap .005, this will be your optimum plug gap. Remember to check your plug gap every few months to ensure that optimum performance is maintained.

- For nitrous or forced induction engine combinations, a good place to start is a .035 plug gap. If no misfire is detected at wide open throttle, increase the gap .003 and retest. Once a misfire is detected, back off the gap .005, this will be your optimum plug gap. Remember that if you increase the nitrous shot or boost level, you will generally need to reduce you plug gap accordingly. Remember to check your plug gap every few months to ensure that optimum performance is maintained.

Extra Tuning Tips

Detonation:
An indicator of detonation will be cracked or missing porcelain as well as a center electrode being melted. It is also common to observe small black or grey specs on the center porcelain.

Lean indicators:
If an engine is run excessively lean, it is common for the primary firing ground strap to melt away or at the very least, leave the normally sharp edges of the ground strap rounded. If any of these conditions are present, immediately check the fuel system over and add additional fuel enrichment.

Excessive wear:
A spark plug has excessive wear and needs to be replaced when the sharp edges of the center electrode and the sharp edges of the primary ground strap become rounded due to wear.

Fuel:
Pump gas tends to be very difficult to tune with. Very little deposits are left behind when pump gas is burned, so it may take quite a bit more time for plug coloration to occur, compared to a leaded racing fuel.

The truth about platinum and iridium plugs!

You've heard the hype about platinum and iridium. While these materials are durable, there's a performance trade-off due to their high electrical and thermal resistance. ZEX™ Igniter Core™ technology uses a copper electrode, surrounded by a durable nickel shell, to conduct electricity and heat over 5 times better than platinum and nearly 3 times better than iridium. The result is more horsepower producing spark energy and greater detonation resistance than either platinum or iridium. As an added benefit, groundbreaking Clean Fire™ technology uses the spark from three additional ground straps to super-clean the center electrode and burn off excess carbon, ensuring you get maximum ignition power and superior resistance to fouling.

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