



MotoMan

" Thinking the Un-Thinkable "

POWER NEWS
Magazine

Presents:



Future Horsepower

(Where Will It Come From ??)

Viewer Feedback

MotoMan:

Call me a major skeptic but all these claims of more power ... yada ... yada, and not one of the posters has dyno charts. If you want to be taken seriously, then some concrete data is in order.

~ Matthew

Hi Matthew !!

Thanks for your feedback !

There were 2 dyno sheets showing the power increases of high velocity porting in the first porting article entitled "Think Fast". (All the past issues are at the very bottom of every Power News article.) Dyno charts are fun, but I think that **real world results** (actual use on the road & track) from **real people** are far better evidence. That's the only way we decide how well these modifications work ... in the venue that they're meant to work in.

I'll take your advice and add a mix of both types of evidence as it comes in. Keep on reading Power News ... I promise you won't be disappointed !

Sincerely,
Pat McGivern
~ MotoMan

ABOUT POWER NEWS:

In motorsports there's a strong tradition of **secrecy** which makes it extremely difficult to crack the "horsepower puzzle". When you think about it, engines are really all about information, since the machine with the best combination of tuning

info will always be the fastest !!

Many people have asked me: "how did Mototune beat the AMA Factory Teams' power & speed ???"

The answer is: **Critical Reading & Thinking** ...the real secret to speed & winning !!!

In order to make more power than the factory teams, I had to sift through all of the available technical information to figure out the truth. Then lots of testing and re-thinking followed. Much of what I eventually discovered went against the info that I had read for many years in motor magazines and textbooks.

In order to win, my conclusions had to reflect actual reality, *not what I wished reality to be !!!* This has always been the most difficult challenge for scientists !!

Winning, by it's very nature means doing things differently. If we do what everyone else does, then we're just going to battle for second place !! The very idea of being different is so scary, that a lot of people "settle for second place" in life.

In order to find **new** sources of horsepower, we need to think through problems in a different way. That's the reason why Power News has contained a little less "concrete data" and lot more thought provoking ideas.

As with any information source, only you can decide which ones are trustworthy. Critical reading and thinking are by far the best ways to separate the baloney from the real deal. 🇳🇴

Breaking News:

Power News Subscriber Wins European 600 Supersport Championship Using High Velocity Intake & Exhaust Ports !!



Kai Børre Andersen

2002 European 600 Supersport
Champion

Norway's Kai Børre Andersen dominated the European supersport championship this year with 4 wins out of 8 races. The points total tells the story: KBA finished with 151 points, and the second place rider had 93 points... !

Despite winning the championship with 1 race to go, Kai Børre went on to finish the last round with a resounding 6 second win in Cartegena, Spain !!

Kai Børre's 'secret weapon' ?? His Yamaha R6's unique engine set-up features smaller than stock, High-Velocity intake & exhaust porting by Jørgen Johnsen of **Fast Bike:** <http://www.fastbikes.no> in Oslo !!

(Photo Courtesy of Veidec Racing)
<http://www.veidecracing.com>

Congratulations from all of us at Mototune USA !!

Read all about it in MC Avisa:
<http://www.mc-avisa.no/default.asp?aid=4096>
 (in Norwegian)

Wait a minute ... what just happened ???

Now you know the real "**inside-the-motor**" tuning secrets of an
International Championship winning machine !!

When has a motorcycle magazine revealed **actual** internal engine secrets of racing at this
 level ???

Of course the answer is never ... it just doesn't happen !!!

Power News is your inside source !!

{ Please recommend Power News & tell your friends to sign up !! }

POWER VOTE !!

World Supersport VS Power News
 Who Do You Think Won The Test ??



The Results:

92 % Voted that the Power News High Velocity ports made more power.

8 % Voted that the World Supersport ports made more power.

Cognitive Dissonance

Psychologists know that when people are confronted by information that goes against their pre-existing ideas, the result is cognitive dissonance, a sort of "static" in the thinking process. It doesn't matter how smart a person is ... cognitive dissonance occurs in highly intelligent people

When someone receives information that is opposite to what they think, cognitive dissonance can discredit that information, so that the person won't seriously consider it. In fact, if a new idea drastically opposes one's previously held ideas, the threatening info won't enter their consciousness at all !!! The idea becomes simply 'unthinkable' that it could possibly be true, even with things that are totally obvious to an outside "impartial" observer.

Cognitive dissonance is a primitive, yet amazingly powerful self-preservation mechanism which completely overrides the natural human desire for truth !!! It's also the main reason that it's so hard for some to re-think new ideas about how horsepower can be achieved.

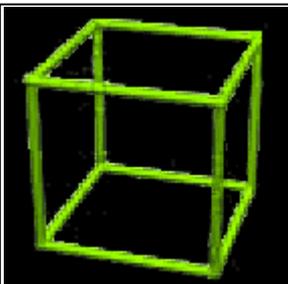
Here's a real world example:

Many years ago an engine builder bought an engine from one of my customers at the end of the race season to find out why it was so fast. There it was: high velocity (smaller than stock) ports and there was no way I could hide the secret from my competition any longer.

Needless to say, I wasn't too happy about it.

To my surprise... after **seeing** the inside secret to my customer's success, **seeing** the race wins and **seeing** high speed of the bike, the engine builder refused to **see** that smaller ports worked, and refused to even try it. That's the incredible power of cognitive dissonance !!

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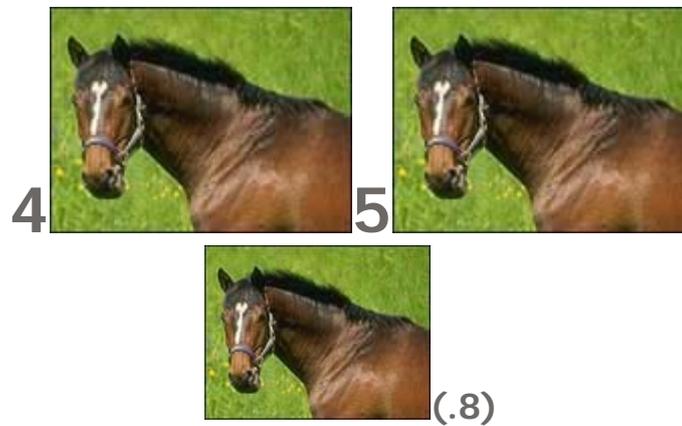


The Box

Cognitive Dissonance = "The Box"

High Velocity Ports Beat The World Supersport Porting By 5.8 Horses !!





Seeing it in actual "Horses" really makes the picture clear that's a lot more power

The World Supersport ported motor made 114hp, while the Power News High Velocity ported motor made 119.8 HP, for a gain of 5.8 "Horses" !!

In the last issue I described the drive to the dyno, and how nervous I was that the engine I ported wouldn't beat the World Supersport ported engine. Why should I have been afraid ?? Smaller ports on the R6 perform better than stock ports do ... so how can bigger than stock be better ??

Of course, they're not.

My nervousness had nothing to do with the facts ... it's just that the ominous label "World Supersport"

gave the MotoMan a severe case of **Cognitive Dissonance** !!! 🤯🤯🤯

Breaking News:

Power News Subscriber Wins Norwegian 600 Supersport Championship Using High Velocity Intake & Exhaust Ports !!



Dag-Steinar Sundby

2002 Norwegian 600 Supersport Champion

Komatsu Sundby Racing Wins The 600 Championship & The Coveted King's Trophy !!

Våler, Norway -- Defending Norwegian 600 Supersport Champion **Dag-Steinar Sundby** has repeated his 2001 championship in a stunning way !!

In the wet race final round at Våler Raceway, the veteran Sundby fended off tough challenges from



Sponsored By:

KOMATSU

Construction & Mining Equipment

For Komatsu
Sales in Norway:

Please Click Here !!

<http://www.hesselberg.no>

Arne Sandum
Sales Manager

his hard charging countrymen **Even Flaot** and **Espen Rekedal Wæhler** to win the race, the championship, and the King's Trophy as well.

In Norway, the King's Trophy is awarded once every 5 years in the sport of roadracing, so it was an extra special weekend for the team !

Dag-Steinar did it with a unique "out of the motorcycle industry" sponsorship from **Komatsu Construction & Mining Equipment** and engine tuning featuring smaller than stock, High-Velocity intake & exhaust porting by Jørgen Johnsen of **Fast Bikes** <http://www.fastbikes.no> in Oslo

Dag-Steinar and his hard working crew represent a new wave of roadracing teams which are taking the sport to a higher level !!

Congratulations from all of us at Mototune USA !

Dag-Steinar's success is huge news for the sport of Motorcycle Roadracing !!

Why ???

Komatsu has been involved in sponsoring Formula 1 auto racing, and now we're finally getting to see this important "outside the motorcycle industry" sponsor coming to our sport !!

If you work in the construction industry, please consider the purchase of a **Komatsu** !!

What if you're not the decision maker at your job ???

Please tell your boss about this page !!!

For Komatsu sales worldwide
Please Click Here:

KOMATSU

<http://www.komatsu.com>



Why is MotoMan so impressed with **Komatsu** ? Their business philosophy can be "summed up" by this photo !!

Automatic Grease Injection !!!

Forgetting to maintain parts is one of the main reasons for breakdowns. This system eliminates human error, by doing the maintenance automatically !!

This is a company that really wants its

machines to last a lot longer than normal and that's one of the main goals of Power News.

Break In Results From Forums and E-mails !!!

The break in secrets article is quite controversial, since it "breaks all the rules".

But, the people who have actually tried it have found amazing gains in power, from better ring seal ...

Viewer Feedback

Does It Work ??? 2002 Yamaha R1

Hey, you guys want to know the secret to getting more HP's go to www.mototuneusa.com look the break in procedure. This is how I did my 2002 Yamaha R1 on a Sunday morning with no traffic. I go 136 HP and my buddy only got 131 HP.

Disappointed 2002 Yamaha R1 ...

Just had my 2002 Yamaha R1 Dyno'd 1,350 miles. Followed the owners manual break-in and got 124.5 HP. I thought it should have more than that, is there anything I can do ??

Does It Work ??? Aprilia Mille

I thrashed the hell out of mine from day one (Once totally warm). It hasn't used any oil and throttle response is definitely crisper than friends who bought their new Milles at the same time. Follow the procedure here found on this website and you can't go wrong. Scroll down till you get to the bit about "Break In Secrets". www.mototuneusa.com

Disappointed Aprilia Mille

I ran mine in by the book [according to the owner's manual], and found it used quite a bit of oil up to about 5000 miles. Apparently this was because I ran it in too gently, and a gentle thrash even now and then during running in results in less oil use later.

Does It Work ??? Yamaha R6

I used the Mototune USA break in procedure on my Yamaha R6 and I'm getting about 105hp. Very pleased after I saw the same bike with the same mods (stock engine) do less than 100hp the same dyno !!

Does It Work ??? Suzuki

Yes, I used it for my TLR, my TLS, our SVS, and my cousin's Telefonica 600 GSXR. No problems any of them...My dealer even recommends this procedure to his GOOD REGULAR customers.

Does It Work ??? Suzuki

Hi MotoMan:

I read your story about "hard" break in of motorcycles. I can do nothing else than agree to your suggestions. My three latest bikes (all Suzukis TLS, TLR and now a GSX-R1000) has gone through what you describe to be the best break in and in all three cases my bikes have worked better than my friends' have, and in one case the difference was so big that we decided to [Dyno] bench the bikes. The difference ended up to be 9 hp to my advantage. Of course a lot of things can affect

give such a difference, but nevertheless my bike came out better than his which had a "owner's manual" break in.

Does It Work ??? Honda

Hi MotoMan,

Loved your article on break in, I have always run my new bikes in hard with no problems, your information helped me understand why, so thanks for that. I totally agree on changing the oil after the first few miles in fact I go even further than your suggestions as after only 15 Miles I change and flush the oil multiple times until the moon dust sheen is eliminated from the top of the oil.

I picked up my new [Honda] 954 Blade last Tuesday and run various acceleration and deceleration cycles on the road for 15 Miles only and changed the oil and filter, with heavy deposits of aluminum particles floating on top of the oil it needed it, it took three complete oil flush cycles until the oil drained clean, I then add a second filter after the final oil change.

Sounds expensive and wasteful but I am convinced it will be the cheapest performance gain I will ever find.

~ Andy

Hi Andy,

Thanks for your response !

As you've discovered, it's definitely important to change the oil waaaaay sooner than the 600 m that the manufacturers recommend !

Much of the metal that comes loose in a new engine isn't directly from the break-in process, but rather it's from the aluminum burrs that break off from the edges of the machined surfaces.

The manufacturers won't tell us that, because it looks bad. But realistically, it's not possible to mass produce machined parts and de-burr the hundreds of parts in each engine by hand.

The best thing we can do is to **understand** the situation and flush the bits out with an extra early oil change (or 2) !!

~MotoMan

"Break In Secrets" Part 2

Viewer Feedback

Hi MotoMan:

I offered up a link to your break in secrets web site on a bulletin board (Motorcycle tech board) and below is a copy of a response offered up by someone who is writing about you. I would sincerely love to know what your reply to this is. Thank you !!

(MotoMan's comment: I don't usually like the idea of debating against someone on Power News because doing so is bound to make that person's comments appear "wrong", and put him on the defense. In this case, I decided to make an exception, because it's a valuable opportunity for you to practice critical reading and thinking. Before you read my response to this post, take a moment to see if you can find some problems with it.)

I abhor opinions presented as fact. Everyone has an opinion, but that doesn't mean there is not THE truth somewhere underneath, independent of opinion. I wrote my thesis in physics on internal combustion engine design and I have been a mechanic building high-performance engines for 30 years.

This discussion about break-in has no empirical data to support what he is saying. Blanket statements such as the "number one cause" of this mechanical problem, or the "number two cause of engine problems is" are meaningless unless he can present test data and empirical data to support these statements, which he cannot and does not. The reason he does not is because the statements are false (ie his opinion, stated as fact).

The reason you want to run an engine softly for the first 600 miles is because of machining asperities (the microscopic "mountain ranges" on the surface of the metal). After a part is machined, the cutting process involves leaving the surface with microscopic peaks and valleys, creating a microscopically rough surface. The peaks of the surface happen to be GREATER IN HEIGHT THAN THE THICKNESS OF THE OIL FILM COVERING THEM. In English: the engine must be run with minimum load until these peaks are polished down, flat, and are no longer PROTRUDING THROUGH THE SURFACE OF THE OIL, as they are right after machining/manufacturing of the part. If you run the engine hard before this happens, you will press the parts together so hard that the oil film collapses and the peaks on one part will collide with the peaks on the mating part: Peak on part A will hit peak on part B, and given the adhesive properties of superheated metal, they will stick together. Once this happens, peak A breaks off of its original part and bonds to (melts onto) the mating part, and you now have scoring. Once scoring starts, it will continue to increase (more metal from one part sticks to the other part) until (a) enough metal migrates from one part to the other to cause a new smooth surface (albeit the wrong shaped surface; ie greatly reduced seal in the case of pistons and rings) or (b) the part suffers catastrophic failure (eg engine seizes, part cracks, etc.). If the engine is run softly, the parts polish each other, rather than score each other.

This explanation of break in is common text in ANY mechanical engineering text book, which is the book the engine designers read before they built the engine, and the text, in turn, is based on testing and empirical data that began back before the Wright Brothers.

Interestingly, the most prolific testing and proving of how to best build and break in a fresh engine came during World War II, for our bomber engines, where engine performance determined whether our nation would continue to exist. There is enormous test and research data supporting what I just told you regarding break in.

Run the motor at modest throttle settings and slow to medium rpm until 600 miles, and then change the oil and filter to get the polished metal out of the engine.

It's true, Power News is just my opinion.

But, an interesting question is:

When does an opinion cross the line to become a fact ??? Usually, that only happens when an "Official News or Information Source" says so. The second way a fact can be established, is when a lot of real people confirm it. This has a lot more credibility. (in my opinion).

Mototune power tuning ideas are now being tested and confirmed by a large number of real people. In the past or and a half years, Power News subscribers have now grown to over 10,000 readers from just about every country in the world. 'Opinions', are now in the process of becoming 'recognized facts'.

With all due respect to the gentleman who posted his

comments ... there are 2 important problems:

1) It's based on old information.

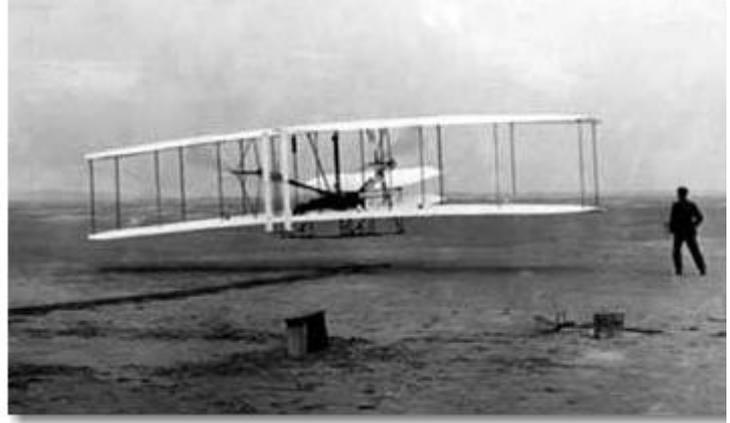
2) It doesn't **test** both break in methods to draw an accurate scientific conclusion

Modern engines have changed dramatically !

The technology the Wright Brothers or World War II era engineers had available to them can't compare to that of modern engines....

Designs, materials, machining quality and oils have all seen huge improvements !!

Harder, longer lasting piston rings, Nikasil and ceramic plated cylinders change the picture entirely.



**The Wright Brother's First Flight
December 17th, 1903**

In other words:

One of the **conditions** of the "experiment" has changed

It's critical that we recognize this, since it's really the heart of the **scientific method** !!

For example: $1+2+3$ always equals 6

but

when we change one of the conditions, let's say 2 is now 7

then $1+7+3$ doesn't = 6, it equals 11.

When we see it put this way it's obvious, but how does it apply to break-in ???

(The condition of the "break-in experiment" that has changed is: vastly improved technology

Think:

Outside of the Box !!

If you hang onto "what is" with all your might
"what is" soon becomes "what was".

Power News:

" The World's First Cutting Edge Engineering Text Book "

According to the information contained in older engineering textbooks, every one of the riders who've used the Mototune USA break in technique should be making **less** power from all of the engine damage caused by machining aspirants breaking through the oil film. Scuffed and partial seized parts would create a lot of extra friction !!!

Yet everyone is making **More** power.

There Must Be More To This Than Meets The Eye ...

Here's an Interesting Story About The Development of Modern Logic:

During the "dark ages", the dominant way of thinking was known as Aristotlean Thought. Named after the Greek philosopher Aristotle (384-322 BC)

Basically it went like this:

You don't look into an individual horse's mouth to count it's teeth ...
... instead, debate about how many teeth there ought to be,
based on what has always been true in the past.



How Many Teeth ???

As you can imagine, this early form of logical thinking is what made the dark ages so long and ... so Dark !!!

Modern thought is superior because

In order to make a truly scientific judgment, you must **observe:**

To accurately count it's

teeth,
you must open the horse's
mouth !!



Observing something is a more powerful
means of finding it's reality than debating
about it !!

From that concept,
The Scientific Method was born:

Observe one set of conditions. **Make only one change.** **Observe** the result
and compare it to the first set of conditions.

Using the scientific method, we can **observe** the effects of **both** break in methods
on modern engine parts. Just like back in the "Dark Ages", without testing both break in metho
we are only debating about it !!

Let's Open The "Horses Mouth":

To Look At The 'Horses Teeth' !!

Top:
MotoMan's Break in.

This engine was broken in on a dyno the
first time the engine was started,
according to my instructions. After a full
season of racing, this piston looks almost
new !

Bottom:

Owners Manual Break in.

The ring seal in this engine was so poor that the cylinder bore became distorted from the hot leaking gasses.

The scoring on the skirt was the result of the leaking rings which in turn created the out of round bore. After a full season of racing, this engine is done.



It's interesting to note that the piston from the engine that's making more power is in much better condition than the one making less power. That's the whole point ! There is a connection between power and reliability. Power comes from the engine running correctly, without extra friction caused by poor cylinder seal and cylinder distortion. Ironically, it's just the opposite of what one would think ... without fully thinking through what's really happening inside the engine.

That's why it's so important to: **"Always Consider The Opposite"**.
(One of the best ways of learning to think outside the box.)

Here's another example from a street bike:

This piston is from a 650 Honda Hawk. The brown discoloration that extends up into the piston pin bore is burnt oil from the extreme heat leaking past all 3 rings !!

The uneven heat leakage was so bad, that it caused the cylinder to distort and become out of round, causing piston to cylinder scuffing in the tight part of the "oval" cylinder.

When I showed the customer his pistons, he said:

" I don't understand how that happened, I followed the owner's manual instructions 100% !! "



The next series of 3 photos are from a 1999 Yamaha R6 engine that had my recommended " hard break-in "

... was broken in with 'cheap' non synthetic Valvoline 10w40 car oil...

... then it was roadraced hard for 2 full seasons and over 10,000 racing miles !!

Machining Asperities

Are they a problem in today's engines ??

Modern machining processes are so good that the surfaces are nearly polished right from the factory !!

So, while it's true that there are microscopic "mountain ranges" on the surface of even the finest machined metals, the parts are designed much better, they don't bend and "flex" so they stay stable during running. The metal to metal contact that used to plague older engines is eliminated.

Notice the fine scratches on this cam cap, this is how Yamaha finishes the part at the factory. In other words, these scratches weren't created from metal to metal contact. Remarkably, they haven't been worn smooth either !! (That's because the parts are separated by the oil film, so they never make contact)



This Yamaha R6 cam cap has gone 10,000 racing miles with no metal to metal contact !!

Oils and oil delivery methods have improved dramatically ...

After 10,000 racing miles,

this main bearing looks brand new !!

The oil pressure delivery is consistent and the oil film is supported so well, that the machining asperities never break through the oil film to contact each other !!



Coatings !!

Like most newer engines, the stock R6 cams are coated with a brownish material to prevent rust on the newly machined cams.

The coating is still evident here as "scratches" in the middle journal. The "scratches" are just remnants of the coating, not metal to metal wear.

The fact that the coating is still intact after 10,000 miles is more convincing evidence that the "machining asperities problem" isn't actually a problem at all.

(But it sure sounds scary doesn't it ??)



Viewer Feedback

This feedback came from an automotive forum:

I read this article by a motorcycle tuner <http://www.mototuneusa.com> (offline as I speak) which recommended breaking in pretty hard. The point was bearings don't really break in as they are designed to ride on film of oil, and is disaster if there is metal to metal contact. On the contrary, rings bed in against a honed cylinder surface, and the pressure is supplied by the combustion gasses which push out from the back of the ring. Running it hard before the honing wears off assures better fitting of the ring to the bore, better sealing, more power. Going easy is counterproductive. Just what I read, and it makes sense to me. **The factory does not supply a rationale for doing it their way.**

**This post highlights a key point
What is the factories' rationale for doing it their way ???**

Here's a fascinating "open secret" ...

Did you know ??

Many visitors to the motorcycle factories in Japan have been surprised to learn that ...
the first time they start up the bikes at the end of the assembly line,
the workers warm the engines up,

and then they rev them waaay up **right up to REDLINE !!!**

Why ???

One reason they do this is for a final check on the bike, but that can be done without going over 4,000 rpm. Why do they blast them hard waaay up to 10,000-14,000 ??

(SSshhhhh ... it's a secret don't tell anyone it's to start the ring sealing process !!!!!)

The Big Question:

After running your brand new bike right straight up to the rev-limiter, doesn't it seem strange that the very same manufacturers recommend not going past 4,000 rpm to avoid severe engine damage to your new engine ??

In other words:

" How can **you** wreck your motor from high rpm's after ten miles, when the manufacturers couldn't wreck it from hitting the rev-limiter at zero miles ?? "

" I think something's up !!! "



#####

What do you think the motorcycle manufacturer's easy "break in" recommendation is really all about ... ???



#####

To figure out what's really going on, we must tune out the various emotional distractions and take a good, objective look at all the evidence !!

Cognitive Dissonance is the biggest barrier to this, because we'll never get to the point of understanding, if we can't get past thinking:

"That's the way it's always been done ... "

Or Especially:

" The manufacturers must know best "

How much time ...

... do you think the motorcycle manufacturers spend thinking of ways to avoid unfair lawsuits that take large chunks out of their hard earned profits?

One of the best ways to avoid lawsuits is to avoid accidents in the first place ! It stands to reason that the first miles on a new and unfamiliar bike are the most likely to produce an accident.

Conveniently, this same period of time is also known as the "break in period"



"Connecting The Dots"

Nowadays, "Break-in according to the manual" has nothing to do with the engine !!

Think: It's all about avoiding lawsuits from riders who have crashed their new bikes !!
(The motorcycle manufacturers simply don't trust you to use your own judgment.)

By using the threat of severe engine damage, new riders are **scared** into riding slower as they get used to their new bike.

Fear is a powerful motivator. More people have their thoughts and actions controlled by **fear** than by any other source.

Ironically, leaky rings cause combustion blow-by, which is high in acid content. These acid contaminate the oil, and are harmful to all internal engine parts. "The owner's manual break in actually increases the amount of acid circulating throughout the engine !!

Think: If engines lasted longer there would be fewer sales of parts, service and of course ... n bikes !!

Increasing sales and minimizing lawsuits. It's a business decision.

Unfortunately, it has nothing to do with actually breaking in your engine for the best reliability and power.

Think**O
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Thinking out of the box allows you to see that there's often a huge difference between the "official" reason and the real reason for things.

It takes exceptional courage to think this way, since the official source will never "say so" !!

What's The Opposite of Thinking Out Of The Box ???

Automatic Thinking !!

" If you would be a real seeker after truth, it is necessary that at least once in your life you doubt, as far as possible, all things. "

~ Rene Descartes -- 17 th Century Philosopher

" Thinking outside of the box means that you've got to doubt as far as possible, all things, on a regular basis, and believe all things, as far as possible, just as often. "

~ MotoMan -- 21 st Century Philosopher

Thanks To



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#1 !!



MotoMan



" You Support Mototune USA,
Everytime You Drink An Ice Cold **Budweiser !!** "

That's Right,

Thanks To All of You Ice Cold Bud Drinkers Budweiser Stock Is Red Hot !!

Anheuser-Busch Companies, Inc. (NYSE: BUD)

\$ 38.74 to \$

52.50 / Share Increase in One Year !!



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Smaller Ports on Harley Davidsons ??

Viewer Feedback

Yo MotoMan:

I've been reading your e-columns for a while with some considerable amusement. I'm finally compelled to write because of the reference in your latest issue to Harley-Davidson motors & the question of whether small ports would work in that application.

I road-race a Buell which, of course, is fitted with a H-D Sportster motor which comes with upgraded heads, cams pistons. In stock tune it delivers approx. 85 h.p. and 80 ft/lbs of torque at the rear wheel. Virtually ALL Harley race tuners use typical small-block Chevrolet NASCAR-type technology to build race motors on this platform (read: BIG cams, BIG ports, LOTS of squeeze). They then spin the motors at 8,000+ rpm to make it all work. Bearing in mind the H-D V-twin motor is basically an over-sized air compressor, the results are predictable: manifestly unreliable motors which struggle to keep up with Ducis, RC51's, etc., etc. They typically make 110 h.p. and 90 ft./lbs. of torque (rear wheel) with very narrow power bands.

After a 2 season alliance with a local Harley dealer (with a lot of racing experience) resulted in nothing but innumerable broken parts (including one spectacular exit of a con rod through the transmission resulting in a lurid wheel lockup and slide for a couple hundred ft. but, Hey!, I didn't fall down..) and major expense, I went looking for a different solution. I found it in the person of a Mr. Bob Johnson of J.E.T. in Westerly, Rhode Island. He has a fascinating background in leading edge automotive head design, but currently does only one-off customer engine projects, both bikes and cars.

To make a long story short, Bob built a new race motor for my Buell based on his research and applied mathematics to produce the best port velocity and cylinder-fill characteristics, i.e. small ports. In fact, his research, and empirical testing reveals that the most powerful cylinder head Harley makes (regardless of engine size) is their "little" 883 h.p. He has made 100 h.p. in testing by simply bolting (with some minor modification for fitment) a set of 883 heads on a big twin (1340) motor with appropriate cams.

And now the BIG QUESTION: how does my motor work???? At 10.1:1 compression, Red shift 567 cams, 44CV car modified intake manifold (to straighten the runners out), the puppy makes (rear wheel) 108 h.p., @ 6800, 100 ft./lb of torque @ 4500. 86% of max torque is available between 3,000 and 6800; the acceleration curve of the motor is nearly vertical, oil temp never exceeds 150 degrees, it runs on pump gas. Not a single mechanical failure. The bike pulls like Jack-The-Bear, blowing off Ducatis's, Hondas, Suzuki's, everything in the class. We have so much torque available (and THAT'S what moves the bike, not h.p.), we're considering replacing the 5 spd. Trans with a 4 spd.

really only need 3 race gears and a low for the pits/start line. The bike is much easier to ride fast because the torque is available everywhere and is smoothly predictable, unlike the typical H-D race motor which is tuned to produce horsepower up in the corner of the power curve.

Bob calculates there's another 10 rear-wheel h.p. in the motor by going to even smaller ports (I presently am running 1203 'Thunderstorm' heads modified by Bob to shrink the ports) with 883 heads and more cam, but the power delivery would be more radical and would probably require a slipper-type clutch to be rideable (due to deceleration compression). I haven't gone that extra step simply because I don't need any more power!! (Imagine that!).

Sooooooooo MotoMan ???

The answer is, **YES** small port technology works on two valve motors, and specifically H-D motors !!!

Hope you find this interesting

Cheers !!

~ Robin

Hi Robin !!

Thanks for the incredibly encouraging info, I'm suddenly **starting to turn "orange and black" !!! want to work on some Harleys !! Look for more info in upcoming Power News issues about the mighty V Twins from Milwaukee !!**

~MotoMan

The Super Glue Trick

Here's a funny situation ...

"The Super Glue Trick" was one of the first newsletters, and since it came out I've been told by many medical professionals that " You can't do that !!! " "Super Glue is for gluing things together ... it says right on the label not get it on your skin.... can't you read ?????? "

My answer has always been, "why not ??" It never hurt me, and it works better than anything else I've found for fixing cuts that are common while wrenching on engines. I wouldn't give Super Glue to a small kid to play with, but we're all adults here.

So, I was very surprised to receive these 2 fascinating e-mails:

Dear MotoMan:

Were you aware that super glue was designed by the military? I think it was during the Vietnam war. Super glue was developed to mend wounds in the field where many soldiers die from loss of blood. The problem was that by the time it was developed, the war was over. So they had to find a different use for it. Super glue bonds many things but what does it bond the best instantly? That's right SKIN !!!

~ Lion

Dear Lion:

Wow !!

So, this means that by thinking out of the box, I discovered a use for something that was

undoubtedly invented by thinking out of the box, and re-marketed for another use, by yet another out of the box thinker. Although "in the box" thinkers have said that it can't be used for the purpose that I thought out of the box about, it turns out that the product was originally intended for the very same use.

Can this be real ???

~ MotoMan

Hey Motoman!!

Love your web site!!! I especially liked the Super Glue Trick. In fact I work at a hospital and I asked one of the ER docs about it and he said they already have it. They call it "liquid stitches" and the trade name is Dermabond. They especially like to use it for face cuts etc.. where you wouldn't want a bad scar to form.

Of course it's not available to the public, because you have to be a "professional" to use it.

Here's the catch: It's exactly the same ingredient as used in super glue Cyanoacrylate ! It is super glue, just in a different package. How bizarre.

Thanks again for the "Out of the Box" thinking techniques. You've really made my life more interesting.... Keep on empowering people !!

~Ambulance Chaser

Hey Ambulance Chaser,

Thanks for the awesome info !!

Can you imagine a doctor telling you he was going to use "Super Glue" to fix your cut ?? No way !! But.... if it's "called" something else, than it's o.k.

This makes me wonder.... why do people have such a deep-seated need to be deceived ??

Here's another "out of the box" thought:

Does the **Cyanoacrylate** used in "Dermabond" cost more than the **Cyanoacrylate** that's used in "Super Glue" ?? (Of course not, it's exactly the same thing.)

I'd be willing to bet that "Dermabond" costs waaaaaaaaaaaaaay more than "Super Glue".

~ MotoMan

#####

Why do the super glue manufacturers warn people not to use

Think

Out of The Box



it
for it's originally designed purpose ... ???



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The Exhaust Pipe Trick

Since the "Dynamic Horsepower" and "Dynamic Aerodynamics" Power News articles came out year, there have been 2 interesting developments !!

In these articles, I used a photo of Eric Bostrom's Kawasaki superbike to show that even the factory teams don't always get it right.

Have Eric's mechanics secretly signed up for Power News ???

Who knows...

... but it goes to show that information spreads fast on the internet, because one year later, the problem was fixed !!!



At Road America, Eric's Kawasaki Superbike exhaust wasn't pointed "out" like it was 1 year earlier !!

The Second Development:

Yoshimura now incorporates this concept on their newest exhaust systems !!



This is the **Fast Bikes** Suzuki GSXR 1000 Superbike at the Arctic Circle Raceway in Norway.

The exhaust gasses are intentionally pointed toward the center of the bike's aerodynamic wake. The new Yoshimura pipes come this way.

This is one of the simplest speed tricks ever, but for 10 years no one seemed to notice that Mototune was doing this by simply bending the pipe's mounting bracket ..

(During the engine "teardowns" everyone was too busy looking at the motor parts to notice this subtle, yet **very** effective top-spec trick.)



I'm honored to see these top teams incorporating Power News ideas into their tuning. Eventually as competition forces the other exhaust manufacturers to incorporate this idea into their system there won't be any more bikes losing horsepower and disrupting their aerodynamic efficiency from exhaust gasses that are "blowing in the wind".

The real interesting thing is that since these 2 "official sources" have decided that it's a good idea we're seeing what began as an "opinion" has now become a "recognized fact".

A Philosophical Question:

Was "the exhaust pipe trick" a fact before it was recognized as a fact ??

Or ... as I like to think:

MILLIONS of years ago, before us humans were here to think about it, wasn't the exhaust pipe trick actually a fact, "waiting to be discovered by out of the box thinkers" ??



MotoMan

" Future Horsepower "

it's actually an ancient 'fact' that's waiting to be discovered !!

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.(Dramatic Freaky Dead Space)

Coming up in the next issue of Power News:

Spy Photos of the \$ 50,000 Factory Suzuki Superbike Engine !!!

I had the rare opportunity to take apart and examine the super- trick speed parts in a real factory superbike engine. After working on race engines , reading all the magazines and being on the "inside" of the sport for 10 years, I thought I'd seen it

Not so...

As I disassembled this engine, the **surprises** kept coming !!

Stay tuned to Power News !!!

Have A Cool Day !!



MotoMan

2 Ways You Can Help Promote Power News: