

KAWASAKI KZ1000

● RELAX, EVERYONE. Kawasaki's raucous, rambunctious Z-1 needed to have some of its bristles trimmed; the deed has been done and the transmuted article actually is an improvement over the original. The Z-1 has gained 20 pounds in becoming Kawasaki's new KZ1000, has lost a pair of mufflers, has fought its weight gain to a draw with a four-millimeter cylinder overbore, has had both its engine and chassis stiffened and rebalanced, has acquired a new seat, and has emerged from the transmutation quieter, smoother, more comfortable and even socio-ecologically

enhanced without having lost any of that old-time, arm-straightening performance. More pieces have been changed than were left the same, but the King of Superbikes still wears the crown.

Much of the impetus for a major rework of the big Kawasaki four was provided by the steady lowering of statutory noise limits. A motorcycle emits noise from a number of sources other than its exhaust pipes: gear whine, piston slap, the click of cam lobes against followers and even bearing rumble make contributions to the total noise emission. The old Z-1 tested at



about 84 dB(A) and it's entirely possible that Kawasaki could have corked it down to around 80 decibels with a new set of mufflers. We're glad they didn't try: had they subtracted from the bike's exhaust note alone that would have left us with a big earful of clicks, whines, clacks and rumbles, and an engine so constipated its performance edge would be nothing but a sad memory.

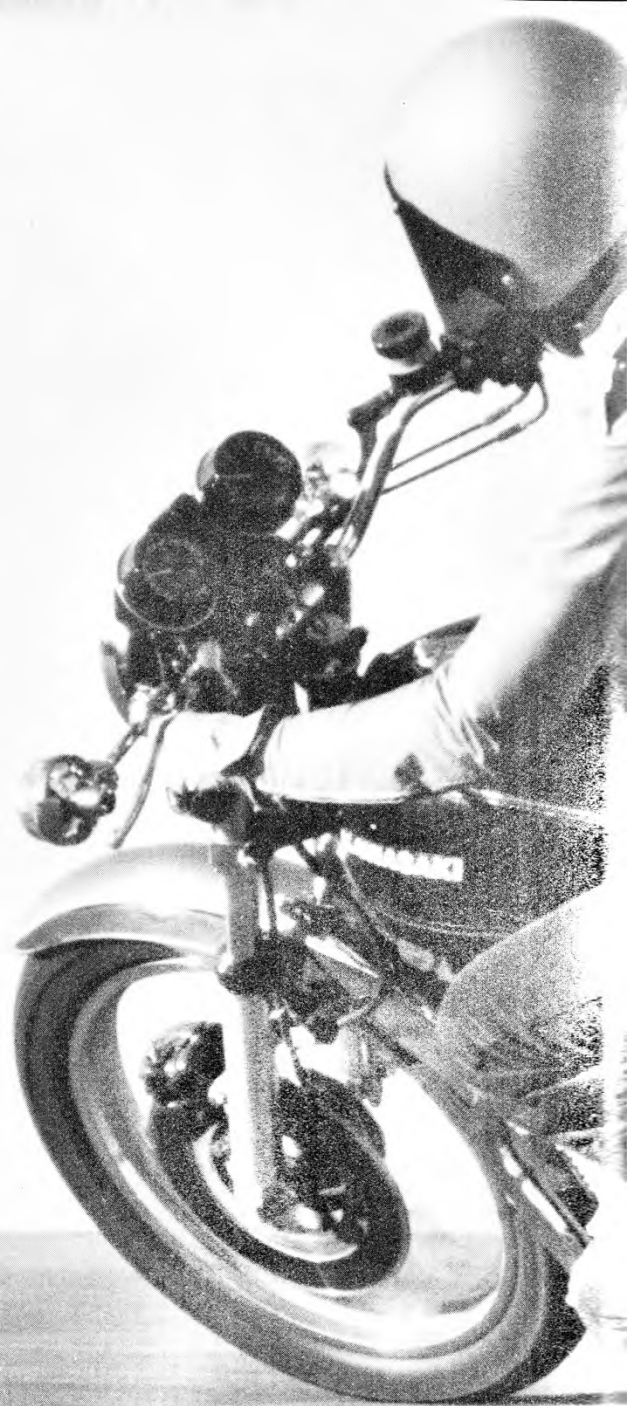
What Kawasaki did, in making a quiet KZ1000 out of the clattery, chattery Z-1, was to go for a reduction in the kind of noise motorcyclists don't want to hear in

You always hear that the new models are longer, bigger, wider, smoother and a treat for the jaded eye, and this one actually is.

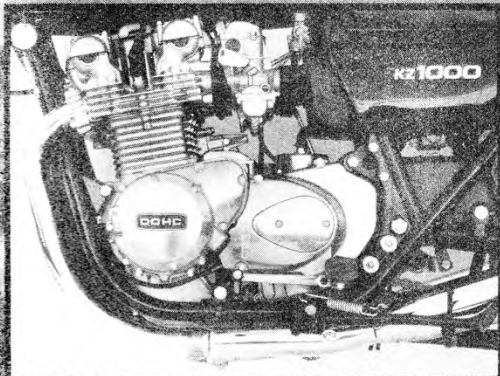
KAWASAKI KZ1000

any case. They tightened the piston clearances slightly to reduce slap, and similarly closed the gaps between gear teeth in the primary drive and transmission. Then, to contain such mechanical noise as was inevitably left, certain of the engine castings were made thicker (specifically, the cam, alternator and ignition covers, for sure, and our sources at American Kawasaki think the crankcases have been stiffened here and there as well). Also, because the threshing of the drive chain against the fast-turning transmission sprocket is a potent generator of racket, Kawasaki lined the cast-aluminum drive-sprocket cover with a sound-deadening blanket held in place with a perforated sheet-metal shield. And these measures have worked extremely well: you get a bit of rattle from the long camshaft drive chain when the engine is cold, before thermal expansion moves the crank and cams apart and takes up the slack, but even that is only a pale ghost of the robust gnash and jangle surrounding every Z-1 we've known.

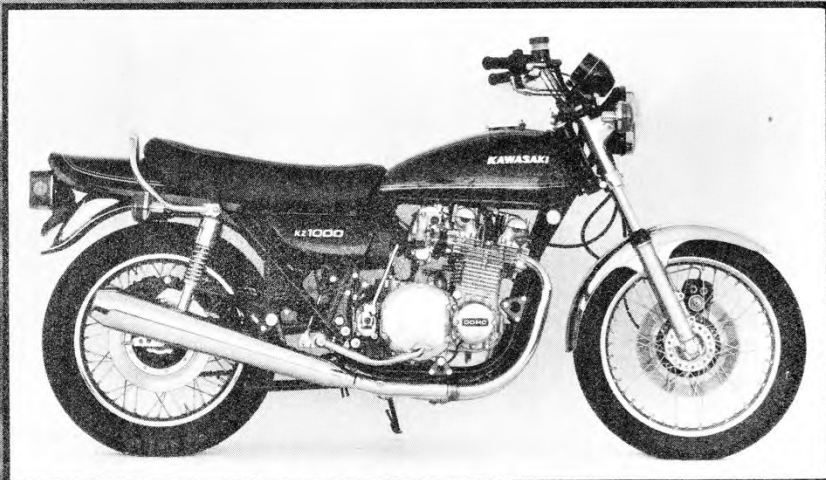
Kawasaki hasn't ignored the engine's intake and exhaust noises. Last year's glasspack intake muffler has been replaced with a length of smooth-wall plastic pipe, and the silencing is now done by a second plenum chamber having a baffled air entry. This arrangement clearly works, as the KZ1000 definitely isn't hurting for power and you don't hear much sound that can be identified as carburetor honk. Unfortunately, it has its price, as the bike's battery is buried under the intake



Big pistons plus closer fits equal more power, less noise.



Here's the King in new garments, with fewer bad habits, and more than ever completely the King.



Riding one of Kawasaki's
big fours means never
having to be sorry
there's not more power.

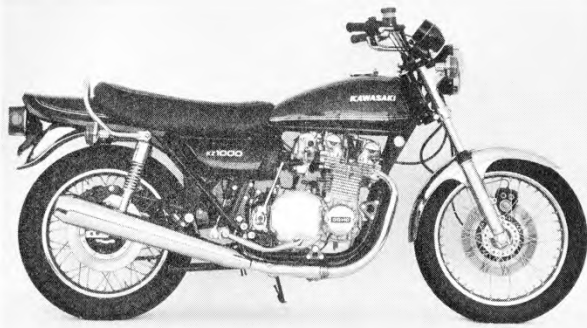


The KayZee has enough cornering clearance to let you run right off the tires.



New sprocket, new drive-shock cushion, redesigned hub.

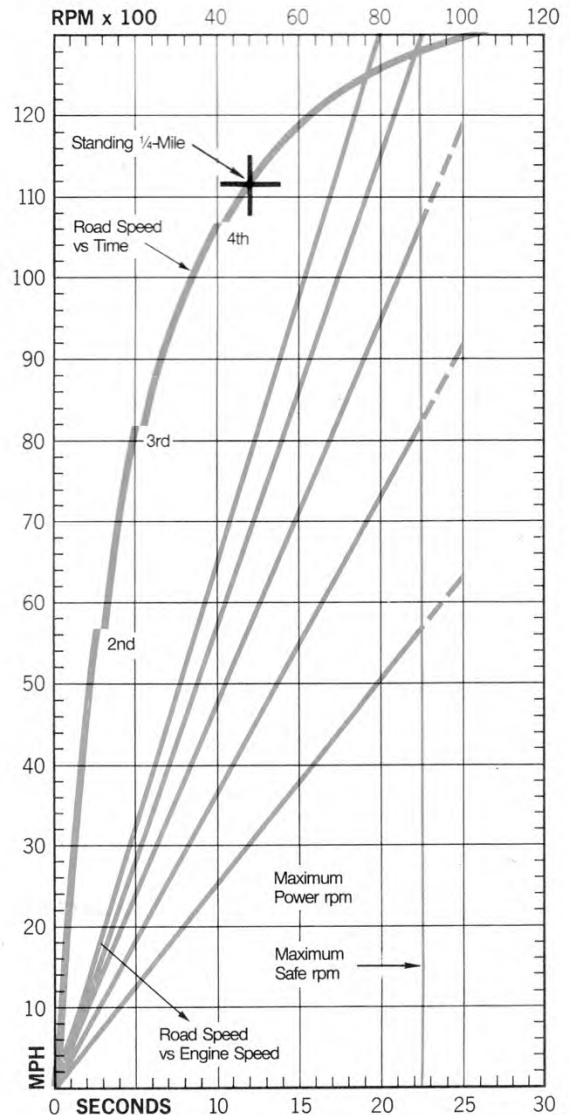
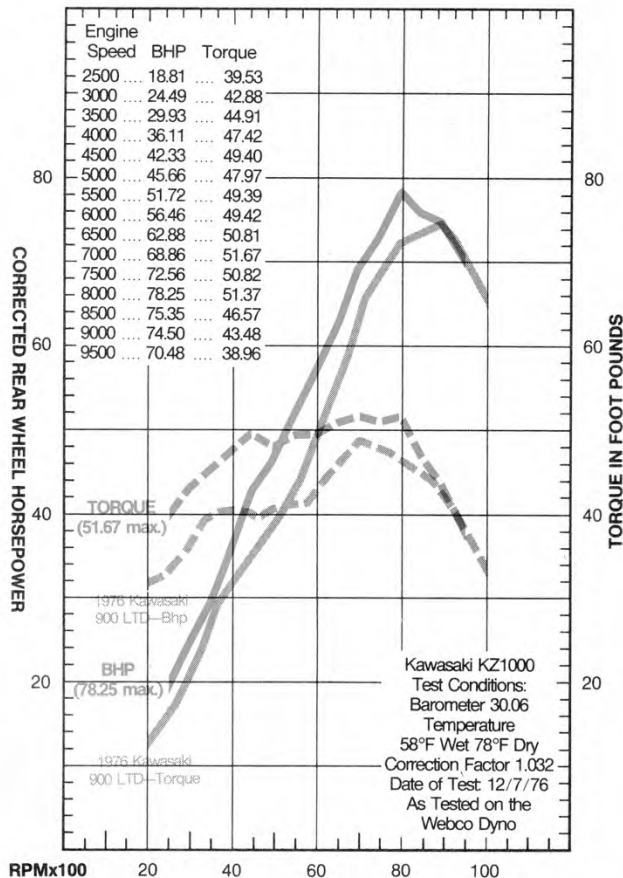




KAWASAKI KZ1000

Price, suggested retail \$2575
 Tire, front 3.25H-19 Dunlop F6
 rear 4.00H-18 Dunlop K87
 Brake, front Disc, 11.65 x 1.61 in. (296 x 41mm) x 2
 rear Disc, 11.50 x 1.54 in. (292 x 39mm) x 2
 Brake swept area 151.6 sq. in. (978 sq. cm.)
 Specific brake loading 4.81 lbs./sq. in. at test weight
 Engine type Four-stroke, DOHC, air-cooled four
 Bore and stroke 2.76 x 2.60 in. (70 x 66mm)
 Piston displacement 61.9 cu. in. (1015cc)
 Compression ratio 8.7:1
 Carburetion 4, 26mm; Mikuni VM26SS
 Air filtration Dry element, pleated
 Ignition Battery and coil
 Rake/Trail 26°/3.54 in. (90mm)
 Mph/1000 rpm, top gear 16.3

Fuel capacity 4.5 gal. (17.0 liters)
 Oil capacity 3.9 qt. (3.7 liters)
 Electrical power Alternator, permanent field
 Battery 12V, 14 AH
 Primary transmission 1.73:1 (97/56) spur gears
 Secondary transmission 4.64:1 (33/15) Enuma
 endless chain, EK630S-T30
 Gear ratios, overall (1) 12.07 (2) 8.34 (3) 6.37
 (4) 5.25 (5) 4.64
 Wheelbase 59.25 in. (1505mm)
 Seat height 31.5 (800mm)
 Ground clearance 6.3 in. (160mm)
 Curb weight 564 lbs. (255.8kg)
 Test weight 729 lbs. (330.6kg)
 Instruments Tachometer, speedometer,
 odometer w/tripmeter
 Standing start ¼-mile 12.06 sec @ 111.66 mph
 Average fuel consumption 36.3 mpg
 Speedometer error indicated 30 mph, actual 29.5
 indicated 60 mph, actual 55.3



KAWASAKI KZ1000

plumbing and is flanked on all sides by thickets of electrical and other hardware. So there's no way you can check electrolyte levels without removing the battery from the bike, you will have to remove part of the intake air system to get at the battery, and the KZ1000's rather crude charge-rate control (more on this later) insures that this bike's battery cells—like those in the Z-1—will require frequent replenishing with distilled water.

The biggest visual difference between the Z-1 and the KZ1000 is in their exhaust systems. The older bike's was a four-piper all the way, with small balance tubes connecting the paired mufflers on each side of the machine. The new system is a four-into-two design, with the pipes for cylinders one/two and three/four converging in Y-junctions about 30 inches downstream from the exhaust valves. The KZ1000's exhaust then feeds into two double-walled mufflers with complex and circuitous baffling in a manner much like that employed by Suzuki for the GS750, except that the Suzuki doesn't have Kawasaki's cross-over pipe linking the two mufflers. We think the cross-over probably is very important. Individual exhaust pulses ended up escaping from two 20mm holes in the old four-pipe system; they find the same exit area available in the new twin-muffler arrangement . . . but have to travel somewhat farther to make their escape.

Seven of the pounds gained by the Z-1 in becoming a KZ1000 are in the new bike's crankshaft, added to give it a tad more flywheel inertia, and as counterweighting for the bigger pistons. The engine's bore diameter has been increased from 66mm to 70mm, raising its total displacement from 903cc to 1015cc. Apart from that, the engine's internal configuration hasn't been changed appreciably. The combustion chambers weren't widened, so there's a two millimeter lip/squish band around the bore, and it is possible to fit the new 70mm pistons in a 903 engine—though a four millimeter overbore will leave the old block's cylinder liners a little thin. With the new pistons you'll get improved rings, with a completely new three-piece oil ring. We also note that there are different part numbers for practically all the engine's components, including the cylinderhead, camshafts, valves and cam followers, but we don't know just how much the change in numbers means in terms of materials or dimensions. The valve timing specifications haven't changed; there may be some differences in materials or surface treatments to let the engine use unleaded fuels. We do note that the cylinder/head studs have been strengthened, and their torque specification increased, which means the KZ1000 will handle more compression than the old Z-1—more than it got, which was from 8.5 to 8.7:1.



Gone is the vinyl crucifix, the old high-crowned seat, replaced with one that's broad, soft and right.

Some of the original Z-1's soaring eagerness to rev was lost back when its carburetors were reduced in throat size from 28mm to 26mm. Performance freaks might wish that this new big-bore engine would have the big-bore carburetors. It doesn't, though what it has are different from those used on the last 903. Kawasaki clearly chose to trade some of the KZ1000's potential top-end rush for mid-range punch, and sticking with 26mm carburetors was a good way to make that happen. But though the throat diameters are the same the carburetors aren't: the new ones still have pull/pull slides, as before, and employ the same typically-Mikuni cold-start valves, but have completely different idle-mixture circuits. In the old carburetors a fixed jet supplied idle-mixture fuel, and the mixture was varied in strength with a needle-valve air control. The new carburetors have fixed fuel and air jets, with a needle valve to vary the amount of air/fuel emulsion delivered to the feed holes straddling the rear edges of the throttle slides. Why the change? We're not entirely sure. The old carburetors were extremely touchy about idle mixture adjustment and a screw-driver-tremble either side of perfect made the engine run funny; precisely the same is true of the new ones. We are told that the new carburetors are part of a cleaner-air package Kawasaki is working up in anticipation of motorcycle emission controls lurking just over the horizon, and in

(Continued on page 114)



the hope that voluntary compliance in advance of demand will placate the EPA. That's a hope that exists perpendicular to everything we have come to know about government agencies, but all the bike-maker biggies share it and are acting accordingly, and that's that.

People who bought very late 1976 KZ900s got bikes with KZ1000 chassis, which look much like that of the original Z-1, but are very, very different. As everyone who has ridden a Z-1 hard surely knows, its handling really wasn't up to the standard of excellence established by its engine. That hasn't changed, though you can't fault Kawasaki for not trying. They nudged the steering-head back slightly and lengthened the swing arm, which has increased the wheel-base from 58.7- to 59.3-inches and shifted the bike's center of gravity forward. They have also gone to stiffer fork springs, with less preload, and revised the fork damping very considerably, along with lengthening the fork sliders. Those with a sharp eye for detail will also note that the area of the frame around the steering-head now has more extensive gusseting, and one of our contacts at Kawasaki says he *thinks* some of the frame tubes' wall-thickness has been increased. And, finally, the swing arm pivot bearings were changed—the old vanishing-act bushings have been replaced with needle-roller bearings. This is a much-needed, long-awaited improvement and if it doesn't do anything for a new KZ1000's handling it will at least make it a lot better at the 10,000-mile mark.

Another item that should do something nice for the KZ1000's reliability is its chain, which is made by Enuma and has small O-rings sealing between the pins and bushings. There is a supply of grease packed into the pin/bushing gap when the chain is made, and retained there by the O-rings, so it's a little less sensitive to maintenance schedules than conventional chain. Owners will have to keep dribbling a small quantity of oil along the edges of the chain's rollers, and the sheer amount of horsepower a big Kawasaki's chain has to transmit will continue to keep its service life relatively short, but the new chain does promise to be better. As a matter of fact, any relief will be appreciated, because replacement chains are expensive, and they're a complete pain in the knee to fit as there's no master link and you have to dismantle everything from the swing arm pivot rearward to switch chains. Incidentally, this new chain has the same number of pitches as the one it replaces even though the KZ1000's rear drive sprocket has two fewer teeth than the 35-tooth fitted on the Z-1; the slack is taken up by the longer swing arm.

You get new and—on balance—better brakes with the KZ1000. Our test riders were split about evenly in expressing enthusiasm and distaste for the rear disc

brake, which replaces the old 200mm drum. Nobody had any reservations about the rear brake's effectiveness; a double-piston caliper pinching a disc that large (250mm effective diameter) just won't take no for an answer. The rear brake's problem is that it is, for some riders, too sensitive. The good news is that the rear brake never fades; the relationship between pedal pressure and braking force never changes. And the brake has a very solid feel, devoid of the sponginess that is the curse of most floating, single-piston calipers.

Would that the KZ1000 had a front brake equal to the one Kawasaki has added at its rear wheel; it doesn't. There's a new front disc, and caliper, but the latter has a single piston, a floating mount, and flexes so much you can see the caliper's halves springing apart when the handlebar lever is squeezed hard. The only thing that saves this brake is that the piston diameter has been increased to 42.9mm, up from 38.2mm, for a roughly 26-percent increase in area, which has lowered the working pressures enough to keep the caliper flexing within acceptable limits. The front brake pads have been reduced in size, and seem to be made of a softer, high-friction material that doesn't take as much pressure to produce a given level of stopping force. The net result of these front brake changes is to reduce the force required at the lever, and to create a somewhat closer-to-linear relationship between squeeze and stop. We wish Kawasaki had fitted the big twin-piston rear caliper at the KZ1000's front wheel and put the front caliper back at the lightly-worked rear disc; what they have provided is ... adequate.

The older Kawasaki Z-1 did, occasionally, have some problems with its alternator. Riders who used a lot of engine revs sometimes found that the alternator rotor's magnets were yielding to centrifugal force, and moving outward to contact the stator. The KZ1000 has a new alternator, with more output and a new rotor, and it even has fins on its voltage regulator. We expect that the magnets will now stay in place; we're still not completely thrilled with the charging system. Without going into all the circuitry, diode by diode, we'll just say that the permanent-field alternator's output isn't really regulated, it's only diverted, and that there's no control over current other than that you find inherent in alternators. The voltage regulator controls voltage, sort of, but if you leave your KZ1000 parked for a while and its battery gets a tad flat, then the charge-rate is going to be right out of sight when you start it again. On the other hand, nearly all motorcycle charging systems are at the stone-age level, compared with what you find in cars; the one provided with the KZ1000 can be rated high-average for bikes, with an only slightly greater than average tendency to assassinate its own battery.

Sporting riders always could *know*, in detail, everything that was wrong with the old Z-1 and still enjoy to the point of an almost sexual rapture what the bike was capable of doing on the road. The same is true of the KZ1000, which has fewer wrongs to dilute the rapture. One enormous improvement is in the seat. The Z-1's hard, high-crowned perch kept us wondering if maybe the Japanese weren't trying to get even with us for having sent Admiral Perry to blow their walls down in 1860. If so, the retribution taken was all out of proportion, like the seat itself—which might have been designed by someone who'd never seen a human backside. But that's all behind us (so to speak) now, as the KZ1000 has a very nice saddle, with a hair too much forward slope. The seat is broad, flat from side to side, and has padding that's the right density. The comfort-factor also gains from the KZ1000's seat-handlebar grip-footpeg relationship, and the control layout. We use bikes' tripmeters as fuel gauges, and love the Kawasaki's reset wheel, which can be used to zero the tripmeter even if you're wearing mittens.

It was easy for us to know when our test KZ1000 was going to need fuel: it almost always needed fuel. We are assured that riders for Kawasaki's Technical Services department can get nearly 50 miles per gallon out of the big KayZee; we see in other magazines' reports fuel economy in the mid-40 mpg range; we seemed to be mired in the mid-thirties, and targets of accusations to the effect that we'd been road racing the KZ1000. Maybe there's a grain of truth in that, as all our test riders much prefer mountain roads to droning along freeways. But our feeling is that a sporting motorcycle should be tested in a sporting manner, and we really don't care terribly about fuel economy as long as a bike has a tank big enough to give it decent range. Although the specifications say you get a smaller fuel capacity with the KZ1000 than the Z-1, 4.4 gallons compared with 4.7 claimed for the other model, the new tank—though identical externally—hugs the frame a bit tighter and actually holds an even 4.5 gallons, whereas the old one wouldn't yield up much more than an even four unless you wrung it out like a rag. You can go about 150 miles on a KZ1000 before running the tank dry, hammering it frightfully hard, and that's the only mileage worry about. Ride the bike so fiercely that you only get 35 mpg and that's still only costing you about two cents per mile; nurse it along like a deacon, pull 45 mpg, and it's a half-cent per mile cheaper. We'll pay the extra half-cent, and take the entertainment.

Kawasaki's KZ1000 retains the Z-1's ability to entertain, while dropping some of the old bike's bad habits. We've already mentioned their replacement of the vinyl crucifix, that old high-crown seat; they've also done a lot with the bike's ride quality.

The inch-and-a-half longer fork sliders seem to work with less stiction, and the bike is much smoother-riding in its highway cruising mode than a Z-1 despite having fork springs 14.4-percent stiffer. The stiffer springs are shorter, however, and it's our hunch that their free length is such that they simply don't drive the fork out against its topping springs like the softer ones used in the Z-1. Some of the difference also may be in the suspension damping, which has been changed, and a little could even be in the suspension damping, which has been changed, and a little could even be in the volumes of fork oil specified—169cc for the Z-1, and 140cc for the KZ1000. Whatever they did to make the difference, it's there, and the KayZee can be used as a straight-road tourer by people who aren't masochists.

Riding sports will find that the KZ1000 is also pretty effective on mountain roads, as the brakes and chassis perform plenty good enough at a 75-percent exertion. The front brake is good enough to make the tire howl with a two-finger squeeze at the lever, the clutch is nicely light and smooth, the shifting is precise and light, and the bike feels right in the way it sits and responds. You can do business on it—at the 75-percent level, which is more than the average riding sport will attempt. But there are in the world genuine sporting riders, and they'll discover that it takes more than a lengthened swing arm to tame the big Kawasaki's handling. Push the KZ1000 vigorously around fast, sweeping turns and you'll get that familiar cornering wobble—undiminished, and seeming a bit worse just because it isn't hiding behind a thicket of wheel hop and tire shudder. Hook the bike into a decreasing-radius turn, using the brakes to rub off speed and tighten its arc, and you'll find that the front end, gusseting and all, still flexes.

Worst of all, the added weight and increased forward weight bias seem to have brought the Kawasaki's front tire much closer to the point of being overworked when the bike's in a cornering attitude. You can corner the KZ1000 very hard, and you can get it to brake really hard, but you dare not mix those activities unless you're prepared to be extremely careful with the proportions.

You'll also find that the KZ1000 tends to run wide in turns if they're taken on trailing throttle; it steadies considerably if you've got the power applied. We should also mention that the KZ1000 doesn't give away enough in-corner distance to any other motorcycle to matter much. The bike has plenty of cornering clearance with its new exhaust pipes, and if it isn't exactly a marvel of steadiness in fast turns it does get around them awfully fast. Besides, a few yards lost in corners doesn't amount to anything when you consider that the man on a KZ1000 can grab them all back, with interest, the instant the road straightens. You could do that with the Z-

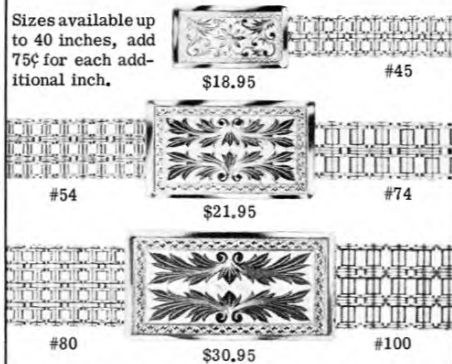
1, too, but only if you had the revs in hand; the KZ1000's midrange grunt is better than an automatic transmission, and better than downshifts in most motorcycles.

It's the improved midrange power, and a remarkable banishing of the Z-1's intrusive engine vibration, that combine with the seat, ride-quality and blessed lack of mechanical noise to make the KZ1000 a much better machine than it was. That old, mirror-blurring buzz has taken the jolting ride by the hand, and both have gone off into the sunset. Good riddance. The bigger engine hasn't given the bike better flat-out performance, but it pulls almost from idle, now, and begins to show a lot of bicep at only 3500 rpm. A thudding vibration, from lugging, will keep you from using much throttle below 3000 rpm but the engine is willing if you are—and can ignore the pinging you'll get burning no-lead fuel. Then, too, while the genuine sporting rider might wish for a steering geometry that would improve the KZ1000's fast cornering behavior, what it had does make the bike lighter-handling

(Continued on page 116)

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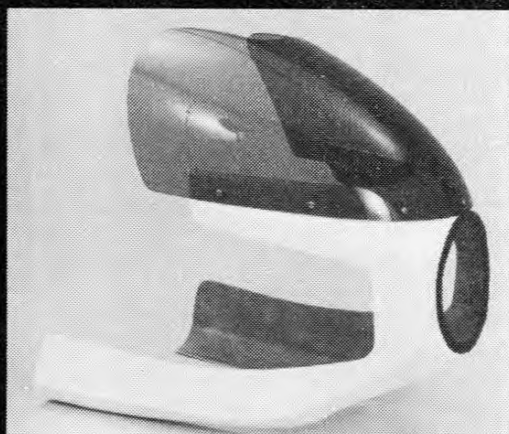
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when you're tooting around town. It doesn't feel like it weighs over a quarter-ton, which is good, because it does weigh 564 pounds with its tank brimming.

Another thing to like about the KZ1000 is its styling. You can get it in a quiet red; our test bike was painted a subdued, slightly-metallic dark blue, with gold pinstripes. Kawasaki's big four has always been the King, and we're happy to see it dressed for the part. And the KayZee isn't just the King of motorcycles: our sister publication, *Car and Driver*, says a four-wheeled confection made by Ferrari currently is the world's fastest car. If the Ferrari and the KZ1000 left the starting line together at some drag strip, the Kawasaki rider would finish the acceleration contest a full *two seconds* sooner and more than \$50,000 cheaper than the poor tea-bagger in the flashy Italian coupe.

In fact, we can't think of *anything* street-legal that's likely to survive a dragstrip shoot-out with a well-tuned KZ-1000. At least nothing off the ready-to-wear rack, and absolutely nothing with the Kawasaki's indifference to treatment. We hammered our test bike thoroughly, handed it over to *Cycle's* publisher for almost a week of slogging around in city traffic, then retrieved the Kawasaki and went straight to the dragstrip. There the ignition timing was nudged up a hair to get it right on specification and the rear tire pressure dropped to 20 psi, but there was no change in jetting or gearing or even the traffic-sooted spark plugs. And the KZ1000's very first pass through the quarter clocked at 12.11 seconds with a terminal speed of 110.97 miles per hour. Its second run was the day's fastest, at 12.06 sec. and 111.66 mph, after which it slowed slightly as the engine got the hots. But, except for a couple of missed-shift passes, the KZ1000 stayed below the 12.2 E.T. level and above 110 mph through the speed traps all the way. It was a bravura performance, and established the KZ1000 as *the* Superbike—even faster than the original Z-1, which was lighter, had bigger carbs and tighter gearing.

When you get right down to it, the KZ1000 may be a little like a Cadillac powered by a four-row radial Pratt and Whitney aircraft engine, and not the lightest or handiest vehicle in the whole wide world. But by gadfry you can't deny that it is *powered*, and then some. It's engine long ago established itself as being a marvel of muscle and longevity, and Kawasaki has succeeded in making it even better for 1977, and improved the whole bike in terms of comfort even if truly good handling continues to elude them. Kawasaki may not even care all that much about the handling. They know, just like the rest of us, that riding one of their big fours means never having to be sorry there's not more power. That's not everything, of course, but it's enough to make the KZ1000 powerfully appealing. ●

As a pertinent example of the road-to-track progression, Michelin delivered the S41-PZ. Carrying a road pattern first introduced nearly ten years ago, the PZ looked nothing like a racing tire, and in deflated condition had every appearance of having fallen off a vintage sidecar rig. Actually the inflated section was good and round, and the competition S41 made concession to racing with two special compounds known as PZ2 and PZ4; the softer 4 warmed quicker and was more suited to the wet. Identical in construction to the street-going S41, the racing PZ transmitted braking forces extremely well, dispersed heat build-up quickly, dealt with all conditions, and justified the "greatest all-round compromise tire" title.

Besides looking after the front ends of big-power 500 and 750 racers, PZs went on the back of the 250 and 350 Harley-Davidsons and Yamahas which dominated their classes, though 350cc duty was shared with slicks. The slick, fitted when weather conditions allowed, gave way to the S41-PZ during foul weather and whenever race authorities embargoed slicks. Thanks to a quaint piece of FIM reasoning, slicks were illegal for 250s, so the smaller H-Ds (Yams, Mobidellis, etc.) always ran treaded tires.

Dunlop stayed with traditional trigonics for 250cc racing, using either a combination of KR76 front and KR96 rear, or KR96s front and rear. Three-fifties could have slicks at both ends with 3.25/4.50 KR108s (front slicks on 750s) driving and 3.25/3.50 KR106s leading. When the patterned-front/rear-slick composition prevailed in the majority of cases, 3.00/3.25 KR96 fronts (trigonic rears originally) took precedence over KR76s because the more stable pattern absorbed the extra performance of the rear slicks. And if the weather and the FIM put the block on slicks for 350s, KR96s went on both ends.

The Great European Tire War could conceivably be seen as simplicity-versus-complexity. On one side, Dunlop took into account all the variables of temperatures and road conditions, and attempted to overcome every foreseeable contingency with a near-riot of types, shapes and rubber mixtures, finishing with a big range of tires which often differed in small detail one from another. In opposition, Michelin chose to compromise and rationalize, keeping types, compounds and patterns to the minimum. On 1976 evidence Michelin made the correct decisions. Simplicity conquered intricacy.

Michelin is preparing for 1977 action, expecting Dunlop to mount a renewed challenge. The word from Birmingham is that Dunlop is staying in the hunt with new slick and patterned tires ready to go. Which isn't saying that Michelin will return with exactly the same equipment that they offered in late 1976.

Let battle commence.

—Jim Greening

in place without disturbing the engine. In either case the welding must be done with great care, as you wouldn't want one of those three upper frame tubes to fracture, and it's easy to weaken a steel tube with welded brackets.

Add-on braces can't be used to stiffen the Z-1 frame's swing arm pivot attachments, as its engine sits squarely in the middle of the space that needs cross-bracing. So you do something that works about as well as adding tubes: you make the engine serve as a frame brace. The big Kawasaki's crank/transmission cases are very strong, and have four sturdy, widely spaced mounting lugs, all of which is very well suited to holding the two sides of the frame tightly in alignment. The engine is prevented from making this structural contribution almost entirely by the loose fit of its mounting bolts. And when you know that, the fix is obvious: you switch to bolts that are a tighter fit.

Actually, changing the Z-1's engine-mounting bolts is a bit of a chore, the worst part of which is finding the right kind of bolts. One problem to be faced, if you live somewhere out in the hinterlands, is obtaining high tensile strength bolts of any kind. And if you use ordinary mild-steel bolts you're going to discover that they soon stretch and loosen, and repeated tightening just makes them increasingly longer. Another difficulty is that you have to find four through-bolts of considerable length to replace the originals. All these must be slightly larger in diameter than those supplied by Kawasaki, and all the holes have to be drilled oversize to a diameter exactly matching the new bolts. This tight fit, and the fact that the stronger bolts won't stretch, will keep the Z-1's frame and engine tied together—and drastically reduce the amount of flexing in the frame.

There are other cautionary notes we must lay before you, not the least of which is that you should be prepared to do a lot of work and do a lot of chasing around before even thinking about embarking on the project outlined here. And you should be prepared for a let-down, which may come when the job is finished and you realize that what you've done is completely invisible—out of sight and beyond the appreciation of friends and neighbors. Finally, you should be warned that the improvement in handling can't be felt at anything near an ordinary touring pace. We think any rider who uses the Z-1's front brake hard will notice a greater steadiness when the triangulated top-tube bracing is installed, and upgrading the swing arm pivot bearings to KZ1000 standards will maintain a Z-1 at as-new straight-line stability levels for many more miles than you could expect from the old iron bushings. Those things are worth doing. The engine mounting bolt modification is worth knowing about, and a nice winter project for perfectionists. ●