



Why use regular 87 Octane gasoline

Many people believe that a higher octane fuel produces a higher compression, thus improving engine performance. **Not really!** It depends on the car engine. For about 95% of the cars in Jamaica, 87 octane gasoline is the recommended one. **More often than not, using a higher octane gasoline will not improve performance.** For those cars, the higher octane gasoline (90 grade) is only recommended if that car engine knocks (pings) when using 87 fuel.

It is a myth that higher octane fuels are better for one's vehicle. The logic has been that 90-grade octane is a premium fuel and hence it must be better. In reality the premium label on 90-grade gasoline originates from the higher cost to refine and the resultant higher retail cost. Some owners think that the 90-octane gasoline will make their vehicles more powerful. However, only engines with high compression ratios can deliver all the potential energy from 90-grade octane. Generally engines with compression ratios of 9.3:1 or less will operate efficiently with unleaded 87-octane gasoline. Engines with higher compression ratios may require 90 grade octane fuels.

A typical engine for most cars in Jamaica has a compression ratio of approximately 8:1.

What Does Octane Mean?

The octane rating of gasoline tells you how much the fuel can be compressed before it spontaneously ignites. When gasoline ignites by compression rather than because of the spark from the spark plug it causes **knocking** in the engine. 87-octane gasoline can handle the least amount of compression before igniting.

One way to increase the horsepower of an engine of a given displacement is to raise its compression ratio. So, a "high performance engine" has a higher compression ratio and requires higher-octane fuel. The disadvantage is that the gasoline (90 octane) for these high performance engines cost more.





A Further Complication in the Numbers

There are two main ways of expressing the octane rating of gasoline. One is by the research octane number (RON), the other is by a formula of $(RON+MON)/2$. The problem is that the **87** gasoline that we use in Jamaica, which is based on the formula $(RON+MON)/2$, is equivalent to **90** RON. Hence, if one looks in a car manual and sees 90 RON, one is likely to conclude that one needs 90 octane at the pump although one only needs 87 octane gasoline.

The fact is that 94 RON is equivalent to 90 octane at the Jamaican gasoline pump, and 90 RON is equivalent to 87 at the pump.

ADVICE

The final advice is that nearly all vehicles can operate satisfactorily with 87-octane gasoline, and significant savings can be made, both at the national and consumer level, by using 87 octane which is suitable for most vehicles.

