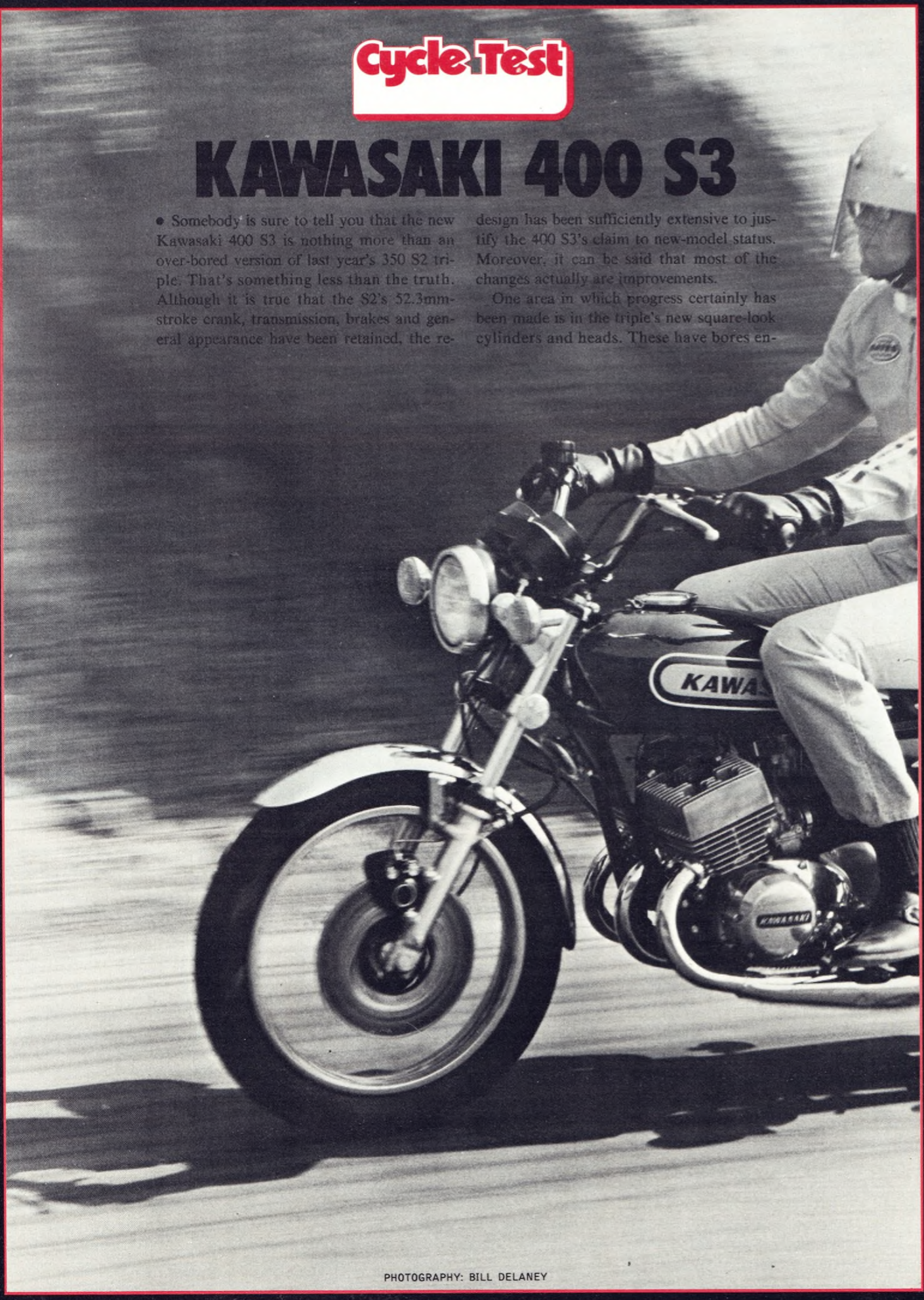
Cycle Test

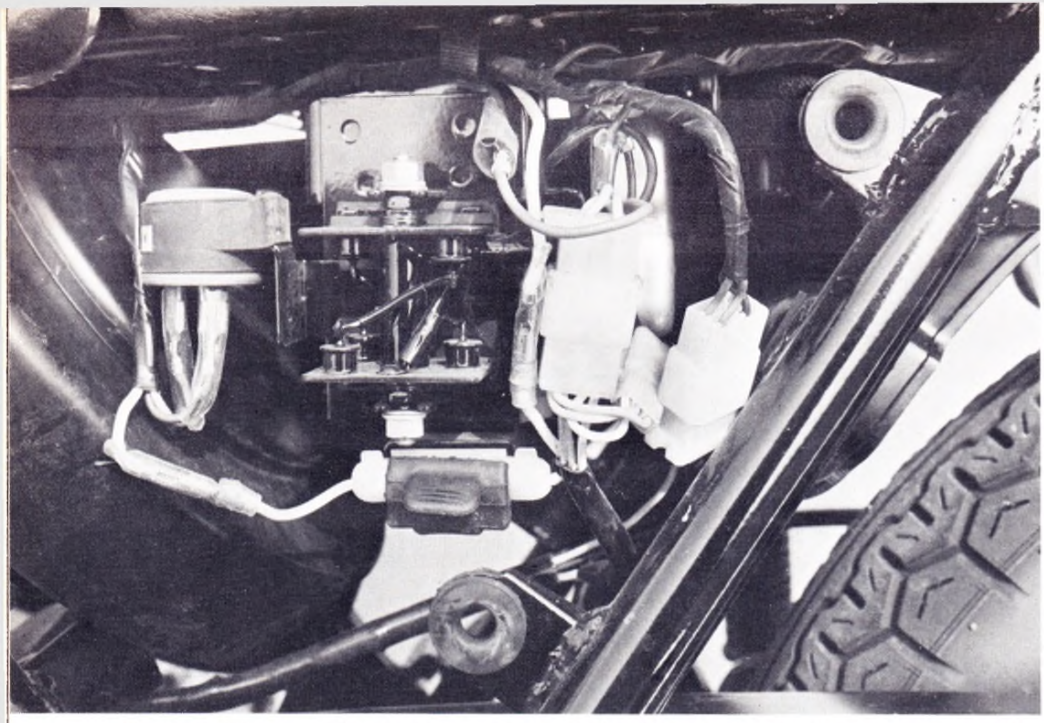
KAWASAKI 400 S3

• Somebody is sure to tell you that the new Kawasaki 400 S3 is nothing more than an over-bored version of last year's 350 S2 triple. That's something less than the truth. Although it is true that the S2's 52.3mm-stroke crank, transmission, brakes and general appearance have been retained, the redesign has been sufficiently extensive to justify the 400 S3's claim to new-model status. Moreover, it can be said that most of the changes actually are improvements.

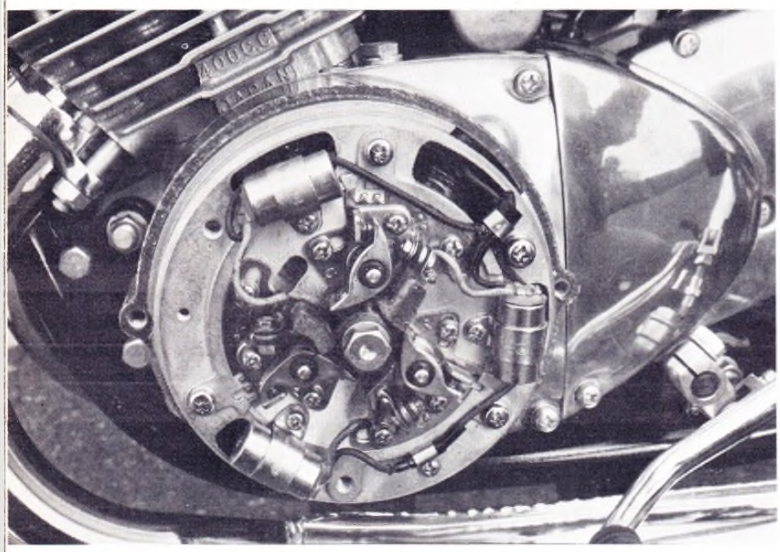
One area in which progress certainly has been made is in the triple's new square-look cylinders and heads. These have bores en-



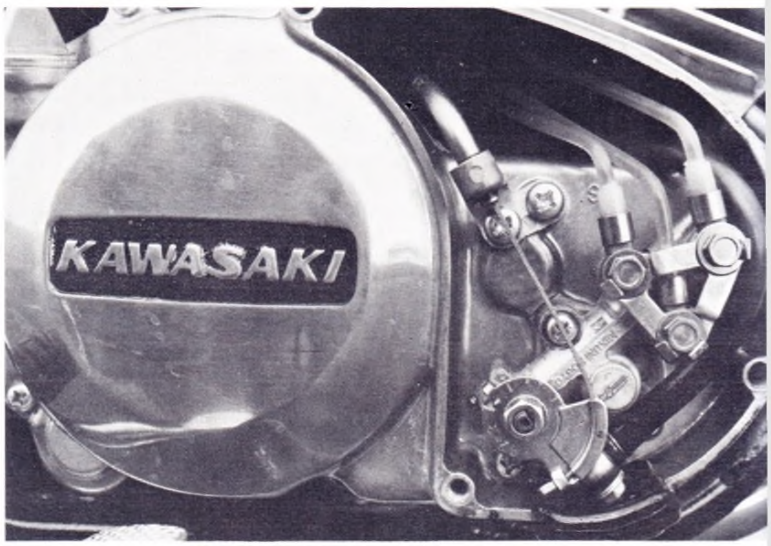
PHOTOGRAPHY: BILL DELANEY



This nest of diodes rectifies the alternator's output before it reaches the direct-current electrical system.



When you've cleaned and set the points, you've done a job.



Oil injection pumps are the sine qua non of modern two-strokes.

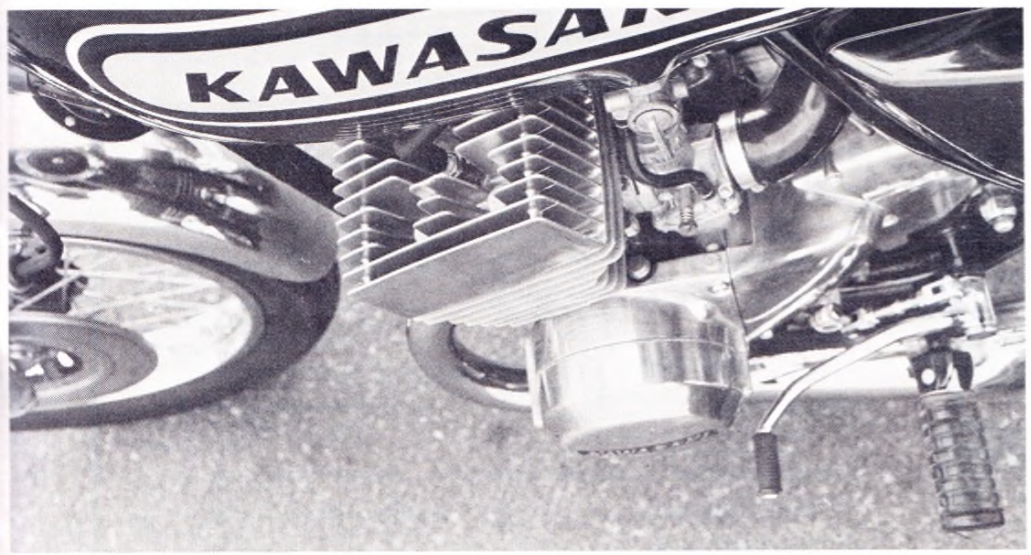
larged to 57mm (from the S2's 53mm) and are fitted with 26mm carburetors—up 2mm from those on the 350. Both of these changes have added tone to the Kawasaki's already-impressive muscle, and a lot more class to its appearance: the styling is all right; most of the improvement is in terms of apparent quality. At one time Kawasaki's cylinders were cobby enough to have been cast in boxes of used kitty-litter, and we are delighted to find all the old nubs and warts missing from those on the 400.

Some of the performance gain inherent in the displacement and carburetion revisions probably is offset to some extent by the lowered compression ratio the engine gets with its new cylinderheads. The old 350 triple had a compression ratio of 7.3 to 1; in the 400 this has been dropped to 6.5 to 1. Perhaps the reduction is intended to ease the thermal stresses on the engine, and to make it more tolerant of fuel quality. But it is equally possible that this particular change is directly linked to the redesigned kick-start mechanism—which has resulted in a drastically different over all starter drive ratio. The S2's kick-starter drive passed through the gearbox and clutch, with gearing that provided an extremely low effort level at the pedal and a correspondingly low number of crankshaft turns per kick. The 400's starter drive still runs through the gearbox, but now the ratio raises the leg-muscle requirement considerably—and translates a healthy kick into a whirling frenzy at the crank.

No change has been made in the transmission ratios and that's good because none was needed. Like the 350 from which it is derived, Kawasaki's 400 pulls well over a fairly broad rpm range but does fall flat below its working powerband. So it needs a good gearbox . . . and it has one. We think that this new model has a slightly nicer gear selector mechanism than that in the 350, and we definitely like the relocation of neutral, which now is between first and second gears instead of being a notch past low gear. And the limit for strain-free cruising has been bumped upward a notch by switching from the 350's 43-tooth rear wheel sprocket to one having 41 teeth.

This alteration in the overall final drive ratio, from 6.56 to 6.25 to 1 in fifth gear, assumes special importance in light of the new rubber-bushed engine mountings. With rubber cushions inserted between engine and frame very little vibration gets through to the seat, pegs and handlebars at moderate engine speeds. Unfortunately there exists a point beyond which the combination of vibration and reflected torque create loads the rubber bushings cannot resist. Then the slight freedom of movement provided by the bushings actually begins to amplify engine vibration. You'll feel this in the handlebars quite strongly just as the speedometer needle sweeps past the 70 mph mark, and the effect is present in more subdued form under hard acceleration in the lower gears. Most people

While the 400's seat may be a tad narrow for some, all other relationships are accurate and comfortable.



Squared cylinder and head assemblies distinguish the 400; appearance reflects that of Yamaha RD 350.

will have the good sense to keep their cruising speed below 70 mph and won't notice the abrupt increase in vibration level, but if the 400 had the 350's gearing the shaking would commence at a lower speed and we'd all learn to hate it. As things stand the rubber bushings do help and the Kawasaki 400 S3 will impress nearly everyone as being a very smooth-running motorcycle.

Along with the revised engine mounting system, the 400 gets a new frame—or at least a new frame part number. Frankly, we can't see any difference between it and the 350's frame. It may be that the difference is confined to minor variations in brackets. Or, perhaps Kawasaki uses thicker-wall tubing in fabricating the frame for the S3 as a means of regaining some of the rigidity lost in rubber-mounting the engine—which no longer can serve as a structural member.

Whatever Kawasaki may have done with the frame, the steering head angle remains as it was on the 350, and trail is increased from 4.3 to 4.4 inches only because the 400's 3.25-section front tire is slightly taller than the S2's 3.00-18. But with the "soft" engine mountings the S3 chassis has been given softer springs, and under most road conditions the bike does nicely in getting past the humps and hollows without jolting its rider. The suspension's single comfort-related shortcoming is that it has that all-too-common inability to deal with sharp discontinuities, however small, in the road surface. The seams in poured-concrete roads especially appear to totally overwhelm the forks.

The S3's forks also are overwhelmed by the effects of maximum-effort braking. We have come to expect that disc brakes will perform minor braking miracles, but the one on the Kawasaki 400's front wheel is an exceptionally good example of the type and it dumps an enormous weight-transfer load on the forks. The relationship between pressure applied at the lever and retarding action at the disc is so precise that you can get the tire working right at the point of lockup without worrying about inadvertently going past that point. Only one difficulty intrudes: the brake is better than the forks and stronger than the fork springs, so that in a panic-level stop the forks compress enough to use up nearly all their travel and then the lack of damping lets the front wheel hop, banging the forks right against the stops. At the limit you get the sound of forks clanging, and a pullulating squall from the front tire that evokes images of a *basso profundo* toy poodle in hot, noisy and glorious pursuit.

After you've made a few of those full-effort stops you may discover, as did our testers, that the front disc has begun to squeal. And that's the only distress signal we got during a session of brake brutalizing. There's a tendency for the rear brake's pedal-travel to lengthen somewhat as the drum gets hot but this seems to be no more than a temporary condition and never seriously impairs the triple's ability to stop.

Handling is a category in which those comfort-oriented spring rates are very much a mixed blessing. Though the 350 S2 was one of the best handling machines we tested in 1972, it was a bit chattery in choppy turns. The S3's softer springs have banished that tendency to chatter—at a price. You get slightly better tire adhesion with the 400, but the new springs let it sag lower in response to cornering loads and it loses some of the S2's generous cornering clearance. Then too, the Kawasaki's dampers are a trifle limp, allowing the bike to surge up and down on its springs. Consequently the handling becomes distinctly rubbery and the steering imprecise when you get into a situation that calls for a lot of improvising in the middle of a corner. Actually, the worst thing about the 400's overall handling characteristics is that they do not inspire a sporting rider's confidence. Under nearly all conditions the S3 behaves very well and its ride-quality is better than that of the 350. But when you begin hustling it lets you know that it is not totally forbearing; that if pressed beyond its limit it might turn upon you with tooth and claw.

Riding comfort is made up of more than soft springs. Some bikes ride well enough but simply do not feel right; others feel fine for the first five minutes in the saddle and then begin pinching nerves and numbing muscles all over one's body. The Kawasaki feels right all the way, with the kind of nice, natural placement of pegs and bars that wears very well on a long trip. Some backsides may be too wide for the seat, which is a little narrow, but what the seat lacks in width it compensates with length and padding. A wider seat probably wouldn't be any more comfortable for most riders, and would look funny on this narrow motorcy-

cle. And a few riders may initially find the handlebars too short; experience will convince most of them that the stock bar length is fine, because the Kawasaki's steering is light enough to let you steer with the fork tubes if that's what pleases you. Indeed, all the control inputs are very light, with just a touch needed to shift gears, disengage the clutch, or to crank up the throttles. Moderately high effort is required at the front brake lever, but that may be a Good Thing for those who are inclined to simply grab a handful and squeeze hard when faced with an emergency situation. Apart from that, the combination of light, quick steering and virtually effortless controls lend this Kawasaki a feeling almost of delicacy—which is at odds with its downright muscular performance capability.

Kawasaki's reputation for building rapid motorcycles will suffer no damage from the 400 S3. It's quick. We tried it in a fifth-gear roll-on contest with the new Honda 550, and it was Kawasaki all the way. In accelerating from 55 mph to about 85 mph the S3 gained approximately 25 feet on the 550, and gave every indication of stretching its lead even farther at higher speeds. The S3's engine is sluggish at low revs but when the tach needle moves past 5,500 rpm those triple cylinders come to life in a large way, and when they begin to do their thing in earnest it will pay you to have a solid grip on the handlebars. From the point of awakening up to the 8,500 rpm redline the engine genuinely is *strong*. Those who are accustomed to a Four's glassy smoothness may not care for the hammering vibrations one gets along with full-throttle power from this two-stroke triple. They may also complain about the engine's tendency to get its plugs all sooty in urban riding. But the plugs quickly clean themselves when the S3 is headed back along the open road, and there the complainers will be reminded that what the triple mostly does is to make a lot of power for its displacement.

Sadly, everyone who rides the S3 will also quickly be made aware that the performance is purchased with scads of gasoline. Maybe our test riders are—as sundry people have charged—unwholesomely devoted to rapid travel. In any case we averaged a meager 25.4 mpg in mixed freeway/city street/mountain road riding, with highs and lows mere tenths from the average under all conditions. That's a lavish use of fuel, and one that grates upon one especially severely because the fuel is drawn from a tank having a 3.7-gallon capacity. You don't get very far drawing from that supply at the rate of a gallon every 25.4 miles. After 75 or 80 miles you'll be reaching down under the tank to flip the fuel selector over to reserve, and you'll be coasting to a stop at about the 95-

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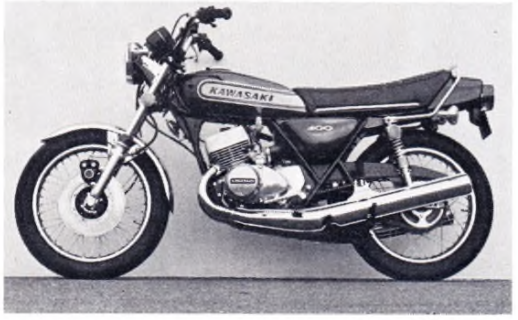

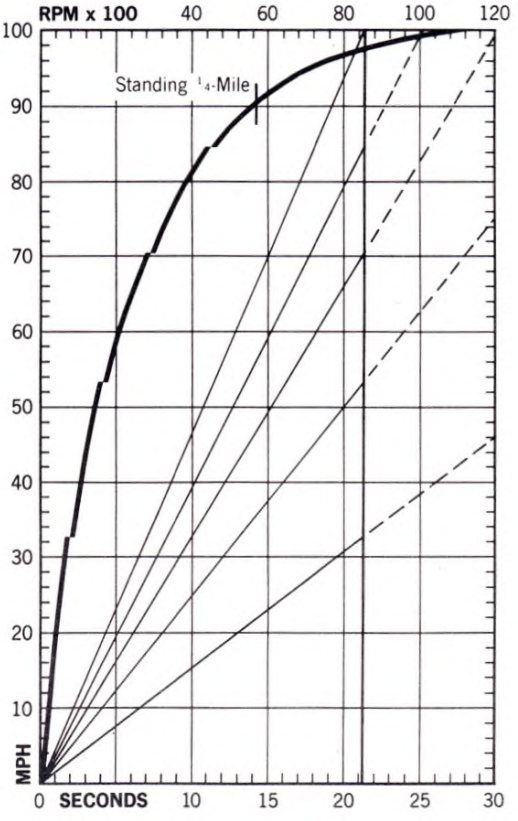

KAWASAKI 400 S3

Price, suggested retail	West Coast, POE $935
Tire, front	3.25 in. x 18 in.
rear	3.50 in. x 18 in.
Brake, front	11.5 in. x 2.0 in.
rear	7.1 in. x 1.2 in.
Brake swept area	76.0 sq. in.
Specific brake loading	7.21 lb/sq. in., at test weight
Engine type	Inline two-stroke three-cylinder
Bore and stroke	2.24 in. x 2.06 in., 57mm x 52.3mm
Piston displacement	24.43 cu. in., 400.4cc
Compression ratio	6.5:1
Carburetion	3; 26mm; Mikuni VM26SC
Air filtration	Paper element
Ignition	Battery & Coil
Bhp @ rpm (claimed)	42 @ 7,000 rpm
Mph/1000 rpm, top gear	11.7
Fuel capacity	3.7 gal.
Oil capacity	3.2 pints
Lighting	12v, 5.3 watts (min.)
Battery	12v, 5.5 ah
Gear ratios, overall	(1) 18.6 (2) 11.62 (3) 8.78 (4) 7.28 (5) 6.24
Wheelbase	53.7 in.
Seat height	30 in., with rider
Ground clearance	6 in., with rider
Curb weight	383 lbs., with full tank of gas
Test weight	548 lbs., with rider
Instruments	Speedometer, Tachometer, Odometer
Standing start ¼ mile	14.315 seconds 89.91 mph
Braking force in Gs	0.83G

400 S3 *Continued from page 62*

mile mark. In light of this rather short absolute cruising reach we think it odd that Kawasaki should have gone to the expense of redesigning the triple's fuel tank—and yet failed to give it enough capacity for the bike to cover at least a hundred miles between gas stations. We don't really mind buying gas for the 400, feeling as we do that its performance tends to justify its thirst, and we think most of the people who eventually own these bikes will feel likewise—until we see that dollar-per-gallon gasoline the newspapers like to speculate about. We do wish the 400's range was a few hundred yards longer.

Kawasaki 400 owners will have to accept, along with the short range, a fairly high level of mechanical noise, which seems to be compounded from equal parts of piston slap, gear whine, and the cow-bell ringing of steel muffler walls—all of which is intrusive but not really worrisome. You look the bike over carefully, and it is apparent that Kawasaki is giving more thought to quality control than once was their wont, so you tend to accept the strength and durability of the bike's internal components on faith. The bike isn't particularly refined, but the little detail stuff that once was a shade shabby is now being done right, so one sets off on a ride with some confidence that nothing will malfunction. You probably also will like, as we did, the Kawasaki S3's compact size and agility as well as the way it rockets ahead in response to throttle. There is something about a bike that steers as though its center of gravity is at ground zero, goes like a bullet and hauls up short of the proverbial dime that makes us willing to overlook a little sinning in other areas. On balance, and without serious reservations, we like Kawasaki's new 400 S3 just fine. ◉