Which Bike?

JUNE
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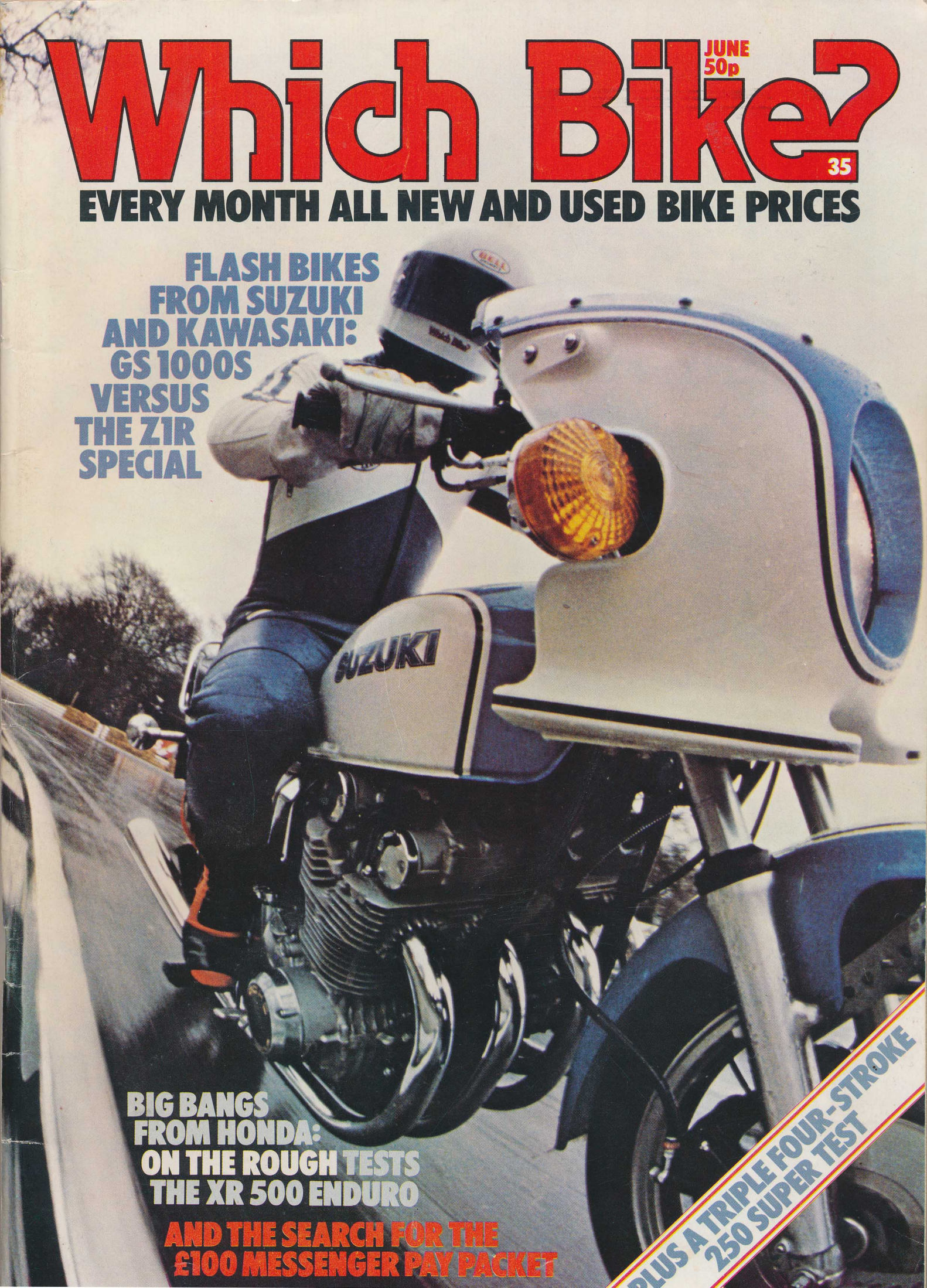
EVERY MONTH ALL NEW AND USED BIKE PRICES



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JUNE 1979 **No.35**

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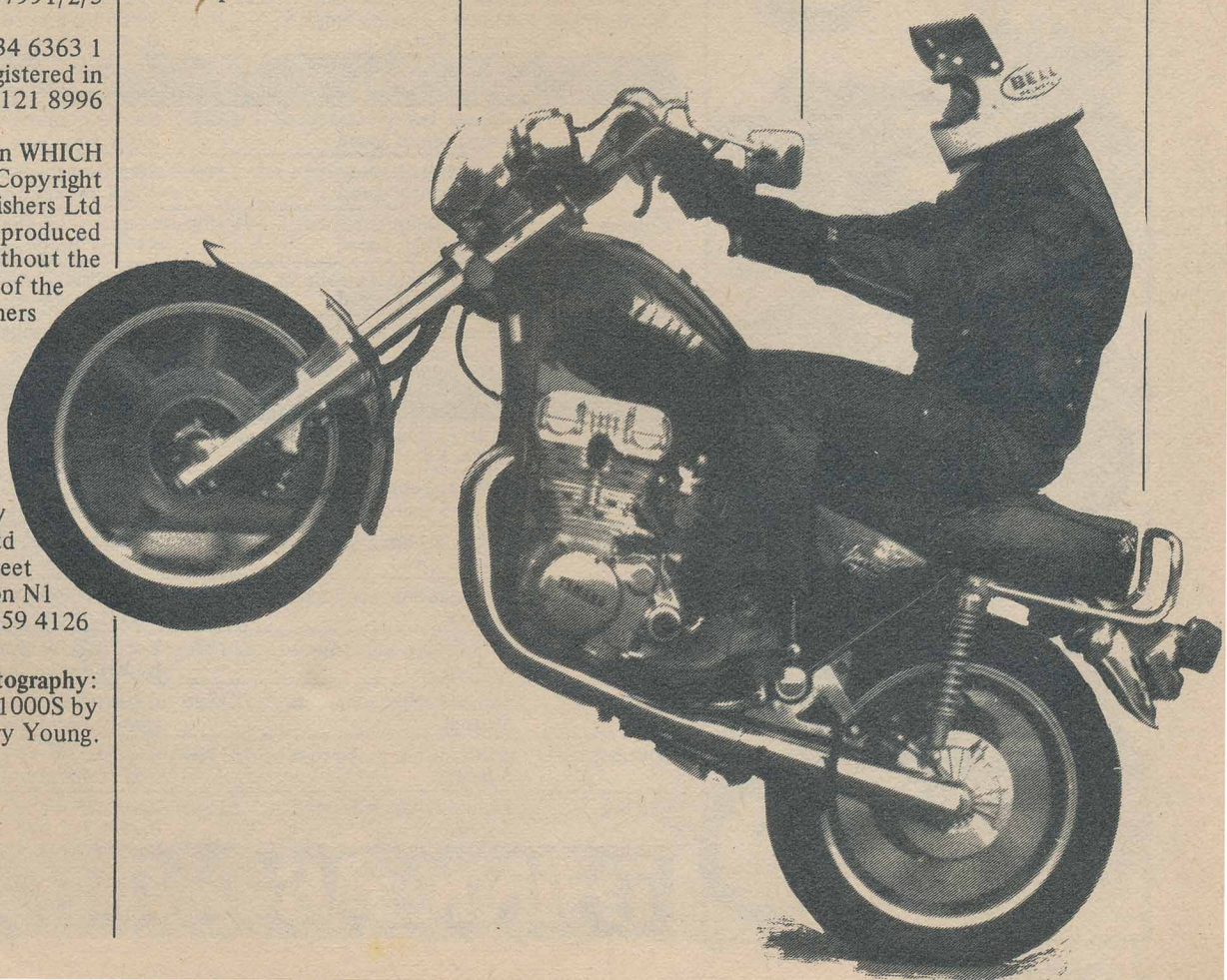


HONDA CB250N
KAWASAKI Z250
YAMAHA XS250

SUPER TEST

LESS IS MORE IN THE 250 WAR

Is Kawasaki's new Z250 Scorpion just another twist on the six-speed four-stroke two-fifty theme? Or does it really have something new to offer compared to the established models, Honda's CB250N and the Yamaha XS250. John Nutting puts them through their paces. Photography by Richard Davies.

Not every rider in the market for a Japanese two-fifty road bike wants a high performance ring-dingy two-stroke twin.

Superfast and exciting they may be but no way could they be described as civilised, as befits the demands of many of today's new-to-two-wheels and often less exuberant riders. Two-strokes, by their nature, are fine for extracting the last ounce of power, but despite developments over recent years like automatic lubrication and reed-valve induction they're still relatively noisy, smokey, heavy on fuel and inflexible. Yet until now there was little variety in the alternatives. You could opt for the East European budget bikes like the CZ and MZ, but many baulk at their unusual styling and lack of automatic lubrication, requiring mixing the petroil in the tank.

The only four-stroke was Honda's ubquitous ohc twin and this was invariably opted for if economy and general reliability were the main pre-requisites.

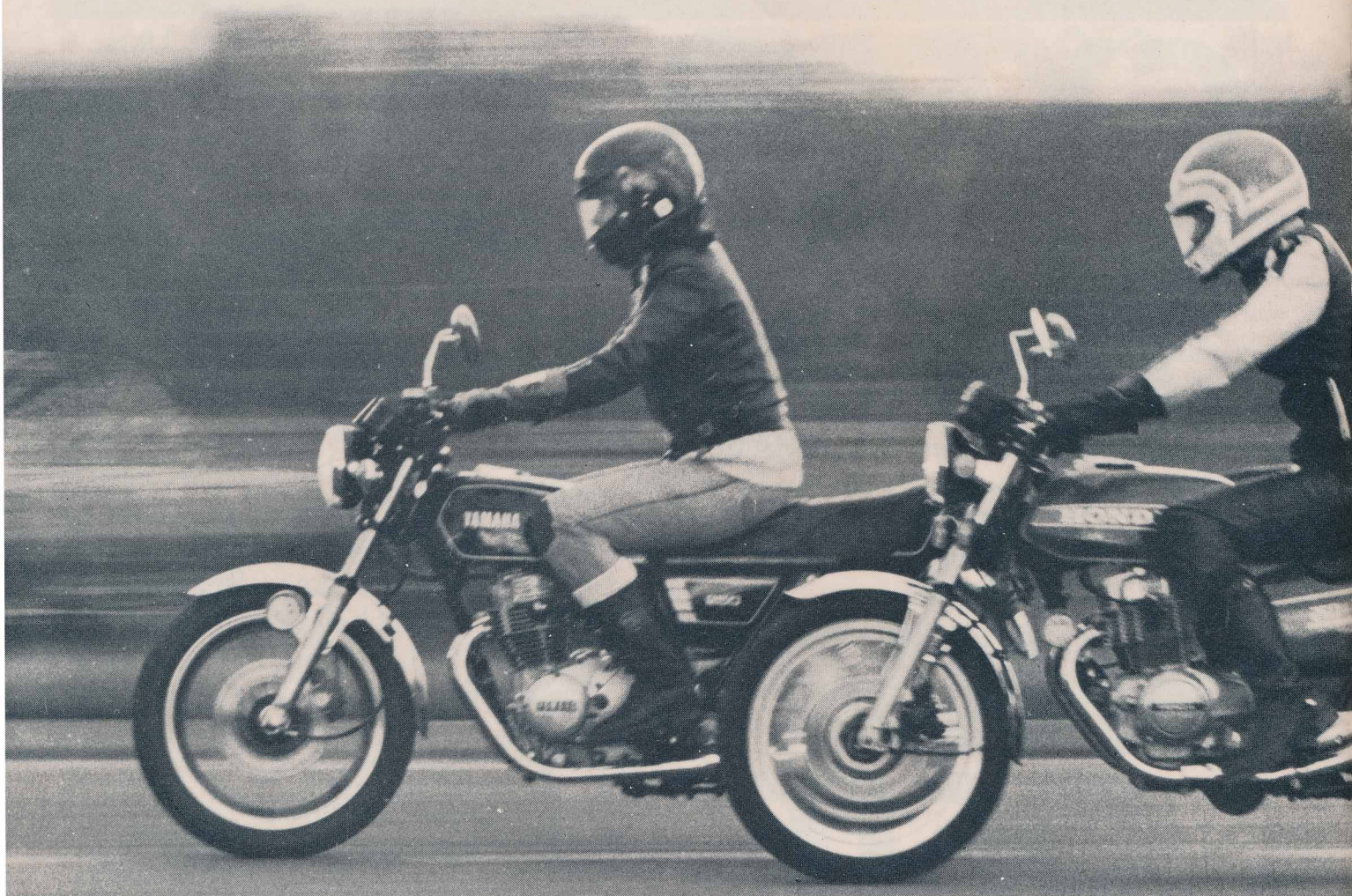
But in the past eighteen months two of the top four Japanese manufacturers have offered four-stroke twin cylinder motorcycles in a bid to capture the less sporting market. Honda's, the CB250T and CB250N Dreams and Super Dreams were totally new machines. Yamaha's XS-250 was offered as an alternative to their RD250 two-stroke twin.

And now Kawasaki have jumped into the fray with their Z250 Scorpion twin in apparent opposition to their three-cylinder two-stroke KH-250.

But of course the four-strokes aren't competing for the same segment of the market. They're completely different models with a character and feel all of their own; predominately good fuel consumption and comfort.

However, the new Kawasaki represents a new move that sets it apart from the Yamaha and Honda offerings. Which is why we are here comparing the merits of the three models.

On the face of it, they are very similar. A glance at the



specification sheet reveals that all three have overhead camshaft engines, two cylinders and six-speed gearboxes.

But history has dictated that the Honda and Yamaha are cast in very different moulds (though the Yamaha is the most similar to the Kawa).

Both were derived from designs which had to be adapted for opening up to 400cc and this dictated that they would be either heavier or bulkier than otherwise. Inevitably the performance had to suffer, which is why the Honda and Yamaha four-strokes are a good deal less lively than their two-stroke counterparts.

Kawasaki have however rightly realised that if they could offer a two-fifty four-stroke that wasn't constrained by being needlessly overweight it would give better performance.

And without resorting to any earth shattering technical breakthroughs, simple sound design has delivered the results. Although both Honda and Yamaha weigh around 365lbs dry, the Kawasaki is 30lbs lighter. While this doesn't show up with a better top speed, as you might expect since all three develop the same maximum power of 27bhp, it is evident in accleration, throttle response and handling. And to a slightly lesser degree in the fuel consumption.

The Kawasaki felt better on the road too. Its engine seemed more willing and appeared to always have more in hand whether cruising at high speeds or racing down windy lanes.

The subjective feel of the Kawa may have something to do with the crankshaft layout. While the bore and stroke are the same as the Yamaha's at 55 by 52.4mm, unlike either of the others it has roller main bearings and needle roller big ends. Both the Honda's and Yam's cranks have plain main bearings and big ends with high pressure lubrication systems.

Both the Yamaha and Kawasaki have 180-degree crankshafts that gives them distinctive exhaust notes, the Yam being the throatier of the two. This layout minimises vibration but while the Yam was adequate when introduced in mid-77, its buzziness and lack of rear-view mirror clarity was shown up by the Kawasaki, which in addition uses four sets of rubber mountings to support the engine unit. It enables the engine to rev beyond its red line of 10,000 rpm without the slightest indication of distress. The Yam's 9,300rpm red line could equally be ignored (particularly as max power was at 9,500) but with greater adverse effect on the rider despite the use of rubber footrests and handlebar mounts.

Honda took the complex route in taming the vibes by using a pair of counterbalancers for and aft of the crank. The pistons rise and fall together (making it a 360-deg twin) and while the lobes on the crank and balancers all oppose the inertia of the pistons at bottom and top dead-centre they oppose each other at mid-stroke.

To provide good breathing and minimise valve float at high revs, paired inlet valves are used on the CB250N and an indication of the better gas flow is that while the Kawa and Yam use 32mm-choke constant velocity carbs the Honda is content with 28mm units. To get the valves in the combustion chamber the bore is a massive 62mm in diameter, the stroke 41.4mm. Nevertheless, the top power is the same as other two, a maximum 27 bhp at 10,000 rpm.

The effect of the engine design gives it a sewing-machine like quality. It is smooth, true, but it sounds like an appliance, not a motorcycle, and doesn't have the free revving feel of the Kawa or rortier sound of the Yam.

None of the three machines provide particularly stunning performance in absolute terms. They were tractable enough, pulling from about 3,000rpm, with both the Yamaha and Kawasaki providing useful torque from these revs while the Honda needing a bit more coaxing along.

Top speeds with the rider normally seated and a good

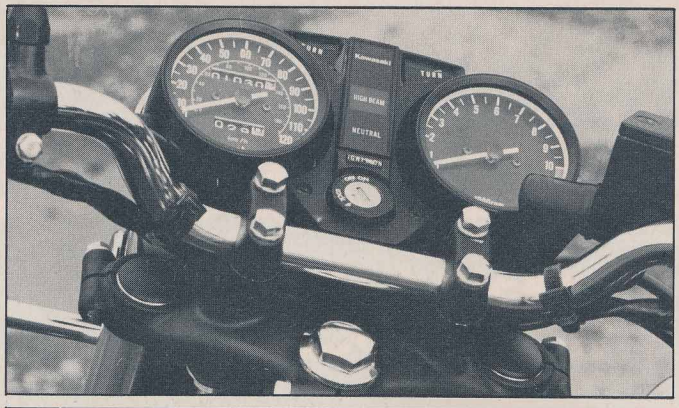
run in ranged from 85mph to 87mph with the Kawa getting the verdict.

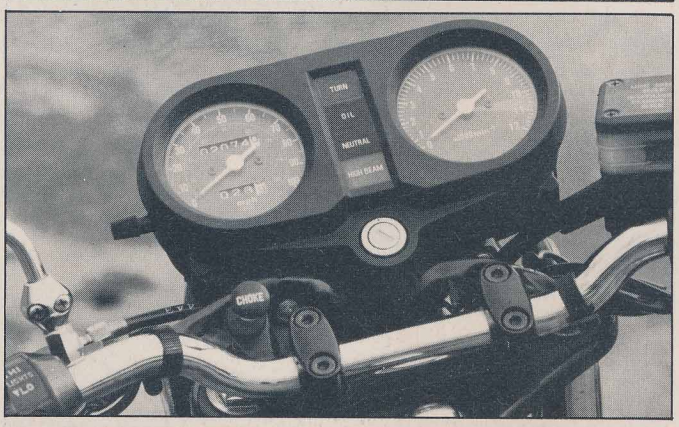
The greatest divergence was in acceleration. Both the Honda and Yamaha were evenly matched with respective standing-quarter-mile times of 17.75 and 17.9 seconds. Since the Yamaha was barely run in with 500 miles on the clock, it is probable that it would perform better, but only slightly. By comparison, the Kawa ripped through the quarter in 16.9 seconds, which, while not being in the two-stroke class, is obviously superior. The zero-to-60 mph times showed a similar trend too, the Kawa being over a second faster. Apart from the aforementioned throttle-response superiority and smoothness of the Kawa, the only other performance related characteristic concerned gearing. Given a tail wind and a prone rider it is possible that the Kawasaki would reach its theoretical top speed of 95 mph, but like the Honda it is geared high. The Yamaha's lower gearing, giving 87mph in top at 9,500rpm, was better related to real road conditions..

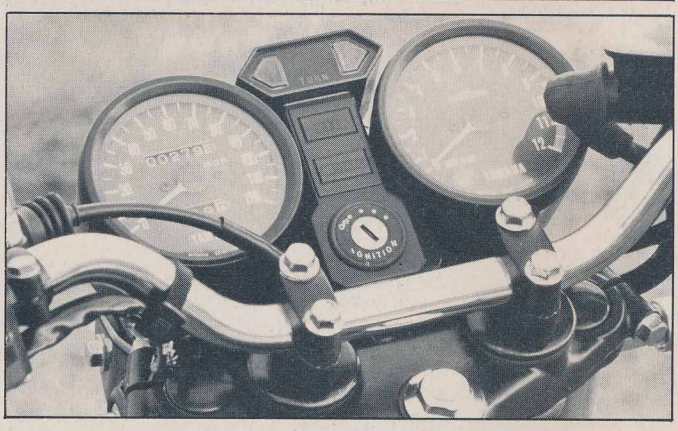
The six gearbox ratios on the Yam and Kawa were properly spaced to keep the engine on the boil, if necessary. The Honda's however had a larger drop between fifth and top gear and this put the bike at a disadvantage when hitting headwinds or gradients on motorways. All three machines could just about maintain the legal limit indefinitely, one-up, except on B-roads where 65mph was more practical.

The threesome were happy to run on the cheapest petrol, the Kawa proving the most economical on a cross-country run that included town and motorway speeds. It returned 64 mpg compared to the Yamaha's 62 mpg and the Honda's 60mpg. These are virtually identical but the smaller 2.4 gallon fuel tank on the Yamaha limited its range to 150 miles whereas the bigger three-gallon tanks of the others gave ranges nearer 190 miles.

Both the Honda and the Kawa fired up reliably from cold on the electric starters using the chokes. The Honda's choke is controlled with a pull button next to the instruments and was easier to adjust when riding; the Kawa's enrichening lever was on the left-side carb body.







Starting wasn't the Yamaha's greatest strength. Hot, it was fine provided you gave it a good opening of throttle, but from cold it needed nursing with exactly the right opening plus a few priming kicks, which should have been easier if the kick lever ratio was better suited.

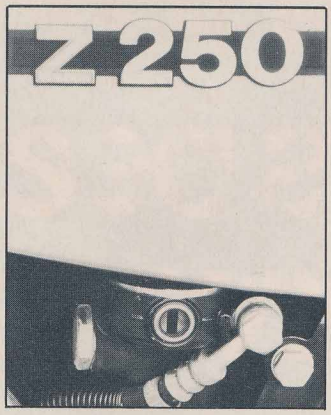
The fault was diagnosed at importers Mitsui as being a low battery voltage caused by the regulator cutting out at too low a voltage. Checked, this showed to be 14½ volts, which we think is not unreasonable. Since two other XS Yams we've had experience the same trouble we're inclined to look more towards the choke metering circuit as being the culprit. A useful feature was the automatic fuel tap operated by the intake vacuum.

Surprisingly the Honda turned out to be the best high-speed handler of the three. Its stability at speed was good and in sweepers you could crank it over confidently without fear of grounding the folding footrests or silencers. Wallowing and pitching were absent and it held a line without adverse effects from the suspension.

This is despite the Honda being the bulkiest machine of the three and also having the highest centre of gravity. To provide cornering clearance the engine is mounted high, with the crankshaft centreline at 16 inches from the ground with the bike unladen, 1½ inches higher than the others.

The wheels are larger, the Comstar fabricated light-alloy units using 360 x 19in and 410 x 18in Bridgestone tyres with tubes.

The frame uses the engine to provide rigidity. It's a pressed steel design with the tubular rear subframe and single front downtube.

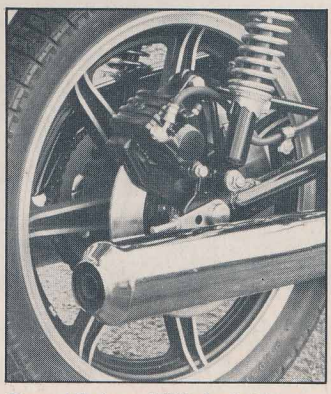


The Kawasaki was a very close second to the Honda in handling. But it's conventional frame and identical steering geometry of 63 degrees of rake and 3.9 inches of trail was less balanced with the bike's lighter 335lbs dry weight. It felt less solid at high speeds and like the Honda was slightly heavier than the Yamaha in town. All the same it had good ground clearance and could be flung equally confidently through bends.

The suspension on the Kawa is well designed for its weight as well with a pleasing lack of harshness found on the KH250.

Tyre sizes on the Kawasaki, like the Yamaha, are 300 x 18in and 350 x 18in front and rear with cast alloy wheels. Rubber is Japanese Dunlop, the rear being an interesting K102 cover using thousands of small perforations in the tread as found on Dunlop's Red Arrows. However, though we went to great pains to detect it, we couldn't find any superiority in the tyre's performance.

Undoubtedly, the pleasure that can be derived from riding the Kawa is due to its overall refinement and response, something that was patently absent on the Yamaha.



Top: All three 250's had tidy instrumentation but the Yamaha's better handlebar caused the master cylinder to obscure the tacho dial.


MAC'S
Kawasaki
Z250
Kawasaki
HONDA

ter (as it should be) because of the lesser load it carries. The discs are stainless steel with assymetric perforations intended to minimise squeal characteristic of the metal pads.

The bite of these brakes is very impressive, more so because they work well in the wet. The other machines didn't have the new pads and consequently were poorer for it. The Honda had a six-inch drum rear stopper for peace of mind in the wet but had nothing like the grip of the Kawasaki's front discs.

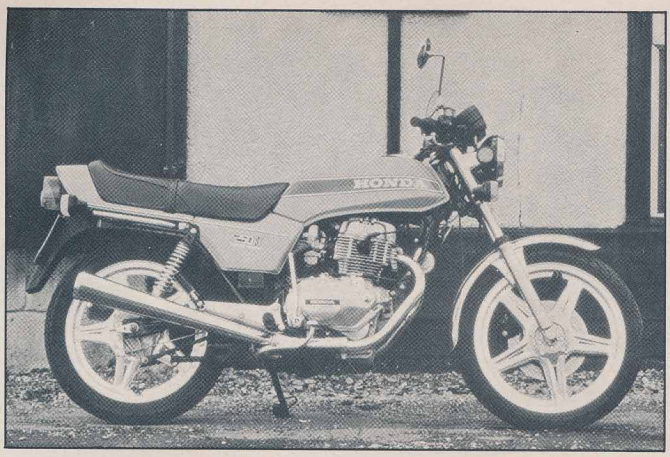
Offering additionally better feel on the Kawasaki was a front brake lever that required less finger reach. The Honda had a solid feeling lever, as did the Yam, but the XS250 also had adjustment to vary the reach.

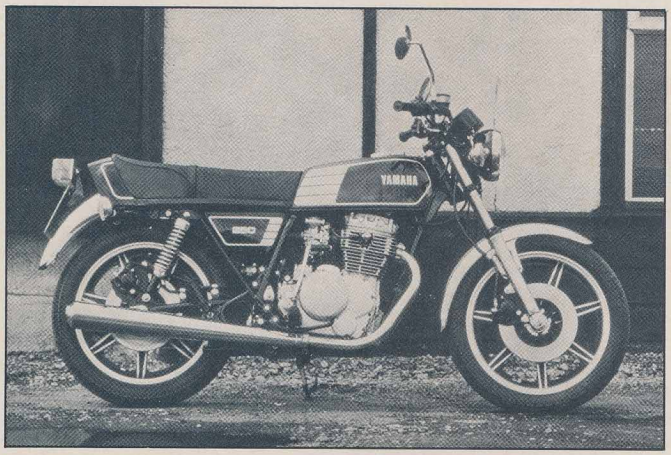
The Honda was peculiar in many other ways because of its bulk. The initial reaction that the bike is big is borne out when you measure it up.

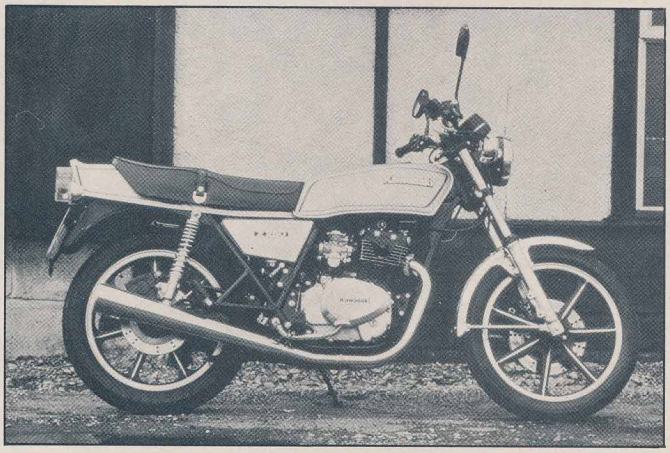
The wheelbase is 55½ inches, two more than the other two and the bike's tank is taller at the filler by two inches. The extra length shows in the longer (by 2½ inches) reach of 18½ inches between the seat nose and the handlebar grips which would be fine if the footrests were better positioned. You would think that with so much space to play with the Honda would be comfortable. After all, the controls work well and the gearchange, with its linkage, is crisp and positive.

But the footrests are much higher (by an inch at 13½ inches unladen) and this cramps the rider. Otherwise the slim tank/seat styling is good with plenty of cushioning beneath the rider to take the shocks.

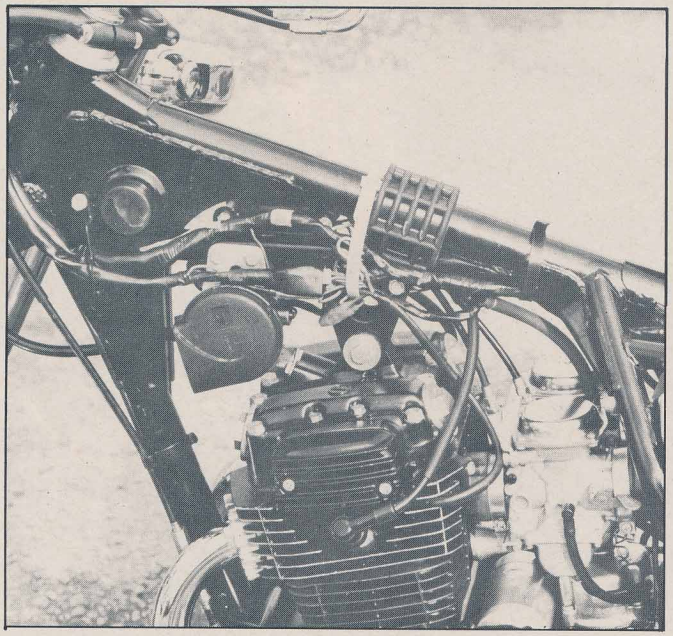
Apart from the aforementioned trouble possibly associated with the Yamaha's alternator charging, the three bikes have similarly reliable electrical systems. However Honda give their bike a measure of superiority with a powerful 45/40-watt headlamp that gives a bright, white beam that puts the others, literally, into the shade. The Kawasaki's beam







Removal of the Kawasaki's tank reveals the simplicity that has lead to the bike's smoothness and lightweight. Frame is straightforward with liberal gusseting at the tube junctions while the engine is supported in two sets of rubber mounts, one above the head.



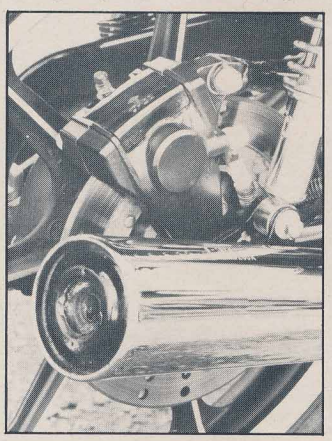
This was despite soft and cushy suspension that provided easily the best ride comfort of the three bikes.

The XS250 has light springing and soft damping, both of which conspired against it in fast bends. The steering too, with a steeper rake of 63½ degrees and less trail of 3.2 inches, while lighter in town for threading through traffic, allowed the bike to steer strangely in S-bends, distinctly dropping into corners. Pitch changes caused by the sensitivity of the throttles affected the stability too.

Nevertheless, the Yamaha offered a good fit for the rider. Its wheelbase of 53½ inches and compact dimensions gave a good riding posture helped by handlebars with the correct sweep. The controls were well detailed too with enamelled levers protected by rubber bellows. However, their feel wasn't so good with a heavy clutch and brake. The gearchange was crunchy and notchy too.

The Kawasaki's dimensions of a 53 inch wheelbase and a similar 32inch seat height were also ideal, though with a slightly longer reach to the straighter handlebar which would tend to favour taller riders. The controls were lighter, the front brake having a soft feel for good control. It goes almost without saying that with the new sintered pads the Kawasaki's brakes were by far superior to the other two machines.

The Kawasaki uses discs front and rear, the rear one being slightly smaller diame-



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the Honda's power and the Yamaha's lamp was simply weak.

The Honda uses their own type of magnetically triggered capacitor-discharge ignition which requires no regular maintenance. Simple contact breakers and coils suffice on the Yamaha and Kawasaki which if otherwise needing more attention and adjustment, are cheap to replace.

All three bikes offer the usual warning lamps in the instruments; oil pressure, neutral and main beam. The Yamaha's esteem is boosted by the use of self-cancelling trafficators which switch off after a set distance or time while the bike is moving. We liked the large, broadly set mirrors too. Less impressive however, are the Yamaha's poorly arranged main and prop stands. The bike will easily roll of the prop stand on a slight slope and is awkward to raise on the main stand.

In terms of top speed and fuel economy there is little to choose between the three four-stroke two-fifties.

If nothing else, the Honda was the most impressive for its striking appearance and sweeping style. It looks what it is; a big bike. Yet it has to suffer because of the extra weight. If overall function is the measure of the machine then the Kawasaki wins in almost every way.

The Z250 feels better, both smoother and responsive, and has superior acceleration. And overall its handling is impressive. What the Kawasaki lacks in its steadiness at elevated speeds compared to the Honda it gains in liveliness and security in adverse conditions.

The Yamaha is left behind in many respects. Though chunky in feel and exciting in sound, a keen motorcyclist would soon become frustrated with its shortcomings. As an urban motorcycle it's fine, offering comfort along no mean measure of useful details. In its wire-wheel form it costs a very competitive £815 (£920 with the cast wheels) compared to the Kawasaki's £899 (£949 for the Special Grand Prix version in racing colours) and the Honda's £849. A restyled Yamaha arriving later this year will hopefully include improvements to bring it up to scratch.

	KAWASAKI	HONDA	YAMAHA
Price:	£899	£849	£815/£920 with cast wheels
Engine:	Ohc 180 deg twin	Ohc 360-deg balanced twin	Ohc 180-deg twin
Capacity	248cc	249cc	248cc
Bore & Stroke:	55 x 52.4mm	62 x 41.4mm	55 x 52.4mm
Lubrication:	Wet sump	Wet sump	Wet sump
Ignition	Coil and cb	CDI	Coil and cb
Comp. Ratio:	9.5 to 1	9.4 to 1	9.6 to 1
Carburetion:	Two 32mm Keihins	Two 28mm Keihins	Two 32mm Mikunis
Max Power.	27bhp to 10,000rpm	27bhp at 10,000rpm	27bhp at 9,500rpm
Max Torque.	15.2lb-ft at 8,500rpm	14.7lb-ft at 8,500rpm	15lb-ft at 8,500rpm
Primary Drive:	Gear	Gear	Gear
Clutch:	Wet multiplate	Wet multiplate	Wet multiplate
Gearbox:	Six speed	Six speed	Six speed
Final Drive:	Chain	Chain	Chain
Mph/1,000rpm:	9.5 in top	9.1in top	9.2 in top
Electrics:	12v 10ah battery, Alternator 35/35w headlamp	12v 12ah battery 130w alternator 45/40w headlamp	12v 12ah battery 190w alternator 40/30w headlamp
Fuel Capacity:	3.0 gallons	3.1 gallons	2.4 gallons
Frame:	Duplex cradle	Spine type	Duplex cradle
Suspension:	Telescopic front fork (f) Swing arm, 5-pos preload adj. (r)	Telescopic front fork (f) Swing arm, 5-pos preload adj. (r)	Telescopic front fork (f) Swing arm, 5-pos preload adj. (r)
Brakes:	10¾inch disc (f) 9¾ inch disc (r)	10.9 inch disc (f) 6 inch drum (r)	10.5 inch disc (f) 10.5 inch disc (r)
Tyres:	Dunlop Gold Seal 300S18 F7 (f) 350S18 K102 (r) on cast-alloy wheels	Bridgestone 360S19 (f) 410S18 (r) on Comstar wheels	Bridgestone 300S18 (f) 350S18 (r) on cast-alloy wheels
DIMENSIONS			
Wheelbase:	52.8 inches	55.5 inches	53.5 inches
Seat Height:	32 inches	32 inches	32 inches
Ground Clearance:	5.5 inches	6 inches	7 inches
Handlebar Width:	29 inches	28 inches	27 inches
Rake/trail	63 deg/3.9in	63deg/3.9in	63½deg/3.2in
Weight:	335lb dry	367lb dry	365lb dry
EQUIPMENT:			
Trafficators:	Yes	Yes	Yes
Self Starter:	Yes	Yes	Yes
Tachometer:	Yes	Yes	Yes
Mirrors:	Yes	Yes	Yes
Locking Tank:	Yes	Yes	Yes
" **Seat:**	Yes	Yes	Yes
" **Steering:**	Yes	Yes	Yes
Tools:	Yes	Yes	Yes
Trip Meter:	Yes	Yes	Yes
Others:	None	None	Self cancelling trafficators, vacuum fuel tap.
PERFORMANCE (all figures with rider normally seated)			
Top Speed:	87mph	85mph	86mph
Speeds in gears at max power revs: Top	95mph	93mph	87mph
5th	85mph	80mph	78mph
4th	73mph	68mph	67mph
3rd	60mph	56mph	54mph
2nd	47mph	45mph	42mph
1st	33mph	32mph	29mph
St. ¼-mile:	16.9 secs	17.75 secs	17.9 secs
0-60mph time:	10.4 secs	11.5 secs	11.7 secs
Av Fuel Consumption:	64.0 mpg	59.8 mpg	62.3mpg
Tank Range:	192 miles	185 miles	150 miles
Speedo Correction at 60mph:	55.7 mph	59.2mph	61.2mph
Importer:	Kawasaki Motors UK Ltd Deal Ave. Trading Estate, Slough SL1 4SH	Honda UK Ltd., Power Road, Chiswick, London W4	Mitsui Machinery Sales Ltd, Oakcroft Road, Chessington, Surrey KT9 15A