

# tech tips

by John Seltzer

## Care and feeding of the mature CBX

I own and frequently ride a mostly stock 1982 CBX. I bought it 3 years ago from a motorcycle dealer in Washington State. It only showed 14,000 miles and was in very good condition. It now has 26,000 fun filled miles and I intend to continue riding at a pace of about 5,000 miles per year. I've discovered that the X is a maintenance intensive motorcycle. Not to the same extent as the old British motorcycles (ride an hour, work an hour). But in comparison to the newer Japanese and European motorcycles, a lot of work is required if you intend to ride

worry free. To personalize my 'X' I've added a Kerker exhaust, K&N filter and Dynojet stage 1 jet kit. I've done other things as well, but I'll leave those to later Tech Tips.

In this article I'm going to talk a little about the carbs, about valve lash, cam chain adjustment and ignition timing. If you're following the directions in the factory service manual for cam chain adjustment

as I did, you're probably not doing enough. Last year I went to the West Coast National Rally in Morrow Bay, the Northwest Regional Rally in Revelstoke, B.C., Canada and the Washington State Dam Rally at Grand Coulee, W.A. They were all great fun, but by the end of the summer my X was getting tired and was definitely down on power. I first noticed it while pulling long hills fully loaded. It wouldn't take full throttle. My X has always been very responsive. That's part of the fun, right? Turn the throttle and away it goes, fast. Not any more, turn the throttle and nothing, no response for the last 1/2 turn. This was a new experience.

So I started talking with others. Gas mileage was still the same. It was still running on all cylinders. Idle was okay. Still started the

same, a little cranky, you know, they're all a little hard to start. Power seemed okay through the gears. But why wouldn't it? After thinking for a while I remembered, because of the mechanical advantage of the gearing (torque multiplication) you don't create maximum stress in the lower gears. So you wouldn't

I began by checking the compression. What I found was bad and I started thinking about a ring and valve job. My first measurement cold (about 50° F) was: #1=98, #2=87, #3=97, #4=92, #5=97 & #6=105. These readings are very low. They should be 170 +/- 14 psi. The service manual says the test

should be with the engine warmed up so I tried that too and found: #1=115, #2=106.5, #3=112, #4=120, #5=112.5 & #6=120. Engine temperature was probably about 120° F, garage temperature about 55° F. This is a little better, but far from the 170 psi +/- 14 psi the book calls for. I performed the test a second time after adding oil to the cylinders. This is an old diagnostic trick to determine the cause of leakage. The compression didn't come up, indicating

problems with the valves. I did not do a leak-down test, which would also help pinpoint the cause of leakage. I checked further to find what other CBX owners had found when checking their bikes. Art McGougan had the following measurements from his '82 'X' (Cold): #1-142.5, #2-127.5, #3-140.0, #4-137.0, #5-125.0, #6-145.0. The mileage on his 'X' is very similar to mine. I also heard from others via the Internet and came to the conclusion that; my compression is quite low for the miles. One other responding 'X'er', Roger Steiner had similar readings to mine, but his bike had 70,000 miles. I also found out from Roger who had dynoded his higher mileage 'X' that it still has 79 rear wheel horsepower. After learning this, I decided that I didn't need a ring and valve job yet. But I still needed to do

necessarily notice a power loss as much in the lower gears as you would in high gear (no torque multiplication). 5th gear in the X is actually an overdrive. So 5th gear will actually cause more stress than 1st. Okay, now I figured I had lost power, but why? Where do I start looking? I actually did several different things to restore power. But today we'll focus on the valves, cam timing, ignition timing and a biton carburetion. All are fairly easy and most of the information comes from the Tech Tip articles available from ICOA. I can now pull redline in all 5 gears as long as I'm not bucking a headwind. And, it will pull the front wheel off slightly shifting from 1st to 2nd when shifted at redline. Not bad for a 650 pound 18 year old motorcycle.

something to improve performance.

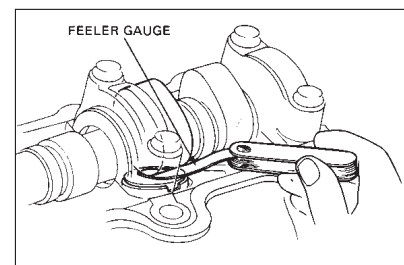
Okay, lets get to work. Ignition first. This doesn't have anything to do with the compression, but can have a serious affect on power. Following the Honda CBX Shop Manual section on "Ignition Timing Check - Static" in Chapter 3 ("Inspection and Adjustment" for the '79-'80 manual, "Maintenance" in the '81-'82 manual) is easy. Align the mark on the end of the crankshaft with the case joint.

Good, I'm right on. I found 10° initial static advance. But this only accounts for cylinders 1 and 6, what about 2 and 5 and 3 and 4? You see, there are 3 pulsar units all of which can be adjusted separately.

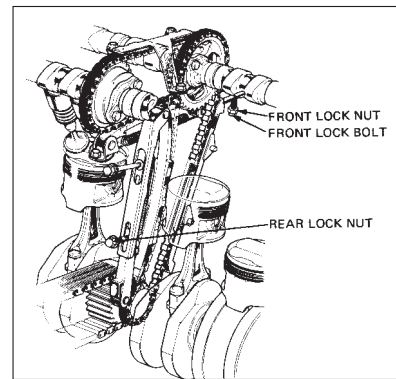
Fortunately, there's a very good ICOA technical article on this procedure, "Ignition Timing Adjustment, The Right Way" by Mike Nixon. It explains everything you need to do. You'll need an inductive timing light, feeler gage; a positive piston stop (or dial indicator) and you have to make a degree wheel. Then you can check the timing for each pulsar. I found the pulsar for 2 and 5 cylinders was retarded 3°. I also checked my advance mechanism. It worked fine. One minor problem solved.

Good, we're on a roll. Next, let's check the valve lash, which could have a big affect on compression.

The service manual gives excellent



directions. I had a very busy summer. It's been 7,000 miles since my last clearance check. This isn't good if you left some tight valves at your last check. You can get away with this if you had plenty of clearance at the start, but I wouldn't push it if you like to run your valves tight. I like to run mine around 0.003 inches clearance. Why? Because, the smaller the clearance, the quicker the valves open. Okay, we're splitting hairs here, but every little bit helps. I found that I needed to replace 2 shims. Not bad. Most hadn't changed at all. What's my secret? Synthetic oil. No compression problems caused by valve clearance.



Next, I looked at the cam chains and tensioners. This turned out to be a good part of my problem.

You may not be able to follow the adjustment procedure in the service manual. Why? Because, the 'A' chain tensioner has a tendency to freeze up, so following the book doesn't do anything. I had been following the service manual, but noticed the engine was noisy. I never figured out what was happening. A fellow 'X'er friend, Art McGougan told me about the cam chain tensioner problem after listening to my 'X'. Sure enough he was right. With the cam cover still off and the adjustment nut loosened; I accessed the 'A' chain tensioner and pushed down from the top. It moved about half an inch. The 'B' chain wasn't as bad. It's smaller and doesn't wear as quickly, but it was off too. I forced it and locked the adjustment nut. I suggest you read ICOA Technical article, "Time For A C-h-a-i-n" by Mike Nixon. I'm going to replace my cam chains during my next maintenance cycle winter of 1999. I'll let you know how it goes. Well, now my cold (50° F) compression readings are: #1=112.5, #2=105, #3=105, #4=105, #5=100 & #6=105. Still not as good as they should be, but better.

Once I learned how critical the cam chain adjustment was to compression, I checked further. A local motorcycle race builder/tuner told me that 2 or 3° cam timing retardation could cause a loss of 20 to 40 pounds compression. In my case it was closer to 20 pounds. I've since read a related article; "Chain of Fools, Part Two" in Motorcycle Consumer News (MCN). It explains about the relationship of cam chain tension to engine characteristics. When we talk in terms of wear on our drive chains we think of 1% or 1.5% stretch or elongation. This much wear on a cam chain isn't uncommon and results in a cam timing change of 13 or more degrees.

That's a serious problem that can big have effects on compression. I don't know if I have anything else to gain, but I'm definitely going to change my cam chains before I consider refreshing rings and valves. My local builder friend told me he usually rebuilds top ends when the compression is below 100 psi. This doesn't mean the bike won't run good, but it will be down on power. I'll probably wait until 3 or more cylinders are below 100 psi before I tear the engine down, unless the power falls off drastically.

Okay, enough for the inside stuff. What about the carbs? I'm going to save the detailed explanation for the next issue of the CBXPress. But, I must tell you, if you install a Dynojet kit or aftermarket exhaust system or both, you should (must) dial the carbs in on an exhaust gas analyzer (EGA). This was also part of my power problem. The Dynojet instructions said to open the pilots up 2 turns. Not on my carbs, this setting resulted in carbon-fouled plugs. My pilots are open about 3/8 of a turn, which is equal to 3.0% to 3.5% CO. That's the CO setting Dynojet recommends. I believe someone modified my carbs before I bought the bike. I don't know what they did, but I can't follow the Dynojet kit instructions for the pilot screws or needle settings.

Now with all the above work completed, I'm back in the saddle again for another season of summer riding.

John Seltzer ICOA #4255

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In the past, most tuners thought, "the more fuel you put through an engine, the more power it would make." An old friend of mine, who used to own a motorcycle shop, but is now retired, told me "put as much fuel through as you can, a little bit of carbon on the plugs won't hurt". Well, this simply isn't true. Wasn't true then and isn't the right way to tune a motorcycle now. Black plugs or overly black exhaust pipes usually indicate CO readings of 5% to 8%. This equates to a mixture of 12.63:1 to 11.53:1 respectively. Needless to say our bikes will run poorly at 5% CO, and probably won't run at 8%. Most of you probably remember the optimum air/fuel ratio is 15:1, but our bikes won't run very well at that setting either, because it is too lean. Modern equipment will though, and some bikes can be set at 1.5% to 2.0% CO (13.93:1 to 13.76:1). The best setting for our CBX's is 3.0% to 3.5% CO (13.37:1 to 13.19:1).

What I'm going to talk about in this article is how to tune your carburetors to achieve the best performance from your X. First, the carburetors must be clean and functioning properly. If you have any doubt, take them off and clean them until you're sure all the passageways are clean. For example, the orifices in the slow jets in our carbs when new are between 0.0135 inches and 0.0145 inches in diameter.

So small grit or fuzz can very easily plug them. Mike Nixon has written some excellent how to tech articles on cleaning our carbs: The Kitty Box and the Spring Thaw. They are available from ICOA in the "Tech Tips" Carburetor publication. I recommend you follow these procedures until you're sure that your carbs are completely clean and working correctly.

Now lets talk a little about carb tuning philosophy. One of the benefits of having 6 carbs on our bikes (no, I'm not crazy, there are benefits) is the ability to tune each cylinder separately. Some of my friends disagree with this premise and believe the engine would be unbalanced if the carbs are adjusted differently, but think about it. No two cylinders are the same and no two carbs are the same. If the carbs are adjusted the same, one cylinder could be a little rich while another a little lean. You want to adjust your carbs so that each cylinder is happy. Your engine won't be unbalanced unless you have problems with compression, cam timing or ignition timing. As long as compression, cam timing, ignition

## PART II – CARBURATION

# tech tips

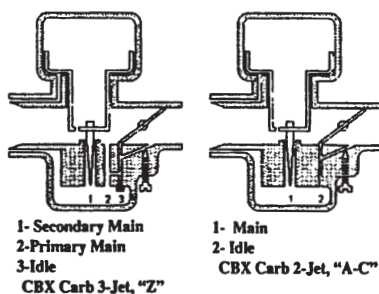
by John Seltzer

## care and feeding of the mature cbx

timing (and some other things) are within factory specs, your engine will run fine.

Following the direction of my last article (CBXPRESS, Spring 1999, vol 18, number 2) make sure your ignition timing is within specification, valve lash is correct, and cam chain tensioners are adjusted properly. A fresh set of plugs would be a good idea also, but depending on the method of adjustment you use, you might need several sets.

There are a few more things we need to be sure of before we begin tuning. The air and fuel jets must be absolutely clean.



Late model carbs do not have secondary main air jets as shown. Squirt carb cleaner through the passageways in both directions and follow with compressed air. Do not stick wire or anything else in these jets. They are so small that a single scratch can cause you trouble. Check the accelerator pump and make sure it discharges properly. Do not increase the pump stroke thinking you'll get more power, you won't.

Make absolutely sure the float settings are correct and most importantly, all the same.

Now, lets get down to business.

First, synchronize your carbs following the directions in the service manual. This is very important, if their not in sync, you'll never get things right. The book specifies a maximum difference in vacuum readings of 40 mm Hg or less. You must get closer than this. Mine are adjusted within 10 mm Hg. The first time I

synchronized my carbs, I couldn't get them closer than 40 mm Hg. The only things that can cause this is bent, blocked or stuck throttle linkage. So the carbs had to come off. I found the fast idle cam (on the number four cylinder) was deliberately bent to an extreme to hold the throttle plate open further and get more revs while the choke was on.

This prevented syncing number four with the other five cylinders. I bent it back within factory specs and got the carbs within 10 mm Hg.

Next adjust the pilot screws. There's no doubt the CBX low speed circuits are lean below 2,000 rpms. This was necessary to comply with new EPA laws. So as a result most articles and Dynojet instructions tell you to open up the pilot screw two to three turns. Doing so will add more fuel at idle and add more fuel throughout the entire rpm range. That's right, the pilot screw doesn't quit adding fuel when the vacuum piston raises the needle. Another interesting fact, when you're cruising at low speeds with the revs below 3,000 rpms the vacuum piston is likely closed and you're running on the pilot screws. What does this mean? If you open up the pilot screws without checking your mixture you can screw up performance throughout the entire range. I have a Dynojet stage 1 kit in my '82. I opened up the pilot screws per the instructions. My bike wouldn't run right at all. I called the Dynojet people. They told me regardless of what the instructions specify, the idle mixture must be right for the bike. What does this mean? You must set the pilot screws properly using either the factory recommended method described in the service manual (I've never seen a tachometer accurate to 50 rpm), using an exhaust gas analyzer (EGA, this is the preferred method) or by reading the spark plugs (older method, but still works).

Okay, now that everything else is right, let's adjust the pilot/idle mixtures. The easiest way

is to use an EGA. If you don't have access to one, then consider buying the Gunson CO tester. You'll find information on the <http://www.cosmic-salamander.com/aeep> website. (By the way, this company also sells colortune spark plugs for idle mixture adjustment). There are drawbacks with the EGA tester, but it is worth the price. Honda doesn't specify CO settings for the CBX, but I've read several articles including the instructions that came with the Gunson tester and sent e-mails to Dynojet. 3% CO is our magic number. Begin with the pilot screws set at one and one quarter turns. Set the pilots at

### SPECIFICATIONS 1979 CBX

Venturi dia.	28 mm (1.1 in)
Setting mark	VB60A
Float level	15.5 mm (0.61 in)
Main jet	Pri.: 65 2nd: 98
Idle speed	900 ± 100 rpm
Throttle grip free play	2–6 mm (0.08–0.24 in)
Fast idle	2,000±500 rpm (after break-in)
Pilot screw	See page 4–26

Date of Issue: March, 1978  
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around 3.0% and no higher than 3.5% CO. On my 'X' all of the pilot settings are below one turn. Four of the settings are below one half turn. No wonder I was carbon fouling spark plugs. You're probably wondering how to read each cylinder separately since our exhausts are three into one. Our club here in Washington took an old set of aftermarket pipes apart so that we could access each cylinder separately. Works well. You might think that using different pipes will produce different readings, well you're right, but it's close enough for street riding. You can still use the EGA with the stock exhausts, but it is harder, because you must adjust three carbs at the same time. Reading the spark plugs works well also, but

### SPECIFICATIONS 1980-1981 CBX

Venturi dia.	28 mm (1.1 in)
Setting mark	VB64A
Float level	15.5 mm (0.61 in)
Main jet	# 105
Idle speed	900 ± 100 rpm
Throttle grip free play	2–6 mm (0.08–0.24 in)
Fast idle	2,000 ± 500 rpm after break-in
Pilot screw	See page 4-28

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requires several sets of plugs. Dynojet suggested this method, if you don't have an EGA. Put in a new set of properly gapped plugs. Let the bike idle for 15 minutes at

operating temperature. Don't let it overheat and don't let the carbs get hot. If the fuel gets hot in the float bowls, it throws everything off. Now, pull the plugs and read them.

Check the color of the plug body, the grounding electrode and insulator. If the mixture is correct the body will be slightly black, but not sooty. The grounding electrode will be whitish tan or whitish gray and the insulator will be the same a light tan to gray color. The insulator must not be bright white (too lean) or dark or black (too rich). Make your pilot screw adjustments in one quarter to one half-turn increments and use new plugs each time. This is a very important step. The idle mixture must be correct. You definitely don't want your mixture in the carbon foul range. That just makes the bike harder to start, and fuel fouls plugs.

Here's some other advice that I find helpful when tuning carbs; a rich setting gets worse as the engine heats up. If the throttle is lightly "blipped" at idle, and the rpm drops below the set idle speed, then rises back up to it, the pilots are set too rich. Try leaning them a little bit. A lean problem gets better as the engine heats up. If the throttle is blipped at idle and the rpm "hangs up" before dropping to the set idle speed (making sure there are no intake leaks, and the idle speed is set to 1,000 rpm or less), the pilot screws are probably set too lean. Try richening the mixture a little bit.

On to another carb problem, off idle stumble between 1,000 and 1,500 rpm. I've already said how important it is to make sure the fuel jets; air jets and passageways are absolutely clean. This is where restricted passageways will cause a super headache. The

CBX carbs have a transition circuit upstream of the throttle plate (butterfly valve).

If you look real close you'll see three tiny holes upstream of the pilot jet hole. This is a transitional fuel supply that prevents stumble when the throttle plate begins to open. These ports must be clean. The low speed air jets and low speed fuel jets feed these ports. If someone has monkeyed with these jets, you'll never get it to run right. You should measure the fuel jets (yes, I know these jets aren't changeable on

'79, '80 and '81 carbs) with pin gages or numbered drill bits. Very carefully make sure they are all the same size. On my X, I found two different size jets, even though they were all numbered the same. I replaced them all. Replacing these jets in conjunction with setting the pilots correctly solved my stumble problems.

Next we need to adjust the midrange. I'm assuming that you haven't changed the stock mains or if you have installed a Dynojet jet kit that you've installed the recommended size mains. You must have the mains sized properly before adjusting the needles. A rule of thumb to follow: if the bike pulls harder at high rpms (7,000 to redline) when cold, and less hard when fully warmed up, the main jet is too large. If the bike doesn't pull well at high rpm when cold (or misfires), and gets only slightly better when fully warmed up, the main jet is too small. Yes, I know what you're thinking, it's very hard to apply these principals on a six-cylinder bike; four good cylinders could be masking two bad cylinders. Now, back to the mid-range. Start with the needle clip settings in the position recommended by Dynojet or the factory. When using the EGA to adjust midrange set the throttle at 3,000 rpm and check the CO. Shoot for the same settings, 3.0% to 3.5% CO. Adjust the Dynojet needles by moving the clip position on the needle. Finer tuning can be accomplished by moving the washers.

Use washers to adjust the stock needles, which don't have clip positions. Don't be concerned about different needle settings between cylinders. Mine range from two clip positions plus two washers to 5 clip positions

*continued on page 26*

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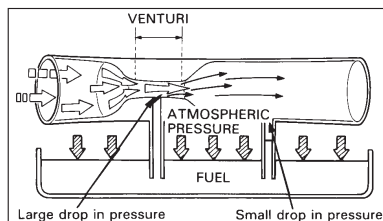
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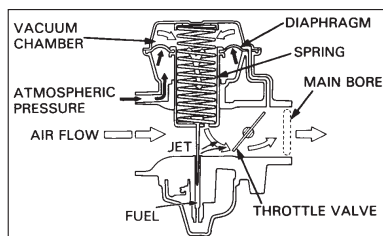




plus one washer. Yes, this is a wide range, but all of my plugs look good and are running clean. Some more advice when tuning midrange; if the engine pulls better when cold, but soft when fully warmed up, it is too rich in the midrange, and the needle(s) should be lowered. If the engine pulls better when fully warmed up, but still not great between 5,000 to 8,000, try richening up the fuel mixture. A hesitation when grabbing a handful of throttle at mid-rpm can be caused by either a rich or lean condition. Generally, if the hesitation is drastic, resulting in a major loss of power, it is too lean; if it is only slight, then it may be rich. However, this logic doesn't apply for a stumble at one-eighth throttle coming off idle. See above. Setting the midrange needle positions by reading plugs is difficult and usually results in burnt fingers, but you can do it. Here's how; with your bike fully warmed up cruise on a long road consistently at 3,500 or 4,000 rpm for 15 minutes. Then hit the kill switch, pull in the clutch and close the throttle all at the same time. Pull over to a safe spot roadside and remove and read the plugs. You're shooting for the same conditions that I described above. Remember, you should use clean plugs every time.

Some other things of interest, while I was tuning my carbs (had them off a dozen times) I learned the X will take a lot of fuel in the midrange. I raised all the needles way up which caused a terrible misfire problem from 2,000 to 3,000 rpm, but above 4,000 rpm it flew. The X can use a lot of fuel in midrange, but the late model carbs can't deliver. That's why the '79 carbs had a primary and secondary main fuel supply.

With these settings you might find your bike a little more cold natured than before. Mine will misfire in the midrange throttle



positions depending on bike temperature, the outside air temperature and how quickly I open the throttle. I spoke with Dynojet about this condition. They said this indicates a very well tuned bike and for best performance I should tolerate it. Once the bike is fully warmed up, it runs fine. During the summer when air temperatures are warmer, I don't notice any stumbling at all. Think about it, I already said a cold bike needs more fuel than a warm bike (that's why they have a choke), so this condition makes sense.

Okay! You're done, almost. You need to synchronize the carbs once more. Bet you find

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they're out again. I did. Whew! That's a lot of stuff to go over, but if you've done it all properly, you'll notice a big difference in how your X runs. I did on mine. I was also hoping for an improvement in gas mileage, but didn't see any. I'm running a K&N filter in an open airbox (cover removed) with a Dynojet stage one kit and Kerker six into two exhaust. I still get about 35 mpg.

John Seltzer ICOA #4255

I had a new experience the other day. For the first time in a motorcycling career that has spanned 34 pretty interesting years thus far – and we plan to keep counting – I actually rode a Harley.

Like most of the greybeards in the ICOA, I came of motorcycling age in the early 60's. My first-ever ride came when my college friend Paul and I went down to the corner gas station and rented a couple of Bridgestone 50's from a fleet they had parked out front. As memory serves, we showed them our driver's licenses, paid five bucks apiece, and they let us go play for an hour in traffic. No protective gear, no lessons, I'm not even sure they told us which side was the clutch and which the brake. You could, after all, tell by looking.

It was the kind of thing that would make an insurance underwriter break out in hives, but we survived it, even with the weird rotary shifter that Bridgestones had back then. Work your way up to top gear, shift up one more time, and you were back in first. The idea was to make it easy to find first gear at a stop sign, but you really wanted to keep track of which gear you were in when you were out there playing among the cars.

From the tiddler Bridgestone, my motorcycling life has generally been defined by Japanese performance bikes. I never had a Harley, never rode one, but like most every other motorcyclist, I had opinions about them, bikes and riders both. What is hard for those of us who ride real motorcycles to remember now is that, back at the beginning of the motorcycle explosion of the 60's, the Harley Sportster was the king-hell performance machine on the American road. Performance, of course, meant nothing else but acceleration in a straight line and was best quantified in quarter-mile times. A Triumph Bonneville with a sharp tune and an equally sharp rider would be right there, and the occasional BSA Lightning would keep up until it broke a piston, which usually didn't take long. The more well-read of the motorcycle enthusiasts, which was a fairly rare



# letter from the ozarks

by Steve Davis, Contributing Editor

thing back then, may have heard about the Vincent Black Shadow, but no one had ever actually seen one outside of the picture of Rollie Free doing 150 on the salt in shorts and tennies.

Day in, day out, the XLCH was king the only place it mattered: at the stoplight. Lots of displacement, at least back then when the biggest Honda displaced a whopping 21 cubic inches, flywheels that would drive a hammermill, and a square-shouldered Dunlop K70 would put a Sportster in the 14's without much effort, and Chevy couldn't build a stock Corvette that would keep up.

Even then, the genius of Harley was to steal its best engineering and design ideas from its customers. The performance bikes of the 40's and 50's were the choppers and bob-jobs, back when the idea of chopping and bobbing was to lose weight and increase acceleration. The awkward chopper giraffes with their extended front ends and ape-hanger bars came later, and can only be understood in terms of religious iconography. With the Sportster, Harley boiled down the best of the lightweight, big-motor performance bikes of the era, including their own KR flathead flat trackers, and produced the greatest stock performance vehicle of the era.

It took the Japanese factories about 20 years to rediscover the same less mass is more performance formula, certainly the CBX was no example, and they've been rediscovering it about every 5 years since. If you can't see the straight line from the XLCH to the latest Yamaha R1, you're not paying attention.

The Sportster era ended in 1969, although a good many of the Harley guys haven't yet noticed. Honda, as we all now know, changed motorcycling forever with the mighty CB750. But back then, those of us into performance found the 750 four to be too tall, too heavy, too smooth, too automotive. The performance bike for the die-hard romantic was the Kawasaki H-1 500 triple two-stroke. The magazine guys told us it was faster than the Black Shadow. And

unlike the Vincent, you could actually buy one at the local Kasasaki store converted from a gas station for \$995.

Stop for a minute and think about the firing sequence of the two-stroke triple compared to the four-stroke six. These bikes are musical cousins.

I had the second H-1 I know of in Kansas back in 1969. Fred Jones, who managed the Kawasaki store in Lawrence, fitted the first one with a set of knobbies and dominated the local quarter-mile flat track races. He would cut a trench to the first corner, then blind the competition with roost. Fred also won local trials events with a Daimler-Puch 50cc moped. If you don't know, we're talking about an overweight bicycle with a Weedeater motor. The guy could ride.

Once when Gary Bailey brought his traveling motocross school to town, Fred offered Gary the Puch for a test drive. What Bailey didn't know was that Fred had put the Puch in gear and rolled it backwards to start the soft little two-stroke, which ran just as poorly backward as it did forward. Bailey shifted the little bike to first, grunted a little when it went back instead of forward. Then he smiled, switched his long legs around, sat on the gastank, and drove the little Puch backwards, arms behind him, off into the evening traffic. We were all impressed.

Since 1969, there never have been any Harleys at the top of the performance heap, but that doesn't keep our friends of the Harley religion from spending thousands of bucks to make their twenty grand motorcycles go faster. How do you justify spending twenty large on a bike that will get dusted in a straight line by the average, box-stock Japanese 600, and don't even think about what happens when the road turns. It's sort of like the old joke about the Baptists and Heaven: you just pretend there's no one else out there.

In a way, our CBXs are a lot like the Sportster. The CBX had its day at the top of the

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