

WHEN THE TIMING IS RIGHT

HILDRETH PERFORMANCE

By John Hildreth

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Tuning is an often over-looked, but essential part, of any performance motorcycle build. This final step in your quest for improved performance should be taken very seriously and executed by a knowledgeable and competent dyno operator with plenty of experience and (preferably) a mechanical background.

In a perfect world, you'll take your bike to a dyno facility, have the carburetion or fuel curve and timing adjusted, and that's all it takes. But in the real world, you will find that some components you chose may not perform up to the full potential of your build expectations. Usually the Number One offender is the exhaust. For example, I've seen where two touring bikes with close to identical builds had vastly different outcomes. Both bikes had slip-on mufflers: one with fish-tail style and the other with Cycle Shack performance baffles. The fish-tail mufflers took 15 HP away from what the motor was capable of producing. Although the fish-tail motor had good peak torque numbers, it didn't carry that torque over a wide RPM range. When faced with that kind of result, you have to make a decision: Are you willing to spend the time and money to tune a bike with its inadequate parts, and probably never achieve ultimate potential, or do you replace the parts? If you choose components that work well with each other from the beginning, your tuner will be able to optimize their performance more easily.

I know this can be a challenge, especially if you don't know which part may be holding you back. That's where a tuner with a good mechanical and tuning background helps. An experienced tuner should be able to pinpoint problem areas and suggest solutions based on the runs he makes. Also, dyno tuners usually have a preference for a specific tuning tool such as a Power Commander, H-Ds SERT, or others. This is another reason to choose your dyno facility when you are first planning your build. That way you'll have the system the tuner is most comfortable with in order to achieve the best results.

This past summer, I sat in on a dyno session

TECH TIP

When using HD's touring exhaust header pipes, it is important to check where the rear pipe connects into the front pipe – commonly called the "Y" – to make sure it doesn't protrude into the front pipe, blocking the flow. In some instances, I have found as much as 50% blockage in this area. This material must be removed to obtain optimal exhaust system results. This material removal was performed on Casey's exhaust system during the build mentioned in this month's article.

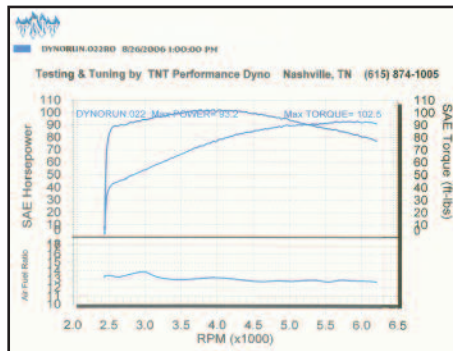
for a touring bike that I had build earlier in the year at TNT PERFORMANCE DYNO in Nashville, TN. When he first contacted me, bike owner Casey Napier knew he wanted to increase the displacement of his 88" 2004 FLHRSI and replace the stock cams replaced with gear drives. In addition, he wanted a wide powerband with close-to-stock reliability, and good fuel economy. After discussing a variety of options with Casey, we built a 95" motor with ported, stock-valved heads, Andrews 37G cams, a Sifton air cleaner kit, stock header pipes with Cycle Shack slip-ons, a stock throttle body, and a Power Commander ignition. In our pre-build computer design phase, I determined the build should be capable of 90 HP and 100+ ft/lbs of torque. I also recommended that Casey contact TNT to do the tuning after his break-in period was complete.



Konrad Thiele of TNT Performance Dyno in Nashville putting Casey's bike through a tuning session

TNT's Konrad Thiele has years of experience with Power Commanders, and the main focus of his business is tuning all types of motorcycles. The day Casey had his motorcycle tuned was very hot and humid – conditions that added a little extra challenge to the tuning process. But Konrad was up to the task. He typically recommends that a street bike be tuned to perform well in all weather conditions (hot to cold), rather than to go for top numbers on the tuning day. That means you won't necessarily get the maximum peak numbers your build is capable of, especially on a hot, humid summer day in Tennessee, but you will be happy with the overall results year-round. If you do tune a bike for maximum peak number on a day like that, you're probably going to experience runability problems such as surging, off-idle stalling, detonation, etc. during the cooler and drier air days of fall, winter, or spring. Konrad took Casey's performance expectations and the weather conditions into consideration during the session, and his final tuning run was right on target with our pre-build design, resulting in 93+ HP and 102+

ft/lbs of torque. To read more about Casey's build and the tuning experience, go to www.napiersworld.com.



When the timing is right! 93.2 HP & 102.5 ft/lbs torque.

To get the most out of your performance modifications, don't forget to consider the tuning aspect when you are in the initial planning stages. Do your homework. If your builder doesn't offer dyno tuning, ask who he recommends. Check with your local dealer, friends, or visit online boards for recommendations. In the end, a competent tuner can literally make or break your performance build.

If you have specific performance questions about your V-Twin, drop John an email at jhfxr@aol.com or give him a call at 256-656-2522.



Casey Napier and John Hildreth after the tuning session.

[Author's Note: Last issue's PERFORMANCE CORNER article entitled "New Horizons" contained a typo. In the first paragraph, the line should read: "...raised intake ports on the new heads ('06 DYNAS & '07's) are a vast improvement..." We apologize for any inconvenience or misunderstanding this may have caused.