

TOMMY'S TECH TIPS

As I sit down to write my monthly article I am still thinking about Veterans Day, which was 2 days ago. These articles are written weeks in advance, and I missed the chance to say thank you to our Vets! So now, I would like to take an opportunity to personally THANK All Veterans Past and Present.

Two of the Guys I look to for advice are Veterans. My Father-in-Law, Ken, a Korean war Veteran, a machinist who served on a Navy destroyer, in the engine room. Always happy to help when I have questions about how to machine, measure, convert numbers and tooling type things. The other Vet I look to, and has always been there is my Dad, Tom Sr. He is a Vietnam era Vet who served in the Navy and Marines. Times were tuff back then and my Dad and Mom gave up so much to raise my brother and me.

Dad was always bringing things home like nuts and bolts, toasters, junked clocks, whatever he could find in the trash. He and I would take them apart and I showed me how to use tools. Then we advanced to bicycles, then motorcycles and cars. All of them were to be chopped, modified and rebuilt. My Great Grandpa made knives and was well known for them. Now, 93 years old and an expert woodworker and a champ at small engine repair. My Dad has all of their skills deluxe, a true artisan who owns a respected dental laboratory. He also makes museum quality pieces in his wood shop. Actually built a Boss Hoss motorcycle, customizing Harleys and restoring some cool old cars in the garage. The current project is Great Grandpa's 37 Hudson Terreplane.

I feel very fortunate to come from a long line of Craftsman, Guys who could fix anything... their inspiration moves me everyday.

PERFORMANCE HOPUP

Everyone has an idea of what a souped up engine is. To some it is a stock engine bored .010 over, to me that means more of cylinder overhaul than a hop up. To others it is a cam. To really do it, you need the proper combination. The first thing I would do is make it breathe. A performance exhaust system and air cleaner is a good first step. Not

really a hop up in my book, though some exhaust and air cleaner companies boast of a 5-15 HP increases.

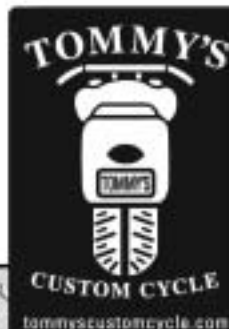
Next, I will separate some popular engine groups the first being shovel and iron Sportsters. On these bikes I have had great results using an updated ignition (Crane Hi-4 Single Fire) and updated carburetor (S&S super E), makes a bike run better and start easier. The Crane ignition can be set for kick or electric start, it has adjustable advance curves and will work with a VOES (vacuum operated electronic switch - it tells the ignition the amount of vacuum present so the ignition can adjust the advance.) I highly recommend the VOES for street use, the bike will run smoother and usually get better gas mileage. Then of course a good cam and headwork will round up a decent hop up.

Evolution rider will benefit from the same, air cleaner, exhaust, ignition and carb. The S&S E works great on these and I also like the stock Kehin CV (constant velocity) carb. They can be set up to handle most hot engines and provide great gas mileage. After the ignition, air cleaner carb and exhaust, I would recommend a good cam, remember to replace the cam bearing, and new lifters would be some cheap insurance. Add to that some adjustable pushrods and some headwork. Porting the heads, larger valves, valve jobs ranging from 3 to 5 angle and the correct valve springs properly set up will make all the difference in performance. Roller rocker arms are nice for any V-Twin engine.

Fuel injected Evos would benefit from the same but wouldn't use the ignition or carb. A fully adjustable fuel management system such as a power commander would take care of the fuel and ignition. Twin cam riders can easily hop up their bikes starting with the same foundation. Exhaust and air cleaner, then high performance ignition and carb or fuel management system. Stay away from the little boxes or fuel optimizer with the 3 adjustable "Fuel Pots" they really don't work well unless all you are going for is a different set of pipes. Big bore cylinders are great, even better go for some gear drive cams, adjustable pushrods, (don't forget the adjustable style pushrod tubes) new lifters and most importantly head work. Most 95 inch Twin cam bikes we do using good heads, the right cams, compression, and performance air cleaner and exhaust easily make 100 to 110 horsepower.

If you have a large bankroll you can big bore your cases, install stroker flywheels, polish and or powder coat your entire motor, diamond cut the fins and more. Engines over 120 cubic inches are becoming more common in custom bikes these days and there will always be someone faster or more powerful. You may not always be the top dog but using these tips, you won't come in far behind.

We didn't mention specific cams, compression ratios, exhausts, air cleaners or the need for compression releases as it all differs on your bikes individual setup. However, in future FRP Tech Tips we'll explore these exciting options.



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Crossage by Suzuki

With more and more car developers making hybrid and electric cars, Suzuki is exploring the concept of hybrid motorcycles with their crossage, a fuel cell powered bike with a unique engine and body design. Crossage's air cooled fuel cell designed by British company Intelligent Energy helps slim down this



design by eliminating the need for a radiator or coolant system. Located just above the hydrogen fuel tank, the fuel cell is very compact, light, and powerful. It sends power to the motor controller which stores it in the lithium ion battery or sends it to the motor. Through combining oxygen in the air and hydrogen from the fuel tank to create power this motorcycle's exhaust is only water vapor thus helping reduce CO2 emissions and protect the environment. On a single tank of hydrogen the crossage can travel about 200km and has the power equivalent of 125ccs. The crossage from which the motorcycle gets its name is not merely an aesthetic choice but also protects the hydrogen fuel tank which is located directly behind the intersecting point. There is also a sensor at the top of the chassis which constantly checks for hydrogen leaks and shuts off the fuel tank if there are any abnormalities.

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