Fast Burn or Slow Burn Gasoline

Which is Better?

There are some common misconceptions out in the racing world about whether someone should have a fast burn gasoline or a slow burn gasoline. From our point of view, it is best to have a fast burn gasoline. Read on!

Combustion takes a certain amount of time to take place and anything that can be done to reduce the time involved is an improvement, especially at high RPM. Slow burning gasoline is a disadvantage because some of it may still be burning when the exhaust valve opens, and unburned gasoline passes out through the exhaust. This is very inefficient since any gasoline that is not burned before the exhaust valve opens simply gets in the way of gasoline that burns and makes housepower. To improve the combustion characteristics of a slow burning gasoline, the spark timing needs to be advanced. This addition of spark timing means that pressure in the combustion chamber begins to rise earlier, creating more resistance to the piston traveling to TDC. This creates more friction (or negative work), thereby reducing available horsepower.

On the other hand, if we use a fast burning gasoline, spark timing does not have to be as great as with a slow burning gasoline. As a result, the plug can be fired later in the cycle, allowing the piston to travel closer to TDC before the pressure begins to rise rapidly. An additional benefit of fast burn gasoline is that we can usually burn more fuel which develops more power. So, in using a fast burn gasoline, we have gained power by not having to fire the plug as early in addition to burning more gasoline.

In tests conducted using 500 CID, 1250+HP NHRA Pro Stock engines with fast burn gasolines, we found improvements of up to 18 horsepower when compared to non-fast burn gasolines. Ironically, this same level of power increase (18HP) was found in a 600 horsepower NHRA Stock Eliminator engine with 10.5:1 compression ratio.

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