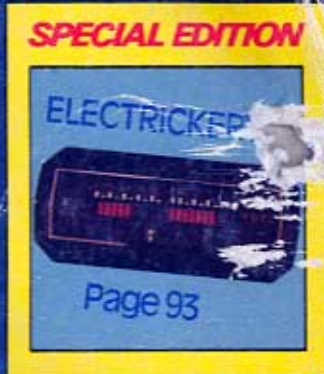


CYCLE GUIDE

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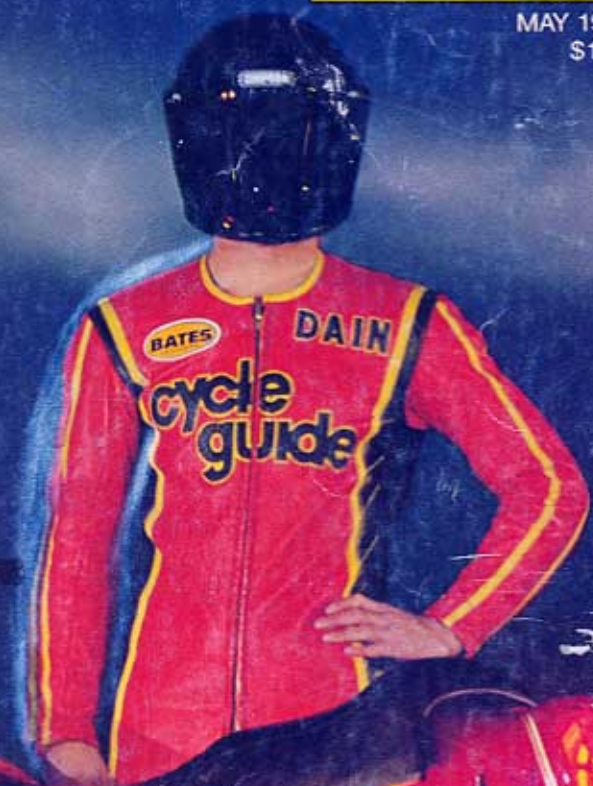
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Superbikes Get Smart:

KAWASAKI 750 FOUR

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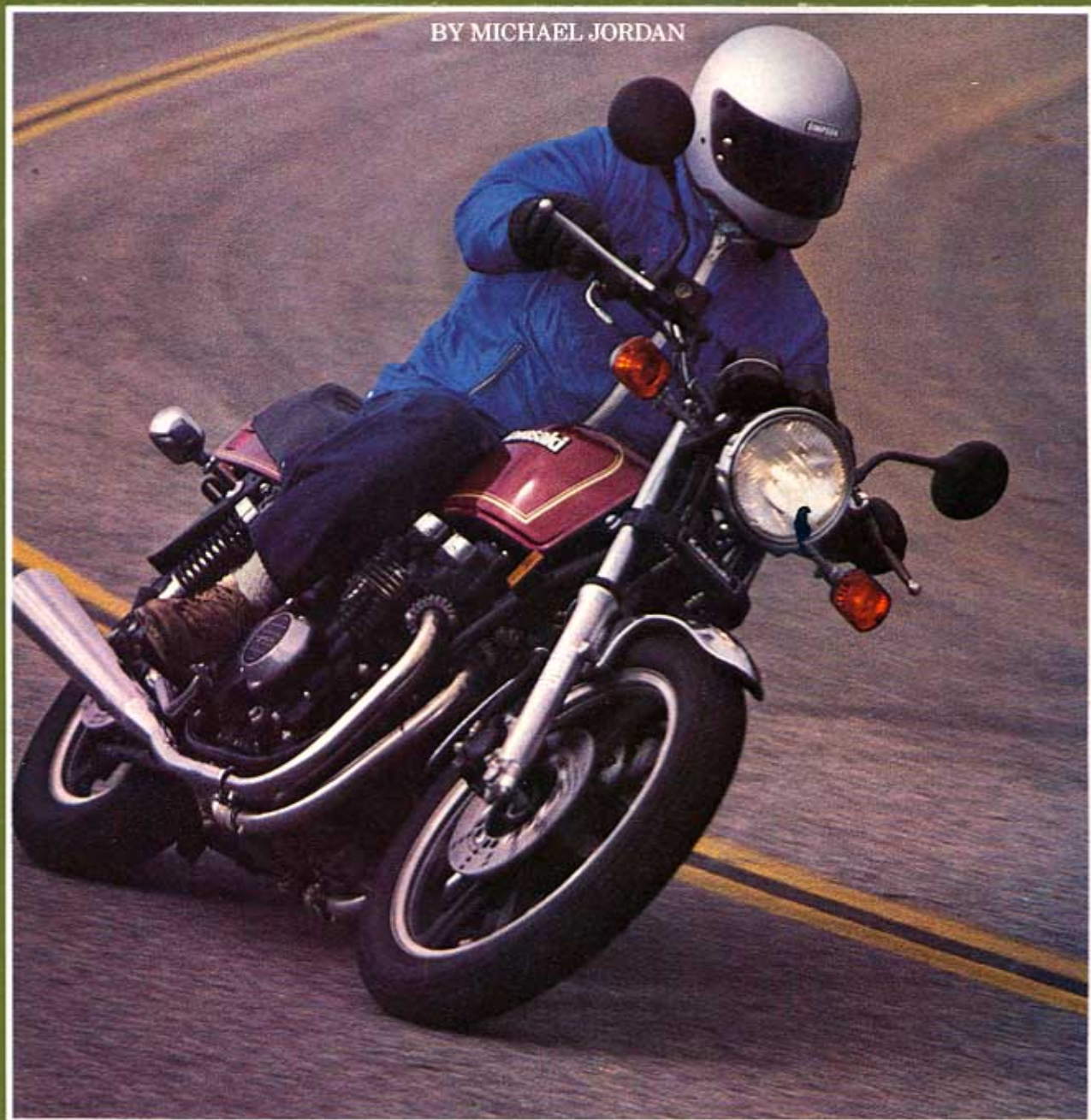


ROAD TEST:

Kawasaki KZ750 Four

Shrewd superbike with Father Physics' Seal of Approval.

BY MICHAEL JORDAN



Street bikes are getting fat. It seems like every added injection of horsepower brings with it an unwanted dose of heavy metal. And you pay for this bulk every time you toss your brawnbike into a corner, thread it through city traffic or hook it up with the gas pump.

Bikes like the KZ1300 aren't solely re-

sponsible for the trend to chubby motorcycles, either. Compared to what used to be thought of as a *big* motorcycle—a 400-pound Triumph Bonneville—the 524-pound Honda CB750F and Suzuki GS750ET have taken on the dimensions of an armored personnel carrier. You should never forget that every extra pound steals

Continued



PATRICK BEHAR

a tick of the clock away from you when you're accelerating and adds a few inches to your bike's braking distances. Fat is the enemy.

Some motorcycle manufacturers believe the only way to buck this trend is to coax more power from their bulk-bikes to disguise the fat. Kawasaki sees the problem differently. Its new KZ750 pares the superbike concept right down to its essentials, for at a fighting weight of 471 pounds, the KayZee weighs a staggering 53 pounds less than a Honda CB750F. Kawasaki's secret weight plan is easy to understand: The lean and mean 750 has been developed from the KZ650. The KZ650's razor-sharp handling, bitesize dimensions and modest weight have been combined with high-tech suspension and a supremely flexible engine to make a new superbike that assaults high speeds with intelligence and finesse rather than bulk and brute strength.

Kawasaki originally built the KZ650 to compete with 750cc superbikes with just the same philosophy. The ads proclaimed it the fastest 750 in the world. But before the 650 could make good its claims, the revised Yamaha XS750 and Honda CB750 F2 called them into question. And finally the introduction of the Suzuki GS750 in mid-1977 deflated the KZ650's aspirations

entirely. By mid-1977, Kawasaki thought to retrench with a 750, but no new trick technology was on the horizon, since most of its engineers were engaged in building dirt bikes to fill out the model line-up. So the firm decided to exploit the 650's virtues rather than invent a whole new brawnbike. Light weight and a good power-to-weight ratio would be the themes of the new machine.

This strategy also provided the most expedient route to a 750cc superbike, but Kawasaki product planner Takayuki Tsuboi points out that other factors were at work as well. Tsuboi notes that during the Eighties, high performance will have to be achieved with less horsepower in light of what he describes as certain "social and environmental responsibilities." Tsuboi also perceives a new breed of enthusiast committed to motorcycles that combine comfort, light weight and maneuverability. A more efficient motorcycle, not just a faster one, will be the key to the superbike enthusiasts of the Eighties, Kawasaki product planners believe.

With this mandate in mind, Kawasaki engineers coaxed more power from the KZ650 motor with intelligence and attention to detail. As a result, the KZ750 engine hasn't been stressed beyond its limitations

with wild cams, monstrous valves and bloodcurdling compression ratios. Yet it still churns out 74 horsepower at the crankshaft, an increase of 19 percent over the KZ650. There's 10 percent more torque on hand, too. That's less horsepower than the Honda CB750F's rating, but Kawasaki has power-to-weight ratio on its side. The KZ750 has 6.36 pounds/hp, the Honda 6.99 pounds/hp.

No magic was required to achieve the transformation of the KZ650 engine. Bore size swelled 4mm, while the compression ratio shrunk a half-point to a mild 9.0:1. Close attention to port shape and an increase in valve size—1mm for inlet valves, 2mm for exhaust valves—helped maximize the potential of the 750's 34mm Keihin constant-velocity carburetors. Kawasaki engineers believe that you need look no further than the increased displacement, larger carburetors and less-restrictive mufflers to account for the 750's horsepower bonanza.

Other changes were made to the engine to accommodate the newfound power. To begin with, a Hy-vo cam chain with an automatic tensioner substitutes for the KZ650's roller cam chain. Stronger springs boost the KZ650 clutch's ability to absorb punishment. The alternator's output has

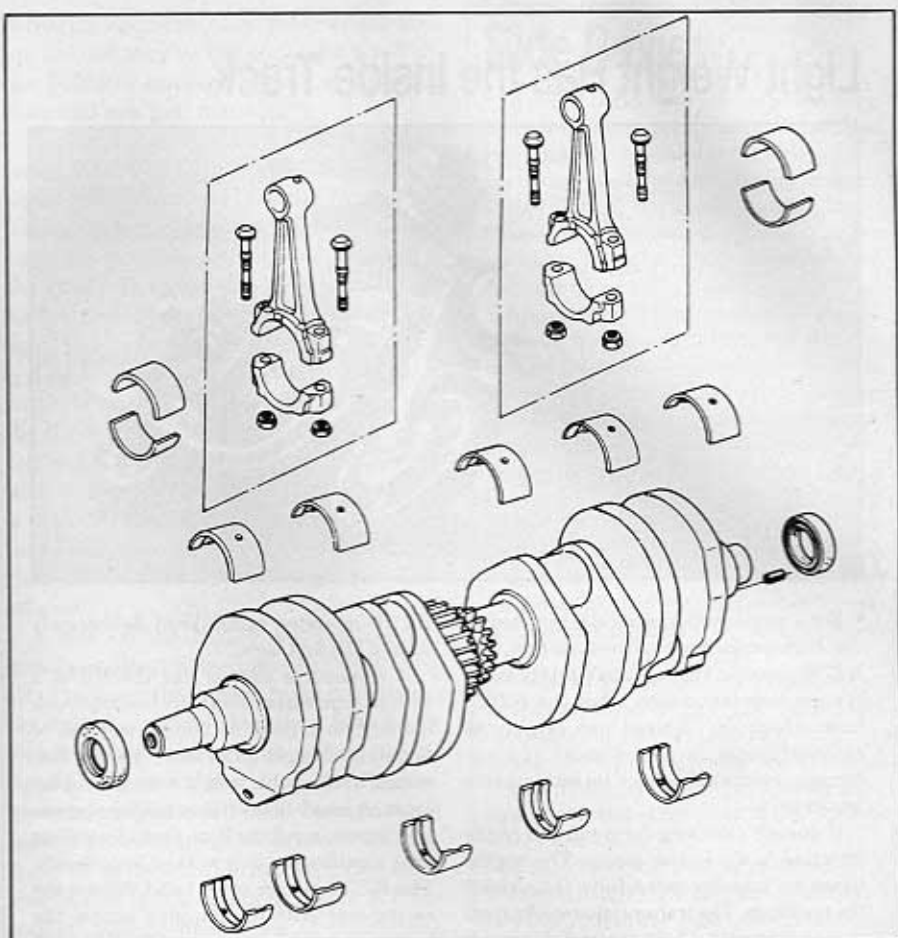
increased 21 percent. And final-drive gearing is fractionally taller due to a higher fifth gear than the KZ650's (otherwise the transmissions are identical). So aside from stronger engine cases and the deletion of the kickstarter, the 750 engine actually differs little from the 650 motor, right down to the crankshaft, connecting rods and oil pump.

It could be that the engine's specifications don't impress you. Don't worry. Its performance will. The KZ650 engine has earned acclaim for the smooth but powerful way it makes horsepower, and the 750 engine amplifies that reputation. Kawasaki engineers claim that the deletion of the kickstarter and the addition of a Hy-vo cam chain even adds to the smooth rotation of the plain-bearing crankshaft. Like the Honda CB750F, the KZ750 uses Keihin carburetors, but they don't need an accelerator pump to help the engine respond crisply off idle. Moreover, the KayZee has enough midrange punch instantly on tap to make even hyperbikes jealous. Five minutes of running with the choke after a cold start is enough to get the Kaw's four cylinders ready to do business, and then it revs so easily while producing a broad band of power that the gearshift nearly becomes redundant. And the motor always responds without a lurch or a stumble, while the drivetrain lash is minimal.

The KZ750's 12.50-second quarter-mile time and 107.8-mph trap speed tell you how this bike rates in the superbike world—hard on the heels of the CB750F—but they don't tell the whole story. Match the KayZee against both a Suzuki GS750ET and a Honda CB750F in a contest of roll-on acceleration at 60 mph and the Kawasaki leaves its competition in the dust. The KZ750 requires no gearing tricks to humiliate the opposition, either, for 60 mph in fifth gear demands only a reasonable 4500 rpm. Meanwhile, gas mileage is nothing short of phenomenal. A session at Willow Springs Raceway dragged it as low as 39 mpg, but elsewhere it hovered insistently at the 50-mpg mark.

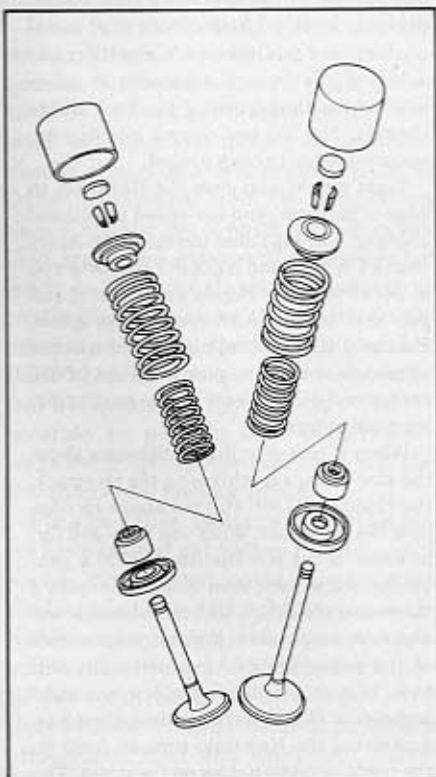
Kawasaki engine designer T. Akira believes that emphasizing a flexible powerband with the 750 pays off better than dabbling with exotic cylinder heads for maximum power. Akira admits that Kawasaki's two-valves-per-cylinder design sacrifices some peak horsepower to the four-valves-per-cylinder concept, but not much. Furthermore, the four-valve layout requires high rpm for peak efficiency, which in turn produces lots of noise and lots of power-robbing heat. And as one last drawback, Akira thinks that the small amount of airbox and muffler volume

Continued



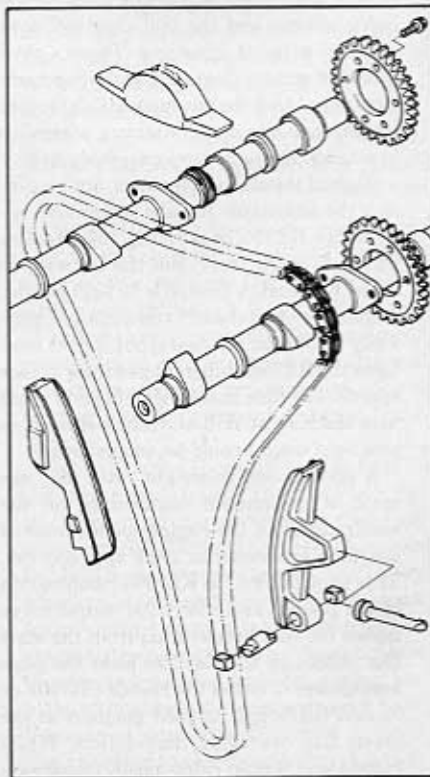
750's forged crank with plain bearings and 650-spec rods hold no speed secrets

More displacement, bigger carbs and intake ports smoothed with epoxy do.



Adjustment shim beneath tappets

Removing the cams is a must to adjust.



Hy-vo cam chain replaces 650's roller

Tensioning automatically Suzuki-style.

Light Weight Has the Inside Track



PATRICK BEHAR

• For a motorcycle specifically targeted at the high-performance street market, the KZ750 tears up the racetrack pretty good. It's no surprise, really, since the KZ650 from which it's derived has proven its raceworthiness in sprint races and endurance events alike since its introduction late in 1976.

It doesn't take long for a roll call of the Kawasaki's track-wise assets. The engine flexes its muscles powerfully throughout the rev range. The transmission snicks from gear to gear with a light throw and engages positively, inspiring confidence even if you're bouncing the tach needle against the redline with every shift. The steering has quick reflexes and the taut chassis follows its lead without question. There's even plenty of ground clearance; and when hardware does scrub the pavement, it's a footpeg rather than the centerstand or some such bracketry. Even the tires grip fairly well.

Each of these characteristics, not to mention the adjustable Kayaba suspension, assists the KZ750 in meeting the peculiar demands of the track. But the key weapon in the Kawasaki's arsenal is its light weight. A shortage of fat doesn't translate automatically into faster lap times, but it does reinforce the KZ750's inherent goodness at race speeds. The time that Gingerelli and I spent with the Kaw at Willow Springs showed us how light weight could be an advantage.

A good power-to-weight ratio may not seem of paramount importance on the racetrack, since the engine spends most of the time screaming at peak rpm anyway. True enough. But the KZ750's combination of 471 pounds and a very flat torque curve makes for easy acceleration from the start line. Although the Kay Zee lacks the peak horsepower of either the Honda CB750F or Suzuki GS750ET, its good manners at the green flag overcome that deficit. While Honda and Suzuki riders busily coordinate clutch and revs to keep from either bogging the engine or lighting up the rear tire, the

KZ750-mounted racers head deliberately toward the first turn.

A responsive chassis like the KZ750's with its firm suspension rates could prove a liability on a track as bumpy and full of elevation changes as Willow. Yet the Kawasaki's reasonable weight comes into play again. A heavy bike often amplifies suspension inputs, resulting in an ungainly wallow that signifies an overworked suspension. The KZ750, on the other hand, follows the racing line without skipping across the bumps or bumbling around. The Kawasaki really struts its stuff in Turn Eight, a top-gear bend where speed, cornering forces and bumps unite to upset a bike's equilibrium. After a quick twitch that seems distinctive of this motorcycle, the KZ tracks across Eight's rough pavement at speed without hesitation, even if you back off the throttle. The 750 just doesn't lose its composure and try to buck you off.

Light weight also gives the Kawasaki an edge in medium- and low-speed directional changes. The bike does feel more top-heavy than a CB750F, and it doesn't heel over into a corner with the Honda's ease, yet it still gets into corners with competitive speed. Basically, its weight minimizes the amount of muscle it takes to pick it up out of one corner and put it down in the next, a distinct advantage.

When it comes to final judgments about the king of the superbikes on the racetrack, the Honda CB750F still maintains its edge over the Kawasaki. What was unlooked for, however, is the fact that the KZ750 is genuinely competitive, even though it is really a three-year old design with more horsepower and new suspension. Further assessments of the superbike rankings naturally will have to wait for the obligatory late-night arguments. But in the meantime, there's no doubt that the Kawasaki runs up front on the track, just like it does on the street. The KZ750 may weigh only 471 pounds, but it's no lightweight in action. —Michael Jordan

available on street bikes further undercuts the better breathing theoretically available from the four-valve concept. No, he says, shaking his head, consistent and usable horsepower at lower rpm makes more sense on the street, no matter what people say about four-valve designs.

This sort of thoughtful, pragmatic thinking is reflected in the KZ750's chassis as well as its engine. Except for two things, the frame of the 750 is identical to that of the 650. First, the engine is located in a different position to reinforce high-speed stability. Secondly, the frame rails beneath the seat have been dropped 20mm for a lower seat height, for as suspension engineer Hank Hosoi asserts, even large people value the impression of maneuverability fostered by low seat height.

As anyone who has ever ridden a KZ650 around a racetrack will tell you, the 650's steering geometry delivers nothing but good times. But while the 650's frame is clearly appropriate for the 750, the smaller bike's stiff-legged suspension is not. So Kawasaki installed suspension trickery from Kayaba on the 750—an air-spring fork and shocks with four-position adjustable rebound damping.

The 750's fork has two anti-stiction bushings just like the latest generation of air-spring units, one at the top of the slider, the other at the bottom of the fork tube. The range of adjustability is 8 to 14 psi, with 10 psi recommended for most circumstances. A substantial amount of front-end dive reveals how much softer the 750's front end can be than the 650's because of its progressive action. Yet strangely enough, the rear suspension is much stiffer than that of the KZ650. The spring rate is 21 percent stiffer than that of the the Honda CB750F. Front-end action is stiffer and the softest notch of adjustable damping seven percent stiffer (each position of adjustable damping represents a step of 20 percent).

This modern suspension gives the Kawasaki a comfort factor superior to that of the Honda CB750F. Front end action is particularly smooth, although overall the ride is choppy (like the Honda's) compared to a GS1100 or GS1000, partially because of a relatively short wheelbase and partially because of the stiff rear suspension.

You do make some sacrifices to comfort when you're aboard a KZ750, though. High performance is the watchword here, so the stepped seat holds you firmly in place like the seat from an AMA Superbike. Unfortunately, the seat isn't well-shaped or particularly resilient. First of all, it slopes forward, making a compact bike feel even

smaller. Secondly, it doesn't insulate you from the thumps as the short-wheelbase bike pitches back and forth on its suspension while you're riding across the concrete slabs of the Interstate.

Of course, the KZ750 wasn't built to compete with GL-1100 in terms of comfort. It's built to go fast, and when you're ready to wrap the speedometer needle around the 85-mph peg, the KayZee perks right up. At Willow Springs, the 750 performed best for my 160 pounds with 18 psi in the fork and either position No. 2 or No. 3 both for shock preload and damping. The Kawasaki corners like an effective compromise between a Honda CB750F and a Suzuki GS750ET. Like the Suzuki, the KZ carves through high-speed bends with rock-steady stability. Then in the slow corners, it changes direction almost as

cornering clearance. The brakes back you up, too, for they've lost the sudden feel of the KZ650's anchors thanks to smaller discs and new pad material.

It's easy to think of the KZ750 strictly in terms of the KZ650, but while this strategy helps you understand how the 750 works, it doesn't do justice to the bike's powerful claim to superbike status. And yet one of the strongest things the KZ750 has going for it is this allegiance to the 650 concept—light, fast and maneuverable. Of course, its styling is uninspired and the dashboard's single flourish is one tacky voltmeter, but the KZ750 gives you just enough instead of too much. Rather than rattle your cage with outrageous speed, the KZ750 simply is fast enough. Rather than perform any task brilliantly, it does everything well. Yet this motorcycle is not mediocre—it's efficient.

A ride on the KZ750 will remind you how hype about horsepower has distracted all of us from the central tasks a motorcycle should perform. Because a bike has a responsibility to be enjoyable when it's upright and cruising as well as when heeled over and tapped-out. Usable horsepower is indeed better than peak figures that look good in sales brochures. And the light weight and quick reactions of the KZ are indeed better than those of ponderous bikes that need to be herded around like tugboats. And it's in these respects that the KZ750 really delivers.

It isn't easy to make a big deal of virtue, but if it's possible to build a virtuous superbike, Kawasaki has done the job. This motorcycle has been tailored to what you need, not what you *think* you need. Kawasaki always has felt compelled to do things differently from its competitors since it was the last to enter the motorcycle field, but in this instance that impulse has led it in the right direction. Aside from continuing to feature the most complicated of valve adjustment procedures, the KZ750 heralds a new spirit of simplicity, and in the process demonstrates that it's possible to provide high performance while living up to governmental, social and environmental responsibilities.

For a long time, motorcycle manufacturers have treated old Father Physics as the enemy. But it never works. Kawasaki has studied hard, done its homework and the KZ750 gets a passing grade. You can spout quarter-mile times and horsepower figures all you want, but a motorcycle can never truly become a superbike until its makers understand that you can't fool Father Physics. Kawasaki understands—and that's why the KZ750 earns its superbike stripes without qualification. •

Ride Review

• Window tricks have always amazed me. You know, sawing pretty ladies in half, lead into gold and the like. I'll spend hours trying to figure how the man in the silk hat got the right piece of the card into the sealed envelope. Or how the coin jumped from one pocket to the other, right before my eyes. Astounding.

And because of that fondness for sleight-of-hand, it comes as no surprise that I'm equally fascinated by the KZ750. Starting with the KZ650—no slouch by any account—the resident magicians at Kawasaki added more displacement, more power, more everything. And came out with a lighter bike. Then they stirred in an improved, rethought suspension, and produced in the 750 a ride that's better in every dimension than the original. But don't bother asking how they did it; they'll never tell. It spoils the trick. —Larry Works

• You wouldn't have to twist my arm to persuade me into adopting a KZ750 of my own. Because even though I was prepared to be bored silly with what I considered merely a recycled 650, I came away filled with admiration and respect for what turned out to be a very fine 750.

That didn't happen naturally, though, for the KZ isn't high-tech, nor is it superior to other 750s in any aspect of high performance. Besides, what I like about this Kawasaki isn't found in what it does exceptionally well—which is little, if anything—but in the negative things that it doesn't do at all. It's a motorcycle totally without serious fault. And when faced with a choice between mediocrity punctuated by occasional brilliance, and consistent competence, I'll go for competence every time. So just park that KZ750 right over here, please.

—Paul Dean

• 750 warfare is going to be interesting. Just when I thought Honda had the handling answer with the CB750F, Kawasaki strikes with its KZ750. Now there are two 750s that steer and handle like small-bore racers. I feel as confident going flat-out through sweepers on a racetrack as I do on freeway off-ramps aboard either of these 750s.

But I think the Kawasaki has the edge in the engine department. The 739cc four has the same muscular powerband found on every multi-cylinder street bike from the Big K. The hefty power is especially handy when cutting through a series of switchback turns, shifting down a gear for entry, then grabbing the next gear up on the exit. Since there is no hesitation from the engine, you make a smooth, fast arc through each turn. Because of engine performance alone, I don't hesitate to give this motorcycle a five-star rating. The good handling just turns them into gold stars. —Dain Gingerelli



Damping that's four-way adjustable

With stiff springs for racy manners.

effortlessly as the Honda, but without the slightly nervous feeling the CB750F occasionally shows. The Kawasaki's suspension was definitely on the firm side with my settings, but overall the bike felt taut and responded in the crisp fashion of race-bred machinery.

The KZ750 adapts to the street with equal proficiency. Naturally, a relatively large rider on a relatively small bike significantly raises the overall center of gravity, providing good straight-line stability. Meanwhile, steering geometry that helps the bike answer the helm swiftly and precisely combines with a short wheelbase to give the bike's handling a light feel whether you're in traffic or soloing on racer road. You never have to muscle this motorcycle. And you've always got plenty of reserve in hand, whether it's horsepower or

Kawasaki KZ750 Four

SPECIFICATIONS:

IMPORTER: Kawasaki Motors Corporation
2009 East Edinger Avenue
Santa Ana, California 92711

CATEGORY: street

SUGGESTED RETAIL PRICE: \$2749

ENGINE

Type four-stroke transverse vertical four
Valve arrangement double overhead camshafts
Bore and stroke 66.0mm x 54.0mm
Displacement 738.0cc
Compression ratio 9.0:1
Carburetion four 34mm Keihin constant-velocity
Air filter disposable paper element
Lubrication wet sump
Starting system electric only
Ignition transistorized breakerless
Charging system 12-volt: alternator, voltage regulator, rectifier

DRIVETRAIN

Primary drive straight-cut gears
Primary drive ratio 2.55:1
Final drive type #530 chain (5/8-in. pitch, 3/8-in. width)
Final drive ratio 13/33; 2.54:1
Gear Internal Overall MPH per
gear ratio gear ratio 1000 RPM
I 2.33 15.09 5.1
II 1.63 10.56 7.2
III 1.27 8.23 9.3
IV 1.04 6.74 11.3
V 0.88 5.70 13.4

SUSPENSION/WHEEL TRAVEL, IN.

Front air-spring, 36mm stanchion tube diameter/5.8 in. (147mm)
Rear 5-way adj. spring preload, 4-way adj. rebound damping/4.0 in. (102mm)

BRAKES

Front dual single-action hydraulic calipers, 10.2-in. (260mm) discs
Rear double-action hydraulic caliper, 10.2-in. (260mm) disc

TIRES

Front 3.25H19 Dunlop Gold Seal F-8
Rear 4.00H18 Dunlop Gold Seal K-127

DIMENSIONS AND CAPACITIES

Weight 471 lbs. (213.6kg)
Weight distribution 46.0% front, 54.0% rear
Gross vehicle weight rating 864 lbs. (391.2 kg)
Wheelbase 56.0 to 57.1 in. (142.2 to 145cm)
Seat height 31.3 in. (795mm)
Handlebar width 30.0 in. (762mm)
Footpeg height 12.8 in. (325mm)
Ground clearance 6.3 in. (160mm), at exhaust pipe
Steering head angle 27.0 degrees from vertical
Front wheel trail 4.21 in. (107mm)
Frame tubular mild steel, double front downtubes
Oil capacity 3.7 qt. (3.5 l)
Fuel tank steel, 4.3 gal. (16.4 l), including 0.8 gal. (2.9 l) reserve
Instrumentation speedometer, odometer, tripmeter resettable to zero, tachometer, voltmeter

PERFORMANCE

Fuel consumption 39 to 50 mpg (16.6 to 21.3 km/l)
Range, maximum 168 to 215 miles (272 to 349 km)
Range, reserve only 31 to 40 miles (48 to 62 km)
Speedometer error, 30 mph indicated 30 mph actual
Speedometer error, 60 mph indicated 61 mph actual
Best 1/4-mile acceleration 12.50 sec., 107.8 mph (174 kph)
Top speed (calculated) 127 mph (205 kph)
Stopping distance from 30 mph 32 ft. (9.8 m)
Stopping distance from 60 mph 134 ft. (40.8 m)

All weights and measurements are taken with machine unladen and fuel tank empty.



COMPARATIVE TEST DATA:

Make	Quarter-Mile, sec/mph	Top Speed, mph	Weight, lbs	Stopping Distance From 60mph, ft.
Kawasaki KZ750/4	12.50/107.7	127	471	134
Honda CB750F	12.41/106.8	128	524	135
Suzuki GS750EC	12.57/105.6	120	509	133
Kawasaki KZ650 Custom	13.16/100.2	116	483	125
Kawasaki KZ1000 MkII	12.06/110.3	130	545	129
Suzuki GS1000EC	12.15/110.9	131	520	126

PERFORMANCE:

