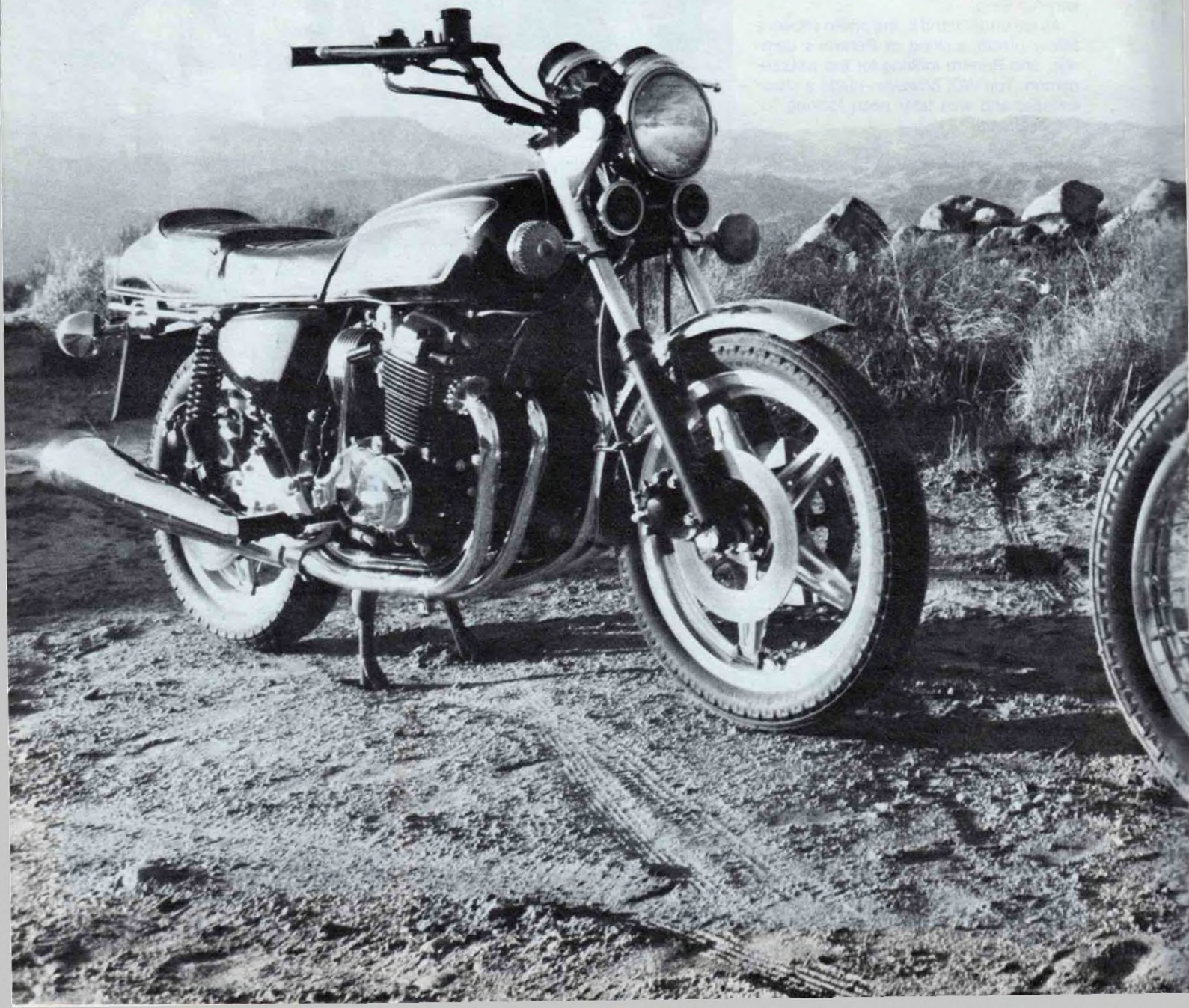
# HONDA CB750F2 & CB750K

The basic four-cylinder Honda engine is 8 years old. Radical updates to the Super Sport version and a touring touch to the CB version bring performance up to 1977 quality.

Cycle Test

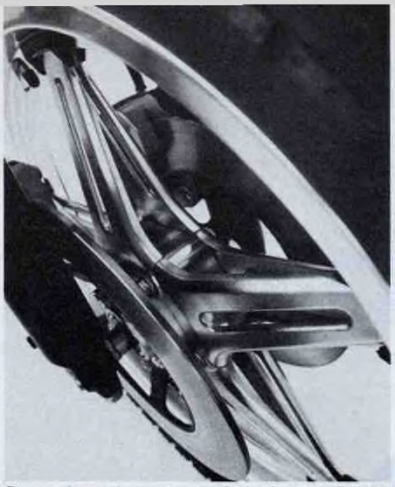


● HONDA'S RESPONSE TO THE BRILLIANT BIG-bike technology of its competition is distinct specialization within the 750 class. During the time before their rumored fleet of new V-configuration engines reaches production, specialization of existing F and K models will allow Honda to compete stronger than ever with Suzuki's GS, Yamaha's shafty and the Kawasaki fours. Those models offer one choice to the whole spectrum of potential big-bike buyers, so the tourer and café charger—two distinct markets—are combined. Honda has modified the K model specifically for touring and hopped-up the F-model Super Sport to be just that—a super performer up to challenging anything in its neighborhood.

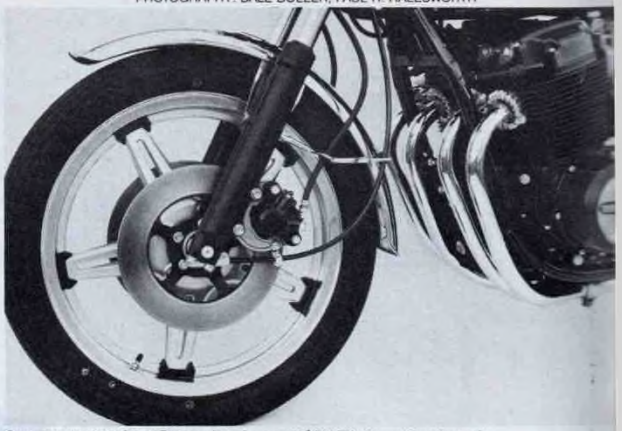
But neither bike is so finely specialized that it loses overall versatility. Both will rip through the mountains at handcuff speeds or quietly tour across a continent. Revisions deftly conceal the age of the Honda Four (eight years) just at a time when it was beginning to show. With the introduction of the GS 750 Suzuki, the Hondas were suddenly down a cam, down on smoothness, down on comfort, and performance-wise down two tenths and two mph in the ¼-mile. With the 1977

PHOTOGRAPHY: DALE BOLLER, PAUL R. HALESWORTH

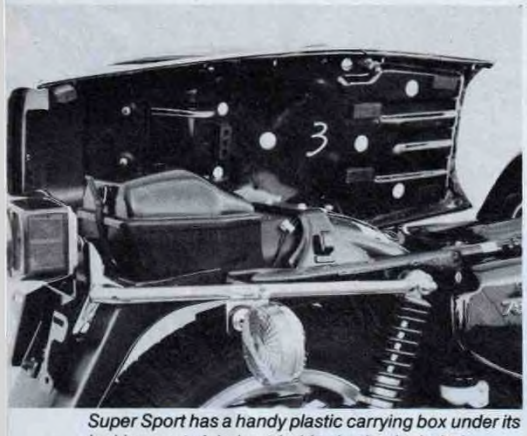
*This is the new Tokyo eyeball look for motorcycles. Exceptionally loud dual horn is under the headlight.*



*Pressed steel struts are bolted to a diecast aluminum hub and riveted to special D.I.D. rim.*

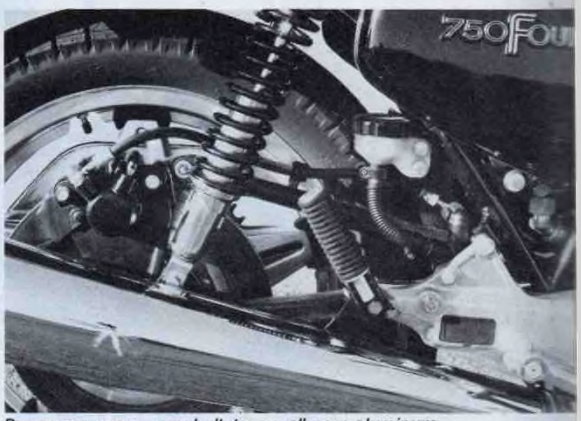


*Super strong ComStar wheels cost $94.78 for a front and $124.64 for a rear, considerably less than cast wheels.*



*Super Sport has a handy plastic carrying box under its locking seat. A helmet holder is also included.*

*Huge single pipe has a racy look and a quiet sound of power. Disc guard keeps rainwater off your back.*



*Passenger pegs now bolt to an all-new aluminum casting which eliminates several frame tubes.*

# CB750F2 & CB750K

CB750F2, Honda has beaten the drag-strip prowess of Suzuki's GS by a hundredth of a second (12.74), topped it by one mph (105.14) and become so smooth and so comfortable that differentiation would be folly.

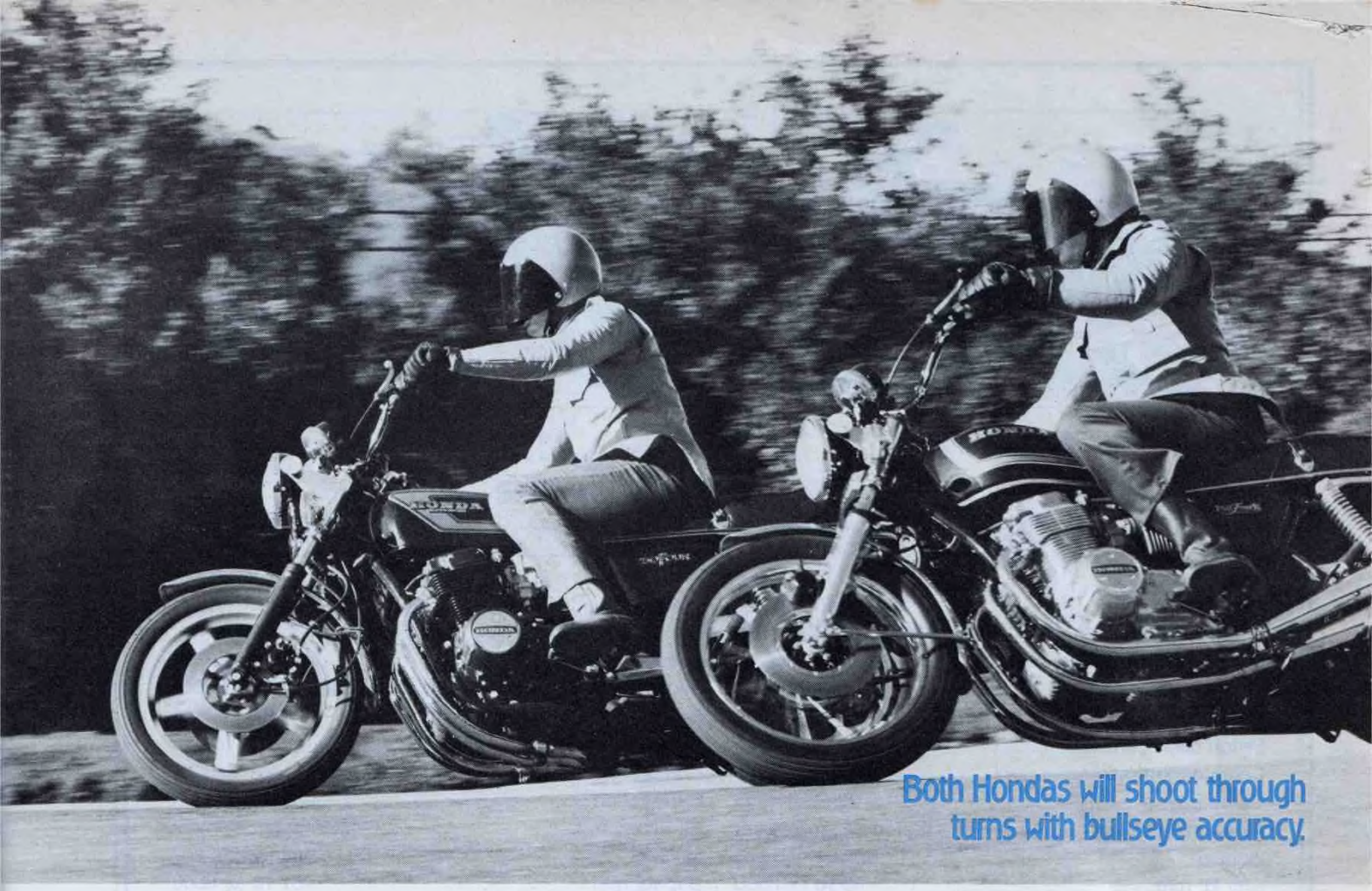
Never have the Honda K and F models been so dissimilar. When the first Super Sport F appeared in 1975, the factory intended it to replace the old K series. But cries of "We want the four-piper back!" from consumers and dealers quickly resurrected it. Evolution since then has been radical for the Super Sport and subtly redirected to touring for the K.

Let's examine the F2 Super Sport first. Visually it comes on like a left hook. Long, lean, black, sporty, shiny, and put together so no one would suspect its styling is a toupee to conceal balding. There's no question that it's built for young, aggressive riders who wouldn't think of diluting the image with saddlebags or a fairing. The shapes and lines of the '76 model are barely recognizable in the new execution. The blackness is pierced by chrome cover plates and sparkling pipes, but the dominant contrast comes from the wheels. Ah yes, the wheels.

They don't have the spiffy styling of certain cast wheels and they may look flimsy to the unknowing eye, but Honda's new ComStar wheels are probably the strongest ever to appear on a motorcycle. They are easily the most rational. Here's why. The wire spoked wheel has several shortcomings: (1) the tiny area where the spoke attaches to the rim and hub is a weak point; (2) wire spokes are thin in section and "willowy" in character; (3) because of these two weaknesses wire wheels often require adjustment and (4) they flex when loaded heavily in turns, so handling is adversely effected to a surprising degree. However, they do provide an excellent load path from the rim to the *outside* of the hub directly above the wheel bearings. Most cast wheels carry loads in a straight line from the rim to the center of the hub several inches away from the wheel bearings. Also, they are difficult and expensive to manufacture without flaws (which weaken the wheel) because the molten metal cools at different rates as it flows down the long mold passages which form the spokes and rim circumference. Thick-section castings help cope with this problem, but also add considerable weight.

The Honda wheels have all the advantages of spoked and cast wheels with none of the disadvantages. They employ steel struts bolted to the hub and riveted to a vertical flange located in the center of special D.I.D. rims. This design evolved from extensive testing of dozens of Honda-built wheel systems, including cast aluminum and magnesium. Its advantages are many: (1) the load path is direct to the wheel bearings, so the triangulation strength of wire spokes is retained; (2) the area of contact between the struts and their attachment locations is generous and the bolt-and-rivet method of fastening is exceptionally strong, so the wheels should never need adjustment; (3) this system also enables the factory to use different struts to build in the exact amount of rigidity required for different-sized bikes; (4) the rim can be lighter than cast rims because extruded aluminum doesn't have to be thicker in section than necessary to compensate for casting flaws; (5) they are simple and inexpensive to manufacture; (6) this design and construction makes them unsurpassed in strength and rigidity. They are most similar to automobile wheels which carry loads that would dwarf those imposed by the F2, yet are made even stronger.

However, all is not perfect. The shape of the struts and tiny clearances between them make the wheels extremely difficult to clean. For all practical purposes the wheels are one-piece with no interchangeability of parts and no adjustability, so a bad ding in the rim means you have



Both Hondas will shoot through turns with bullseye accuracy.

to buy a whole new wheel—as is the case with cast wheels.

But by far the most controversy centers around their looks. Honda's compelling corporate urge to innovate, to pioneer and be first with new designs has resulted in technologically brilliant wheels, but the public acceptance of wheels depends much on their style and appearance as well. Several members of the *Cycle* staff feel the ComStar wheels look cheap. Indeed, the stamped steel struts look like stamped steel, and the black plastic which covers the rivets where the struts attach to the rim detract from an impression of strength and call attention to themselves by contrasting so boldly with the silver metal. The purist who wants performance and the techno-nut who delights in good design will be quick to overlook these real and emotional criticisms because the wheels are superbly functional. Others simply won't like them because of their looks—even knowing they could probably support a fully loaded oil tanker.

There's no controversy about Honda's radical changes to the engine because they produce more power without hurting low-end tractibility or smoothness. New carburetors and modifications to the cylinder head provide the extra punch. Combustion chamber and port shape are improved and the valves are enlarged to 34mm (inlet) and 31mm (exhaust) from 32 and 28mm. New valve angles made room for .5mm more lift as well. Compression was dropped from 9.2 to 9.0:1 by redesigning piston-crown shape—probably so the piston would clear the bigger valves at TDC.

An easy way to increase an engine's output is to spin it faster. The F2's redline is up 1000 revs (to 9500) because of new cam profiles and much stiffer valve springs (rated at 202 pounds—increased from 154 pounds). Slightly hotter cam timing also contributes to the power increase.

Four new Keihin 28mm carburetors feature the same enclosed linkage and accelerator pump found on the Automatic. Protecting the complicated linkage with caps on top of the carburetors prevents the weather from attacking rubber and oil in the linkage system. The accelerator pump squirts a shot of raw gas into the intake manifold every time the throttle is jerked open, so overall carburetor jetting can be very lean to meet emission standards without losing crisp throttle response at low engine speeds.

These changes result in nearly 2 tenths shaved from the original F's drag-strip time—enough to give the F2 a 35-foot lead at the end of a ¼-mile. Its 12.74 sec. e.t. is a hundredth quicker than the GS750 Suzuki. On the dyno, it outpowers the Suzuki at every engine speed up to 8500 revs, where both reach their peak output—60.10 for the Honda and 60.17 for the GS—a virtual tie. Comparing torque reveals the F2 has more than the Suzuki at all engine speeds except one, and the amount is often greater by three pounds. Nevertheless, the Suzuki consistently outguns the Honda on the road in spite of the F2's dyno superiority and slightly tighter gearing. One reason is that the GS is 20 pounds lighter than the 553-pound F2. Another is that the dyno simply isn't the real world of the open road. Webco's dynamometer facility sits at sea level where the air is cool and full of oxygen. Field-testing on a hot day at higher altitudes obviously effects the Honda's motor more than the Suzuki's.

To help handle this year's extra power, the F2 engine has a larger oil filter, more cooling fin area in the oil pan and clutch springs stiffened from 220 to 242 pounds. In addition, Honda increased clutch lift from 2mm to 2.4mm, so the clutch releases more fully and neutral is easier to find with the bike stopped.

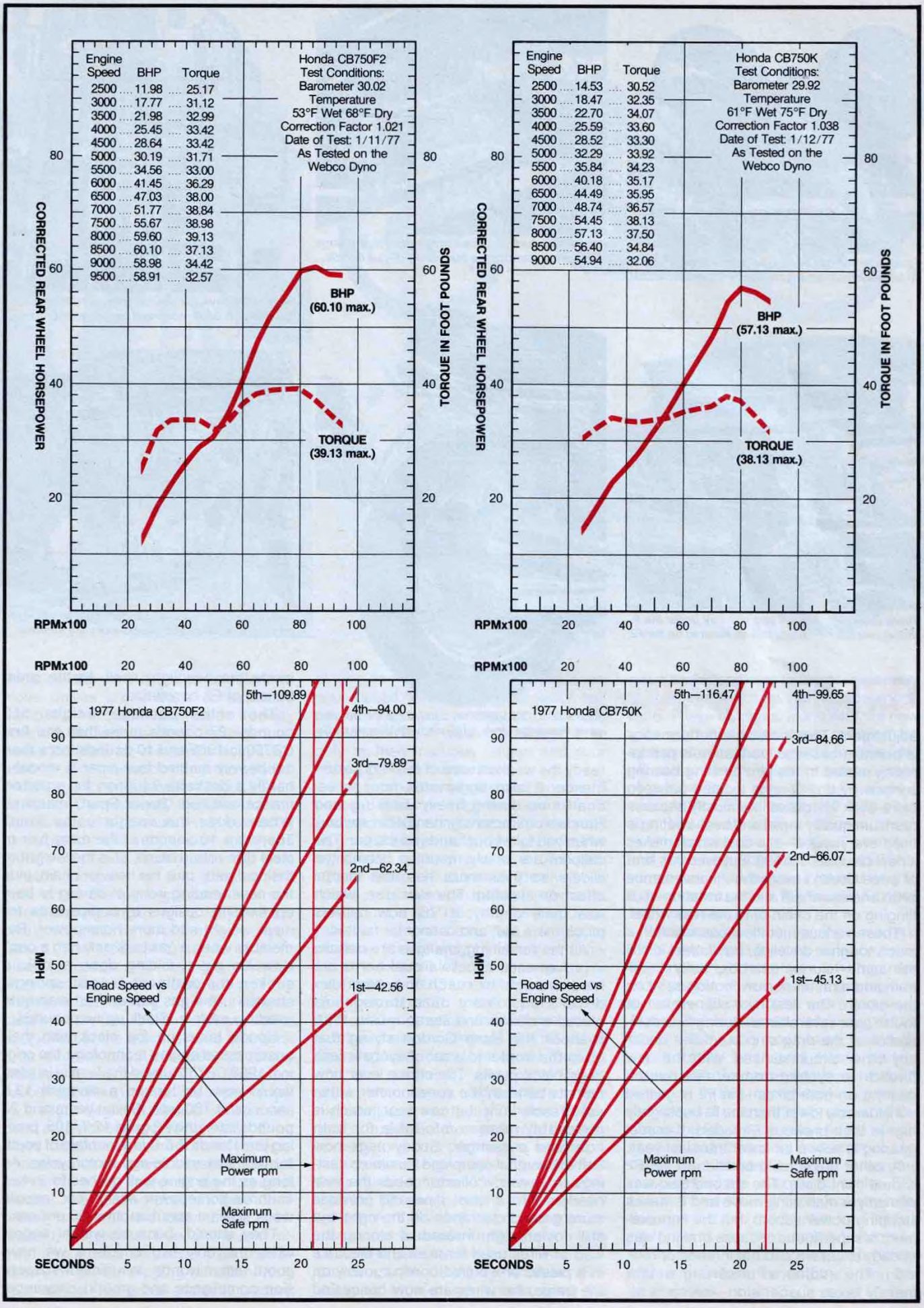
A change that we've expected for some time has finally appeared this year on both the F and K models—a ¾-inch-pitch final-drive chain—endless, of course. This is a much tougher chain than the old ⅝-inch one and seems to be practically break-proof. Judging from its performance on our test bikes, it's easily the toughest chain in motorcycling. Our F2 endured 700 miles on the road and a dozen drag-strip blasts without the chain ever needing

## HONDA CB750F

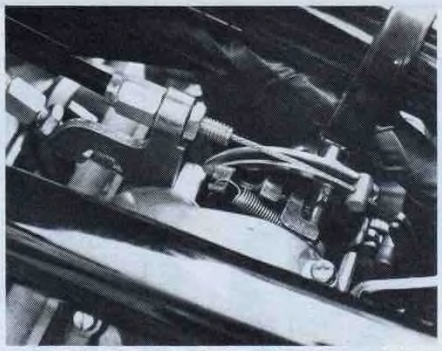
| | |
|---|---|
| Price, suggested retail | $2148 |
| Tire, front | Bridgestone 3.25-19 Super Speed |
| rear | Bridgestone 4.00-18 Super Speed |
| Brake, front | 1.70 x 11.04 in. x 4 |
| rear | 1.70 x 11.50 in. x 2 |
| Brake swept area | 304.3 sq. in. |
| Specific brake loading | 2.34 lbs./sq. in. |
| Engine type | Four-stroke SOHC four |
| Bore and stroke | 61 x 63mm |
| Piston displacement | 736cc |
| Compression ratio | 9.0:1 |
| Carburetion | 4; 28mm; Keihin |
| Air filtration | Pleated paper element |
| Ignition | Battery and coil |
| Bhp @ rpm | 60.10 @ 8500 |
| Torque @ rpm | 39.13 @ 8000 |
| Rake/Trail | 27.5°/4.5 in. (113.5mm) |
| Mph/1000 rpm, top gear | 12.93 mph |
| Fuel capacity | 4.8 gal. (18 liter) |
| Oil capacity | 3.7 qt. (3.5 liter) |
| Lubrication | Dry sump |
| Electrical power | Alternator, 203 watts at peak revs |
| Battery | 12V 14AH |
| Primary transmission | Duplex chain 1.71:1 |
| | Jackshaft 1.16:1 |
| Secondary transmission | ¾ x ⅜ D.I.D. or RK chain |
| | 14/43 3.07:1 |
| Gear ratios, overall | (1) 15.13 (2) 10.33 (3) 8.06 |
| | (4) 6.85 (5) 5.86 |
| Wheelbase | 59 in. |
| Seat height | 33 in. |
| Ground clearance | 5.25 in. |
| Curb weight | 553 lbs. |
| Test weight | 713 lbs. |
| Instruments | 150-mph ND speedo with odometer, |
| | 12,000-rpm ND tachometer |
| Standing start ¼-mile | 12.74 @ 105.14 mph |
| Average fuel consumption | 37.9 mpg |
| Speedometer error | 30 mph actual 25.95 |
| | 60 mph actual 54.91 |

## HONDA CB750K

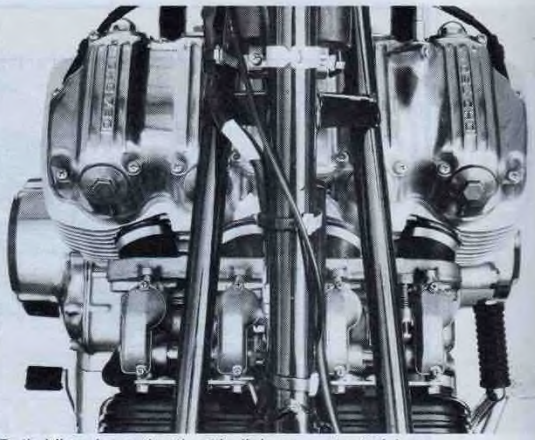
| | |
|---|---|
| Price, suggested retail | $1998 |
| Tire, front | Bridgestone 3.50-19 Super Speed |
| rear | Bridgestone 4.50-17 Super Speed |
| Brake, front | 1.57 x 11.63 in. x 2 (disc) |
| rear | 1.1 x 7.81 in. (drum) |
| Brake swept area | 133.5 sq. in. |
| Specific brake loading | 5.30 lbs./sq. in. |
| Engine type | Four-stroke SOHC four |
| Bore and stroke | 61 x 63mm |
| Piston displacement | 736cc |
| Compression ratio | 9.2:1 |
| Carburetion | 4; 28mm; Keihin |
| Air filtration | Pleated paper element |
| Ignition | Battery and coil |
| Bhp @ rpm | 57.13 @ 8000 |
| Torque @ rpm | 38.13 @ 7500 |
| Rake/Trail | 28°/4.5 in. (115mm) |
| Mph/1000 rpm, top gear | 14.56 mph |
| Fuel capacity | 5.0 gal. (19 liter) |
| Oil capacity | 3.7 qt. (3.5 liter) |
| Lubrication | Dry sump |
| Electrical power | Alternator, 203 watts at peak revs |
| Battery | 12V 14AH |
| Primary transmission | Duplex chain 1.71 |
| | Jackshaft 1.16:1 |
| Secondary transmission | ¾ x ⅜ D.I.D. or RK chain |
| | 15/41 2.73:1 |
| Gear ratios, overall | (1) 13.60 (2) 9.29 (3) 7.25 |
| | (4) 6.16 (5) 5.27 |
| Wheelbase | 58.5 in. |
| Seat height | 32 in. |
| Ground clearance | 6.5 in. |
| Curb weight | 548 lbs. |
| Test weight | 708 lbs. |
| Instruments | 150-mph ND speedo with odometer, |
| | 12,000-rpm ND tachometer |
| Standing start ¼-mile | 13.33 @ 101.35 |
| Average fuel consumption | 40.4 mpg |
| Speedometer error | 30 mph actual 29.12 |
| | 60 mph actual 58.67 |


Engine Speed BHP Torque
2500 11.98 25.17
3000 17.77 31.12
3500 21.98 32.99
4000 25.45 33.42
4500 28.64 33.42
5000 30.19 31.71
5500 34.56 33.00
6000 41.45 36.29
6500 47.03 38.00
7000 51.77 38.84
7500 55.67 38.98
8000 59.60 39.13
8500 60.10 37.13
9000 58.98 34.42
9500 58.91 32.57
Honda CB750F2
Test Conditions:
Barometer 30.02
Temperature
53°F Wet 68°F Dry
Correction Factor 1.021
Date of Test: 1/11/77
As Tested on the
Webco Dyno
BHP
(60.10 max.)
TORQUE
(39.13 max.)
CORRECTED REAR WHEEL HORSEPOWER
TORQUE IN FOOT POUNDS
RPMx100
Engine Speed BHP Torque
2500 14.53 30.52
3000 18.47 32.35
3500 22.70 34.07
4000 25.59 33.60
4500 28.52 33.30
5000 32.29 33.92
5500 35.84 34.23
6000 40.18 35.17
6500 44.49 35.95
7000 48.74 36.57
7500 54.45 38.13
8000 57.13 37.50
8500 56.40 34.84
9000 54.94 32.06
Honda CB750K
Test Conditions:
Barometer 29.92
Temperature
61°F Wet 75°F Dry
Correction Factor 1.038
Date of Test: 1/12/77
As Tested on the
Webco Dyno
BHP
(57.13 max.)
TORQUE
(38.13 max.)
CORRECTED REAR WHEEL HORSEPOWER
TORQUE IN FOOT POUNDS
RPMx100
1977 Honda CB750F2
5th—109.89
4th—94.00
3rd—79.89
2nd—62.34
1st—42.56
Road Speed vs
Engine Speed
Maximum
Power rpm
Maximum
Safe rpm
MPH
SECONDS
1977 Honda CB750K
5th—116.47
4th—99.65
3rd—84.66
2nd—66.07
1st—45.13
Road Speed vs
Engine Speed
Maximum
Power rpm
Maximum
Safe rpm
MPH
SECONDS

Ignition switch has been moved from under the tank to between the instruments, where it is much handier.

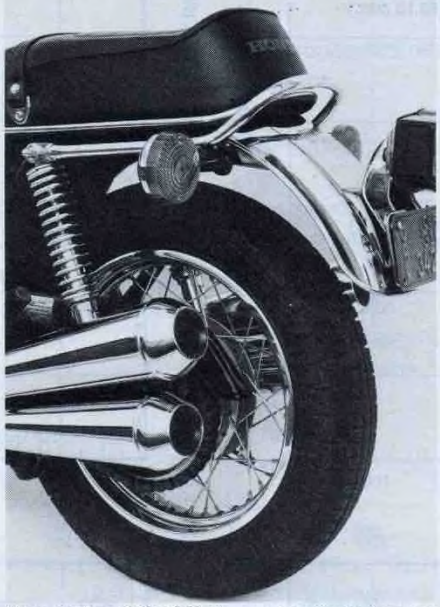


Accelerator pump required exotic two-stage linkage with special damping on the usual pull-pull throttle.



Both bikes have the throttle linkage protected from the elements under covers on top of each carburetor.

There is a helmet-holder and tool tray under the K-model seat but no storage box as featured on the F2.



Huge 4.50 x 17 GL1000 tire can handle the heaviest loads. Passenger grab rail is handy for bungee cords.


Satin-smooth cases and cylinder could be displayed as sculpture. The 750's classic looks are timeless.

# CB750F2 & CB750K

adjustment. This incredible performance is possible because lubrication is permanently sealed in the pin/bushing bearing surface by tiny O-rings located between extra-thick link plates, but mostly because premium quality metal and heat-treating is used everywhere—at a cost which makes a new chain sell for $90. But even this kind of price doesn't solve the inconvenience of an endless chain and the irritation of oil flinging off the chain onto the rear wheel.

These various modifications result in a much tougher driveline, but its feel is still the same—clunky gearbox, jerky drivetrain and a rather narrow friction point on the clutch. Our test bike slipped out of fourth gear several times during full acceleration at the drag strip but never under any other circumstances. With the new final-drive system comes new overall gearing on both bikes—the F2 is geared considerably lower than the K, but slightly higher than previous F models. K-model gearing is now a bit lower than last year.

Another predictable addition to the F2 is dual front discs. The second disc was primarily a marketing move and it makes stopping power superb, but the improvement is superfluous because braking was already excellent and not in need of revision. The additional unsprung weight merely taxes suspension—which is already the weakest area of the F2's performance. It also aggravates front wheel chattering during heavy braking and Honda's characteristic handlebar shimmy when you take your hands off the bar. The calipers are wisely mounted behind the sliders so their mass has less inertial effect on steering. The rear disc, which was quite grabby in '75, now delivers much more feel and cannot be faulted.

All the remaining changes are definite improvements. Excellent dual horns are loud enough to reach the American driver's customary daze through his closed windows and stereo music. We'll overlook the Flash Gordon styling that gives the front end a set of eyeballs with huge black pupils. The choke lever now mounts beneath the speedometer within easy reach from the new seat, which is noticeably more comfortable for both rider and passenger. Buddy pegs now bolt to beautiful one-piece aluminum castings. A revised collector feeds the four headers into a quiet pipe and provides more ground clearance on the right, but still not enough. Instead of storing the wad of wires used for front-end electrics in a plastic box bolted conspicuously on the frame, the wires are now concealed inside the headlight shell, to the great benefit of F2 cosmetics.

The entire package weighs 553 pounds—27 pounds more than the first CB750 in 1969 and 10 pounds more than the heavily muffled four-piper K model—hardly a desirable situation for a performance oriented "Super Sport" machine. Where does this weight come from? There are 10 pounds in the extra pair of steel disc rotors alone, plus the weight of their calipers, plus the heavier chain, plus the never-ending irony of having to beef up existing designs to compensate for more weight and more horsepower. Remember when a gas tank only had a cap? Now it's got a folding door, a lock, a sunken compartment, hinges, springs, chains on the gas cap and an elaborate overflow system. Chalk up two pounds.

Honda takes up the slack with their unsurpassed engine technology: the original 1969 CB750 turned the ¼-mile in what would now be termed a sluggish 13.5 seconds at 100 mph. Seven years and 27 pounds later, the F2 goes 12.7/105, proving that Honda R & D is a fountain of youth for paunchy middle-age motorcycles. As long as the engine well gushes forth two or three horsepower every year, people won't scream about another 20 pounds.

They should, because weight aggravates the only two criticisms we have about either Honda: insufficient suspension compliance and ground clearance.



Because the fork slider is reluctant to move unless urged by a considerable bump, the old buckboard ride on freeway seams is still with us. Softer springs than would be ideal for the bike's weight are used to avoid compounding the stiction problem, with an equivalent reduction in damping. Consequently the bike doesn't handle as well as it could. Hard cornering compresses the suspension and robs ground clearance. Most riders won't even scratch the paint on the little warning nubs under the footpegs, but lack of sufficient leaning angles will greatly limit the bike's potential for experienced canyon racers. The pipes and stands on both bikes jeopardize cornering clearance when the tires have plenty left and the engine is still loafing. The F2, then, is clearly a very fast sporting motorcycle for everyone but the quickest café chargers.

Its engine, often criticized for buzzy vibration when compared to newer (or rubber-mounted) multis, has settled down to a slight tingle at certain speeds and dead smoothness everywhere else. Even when the mirror is blurred, it takes special concentration to notice vibration. Overall comfort is much improved over previous models: the seating position feels completely natural, the bars aren't odd-shaped, the seat isn't benchlike and excellent new grips are properly textured to keep gloves from slipping without hurting your hands. The usual gadgetry buzzes, blinks, flashes, whirrs and whistles on your behalf. Fork locks, seat locks and gas-cap locks add a measure of security to the vehicle. A pleasant exhaust note, duly muffled, reduces fatigue and your impact on the environment.

The K-model is all this plus another 3 percent. It has an edge because it's built and sold as a touring bike, so factors such as ground clearance and weight aren't as significant as they are to a bike with "Super Sport" in its name. Ideally the K model would also have ComStar wheels, dual horns, a rear disc and the F's power, but even without them, it's a fine touring machine tainted only by less than satisfactory suspension compliance. Its ¼-mile time of 13.33 doesn't seem impressive compared to the F's hot-blooded 12.7, until you realize it's still three tenths quicker than the original CB750, three tenths quicker than the current Yamaha 750, and quicker than the BMW 750. In short it's no slouch, and there's a simple explanation why: the K engine is last year's Super Sport engine with the new accelerator-pump carburetion system.

Because of higher gearing which lets the engine loaf, the K is even smoother than the F2, and therefore a rival to BMW for comfort. Further improvements include new seamless mufflers which look better and quiet the engine's 57.13 horsepower to 78 dB(A)—a whisper. Redesigned triple-clamp bosses bring the new handlebar closer to the rider, partially to compensate for an inch-longer wheelbase. These changes, along with the new grips and two-stage seat, produce an exceptionally natural feel. It's likely a rider will remain comfortable for a whole tank of gas, which is now five full gallons—enough for 200 miles at a 40 mpg average. Nearly an inch more rear shock travel also contributes to the K's comfort and load-carrying ability. In addition, Honda has fitted the same fat rear weenie that works so well on the heavier GL1000 and Automatic.

With these modifications the K model is even more suited for long-distance riding than the early Honda fours, which carried more people more miles than any big bike in history. Touring buffs won't find many of their former criticisms left in the 1977 K model. They can now expect smooth, comfortable, brisk and stable performance with the same steadfast reliability delivered by this machine since its inception. Several riders actually preferred the K over the F2, in spite of the Super Sport's exotica and blistering performance. Indeed, the K-model is one of those rare machines where everything clicks. The bike has balance, manners, looks, reputation, comfort and great value for $1998. It performs its touring function better than the F2 carries out its Super-Sport function, and is therefore the better of two fine motorcycles. ◉