BIKEPACKING

CYCLE WORLD TEST

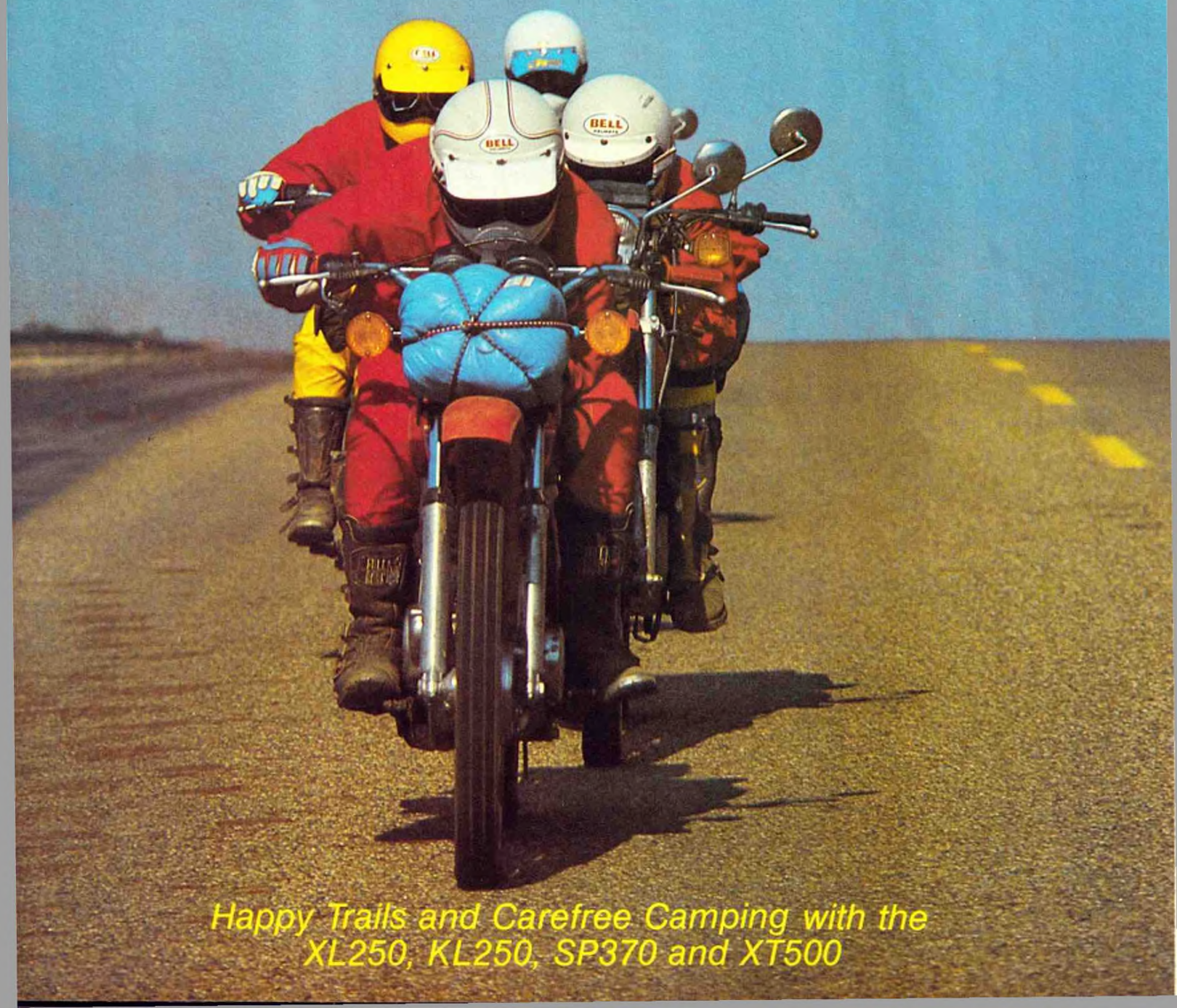
■ In theory a dual-purpose motorcycle is two bikes in one: a street bike to ride to the corner market or to school; a dirt bike to play with on the weekends. Traditionally, the off-road performance of such machines has been limited by their orientation toward street use. Instead of offering inspired handling and the ability to negotiate rough terrain at thrilling speeds, dual-purpose motorcycles have worked best when used off-road for the same purpose as they are used for on-road: transportation, to get from where you are to a place you'd rather be. In the off-road world, dual-purpose bikes have earned a reputation for being a disadvantage.

But in certain circumstances, it's possible to take what is normally a drawback and turn it into an advantage. The circumstance here is called bikepacking; take a group of dual-purpose motorcycles, load them with camping gear, and ride from the city into the country and back again.

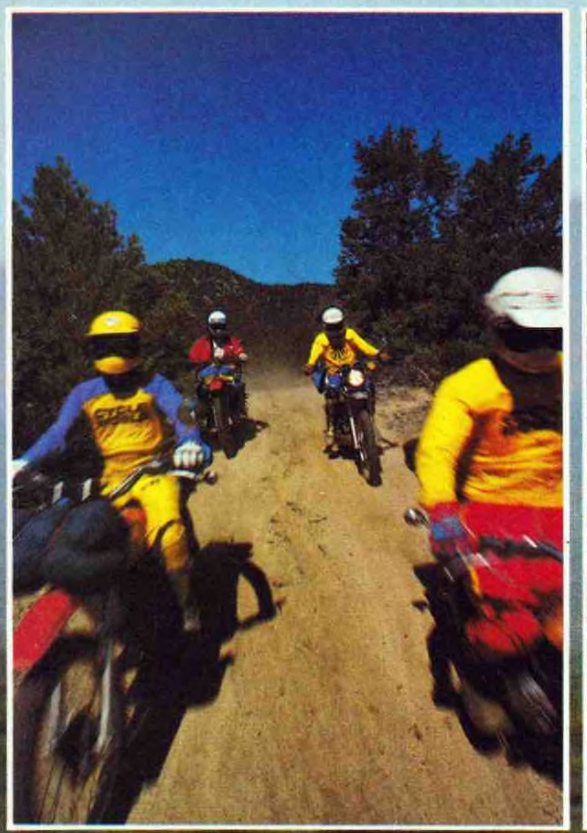
The idea struck us as being a natural one. Plans were made for a three-day, almost 600-mile bikepacking expedition. Picking the machines for the trip was almost as easy: Honda XL250S, Kawasaki KL250, Suzuki SP370, Yamaha XT500. The trend has been toward four-stroke engines in any application involving street use, for a number of reasons: emission control standards, noise regulations, aesthetics, and market demand. The bikes chosen are the best four-stroke, dual-purpose mounts available from every manufacturer currently selling four-stroke, dual-purpose motorcycles. They are also the most recently-introduced dual-purpose machines on the market.

More than a simple comparison of four motorcycles under varying conditions, the project developed into a test of the bikepacking concept: loading up, riding out of town, turning onto the dirt and heading for the horizon. It also provided a perfect opportunity to evaluate sleeping bags, backpacks, duffle bags, a lightweight cook stove, tents, luggage carrying methods and luggage racks.

Two of the manufacturers sell accessory racks for their bikes; thus the Kawasaki and Yamaha were set. But since Suzuki and Honda don't have racks available for the SP370 and the XL250S, it was necessary to weld and modify spare Yamaha racks to fit. Soft, accessory handlebar grips were fitted to all but the Honda in the



Happy Trails and Carefree Camping with the XL250, KL250, SP370 and XT500



interests of rider comfort—we figured that the hard, standard grips on the Kawasaki, Suzuki and Yamaha would raise blisters and dampen enthusiasm. The Honda's well-designed grips, on the other hand, were softer than the best accessory grips available and so were not replaced.

We knew something about each bike even before the trip started. All have overhead-cam, single-cylinder, four-stroke engines. The Honda has four valves; the others have two. All but the Yamaha have wet sumps and hold a little more than three pints of oil. (The Yamaha stores oil in the frame and carries five pints.) All run on low-lead or unleaded gasoline, with tank capacities between 2.2 and 2.5 gallons. All have oiled-foam air cleaners. The Honda has CDI ignition; the others have magneto and points. Each has a battery to meet the demands of street-legal lighting.

The Kawasaki, Suzuki and Yamaha have conventional trials-universal tires mounted on 21 in. front wheels and 18 in. rear wheels. The Honda's tires have a unique tread pattern developed by Honda R&D, unlike any trials pattern seen before. The XL250S is also different in that it has a 23 in. front wheel and an 18 in. rear wheel.

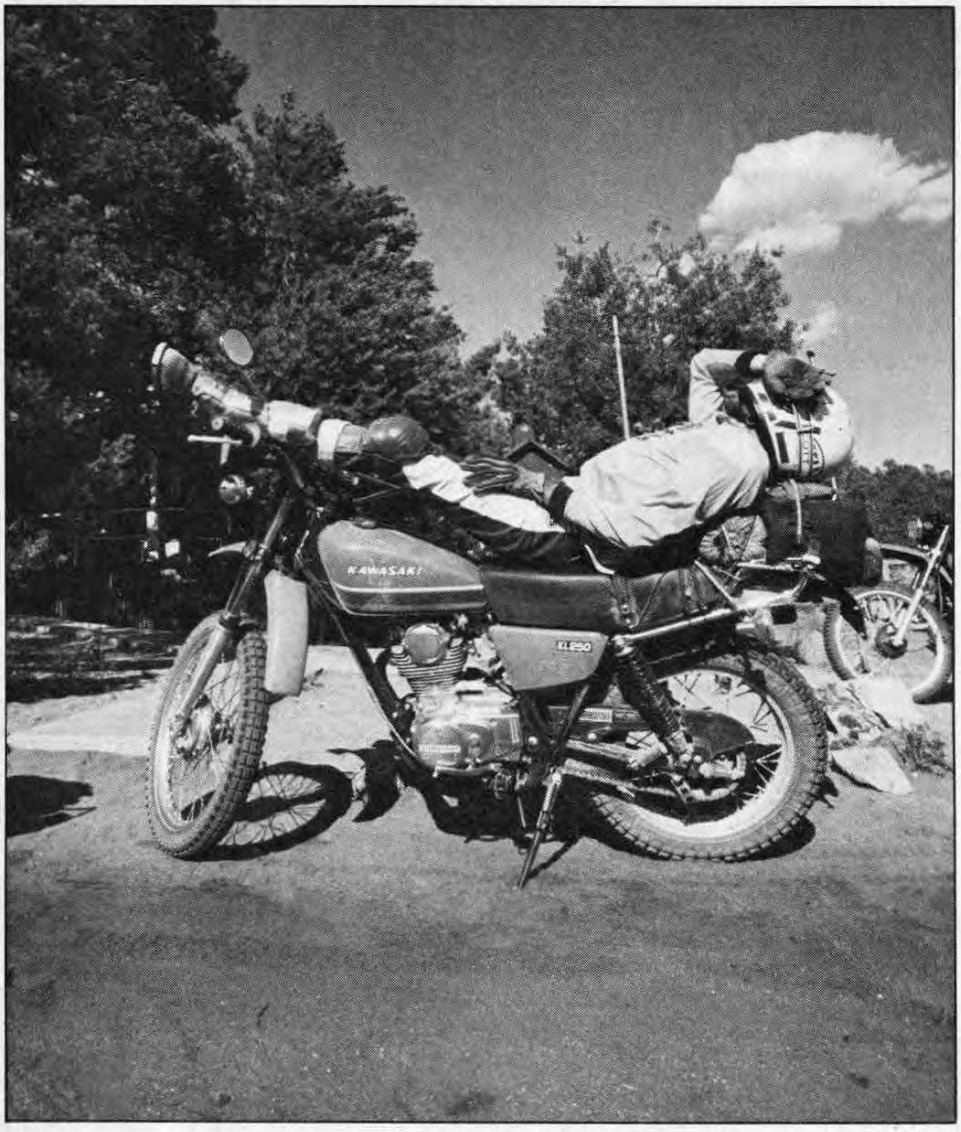
The biggest differences appear in weight and suspension travel. The 249cc Honda weighs 278 pounds; the 246cc Kawasaki, 293 pounds, the 370cc Suzuki, 287 pounds; the 499cc Yamaha, 319 pounds. The XL250S has 7.7 inches of travel in the front forks and 7.0 in. rear wheel travel; the KL250, 7.0 front, 5.0 rear; the SP370, 6.6

front, 5.0 rear; and the Yamaha, 7.5 front, 6.8 rear.

Because each bike had been run at the dragstrip, quarter-mile times and terminal speeds could also be compared before departure. The Honda turned 16.56 seconds @ 74.93 mph; the Kawasaki, 17.46 @ 71.09; the Suzuki, 15.59 @ 80.57; and the Yamaha, 15.19 @ 82.94. Not to be forgotten is the matter of price. The Honda costs $1249; the Kawasaki, $1199; the Suzuki, $1389; the Yamaha, $1548.

That much was known; much remained to be learned. But once the bikes were loaded, the photo truck (carrying photographer, driver, and photo equipment) was ready and the whole caravan on the road, it wasn't long before more comparisons could be made.

Color Photos by Robert Monkton



None of the four bikes are comfortable on the Interstate highway when compared to heavyweight touring machines. Even token off-road use places constraints on seat design, requiring that the seat be narrow at the front so the rider can easily stand up on the pegs when necessary. For pavement use, when the rider just sits there and motors along, narrow seats are less than desirable. All the seats are wider at the rear and sitting as far back as possible helped, but every rider soon noticed the problem. Before 40 miles had passed, each could be seen moving around in search of comfortable seating. The lack of passenger pegs on the Honda, Suzuki and Yamaha foils the old ploy of using the rear footpegs to change position. The Kawasaki has passenger pegs, a good thing because it also has the worst seat. No one liked any of the seats for road use, but when pressed to rank them, most listed the Yamaha as best, followed by the Honda, Suzuki and Kawasaki.

Even with all the gear piled on the bikes, none exhibited bad handling at freeway speeds. Not one would shake its head or wobble if the rider took his hands off the bars. The presence of sleeping bags lashed to the headlights of two bikes didn't seem to make any difference.

Only the Honda didn't vibrate uncomfortably through the handlebars, footpegs and seat at highway speeds, blurring the mirror and buzzing the rider. Until the introduction of the XL250S, all Singles did that. But the Honda engine has twin balancer shafts which cancel out most normal Single vibration and make the bike almost as smooth as a Hawk 400 Twin.

The Honda has another advantage in suspension compliance. Only the Honda's front forks move over concrete-freeway expansion joints and other small jolts. The rider can see the XL250S' forks move with each ripple, smoothing the ride, while the forks on the other bikes stay immobile.

In another area, the Honda comes up last—exhaust noise control. When mounted on the Honda, a rider can hear only the Honda's exhaust. When riding any of the other bikes next to or near the Honda, a pilot can still hear only the Honda's exhaust. The bike does meet noise level regulations; it is also the loudest of the four.

Another distinction fell the way of the Honda in that first section of pavement travel—the first malfunction of the trip. Five miles from the starting point, the Honda's turn signals wouldn't flash and the horn wouldn't beep loud enough to be heard over the engine. Later, at a brief stop to compare notes, it was discovered that the Honda's neutral indicator and turn signals wouldn't light without the engine running. Pushing the horn button didn't produce even the slightest bleat. The engine still started easily, and once it was running, the neutral indicator glowed a weak green and the turn signals would light, but not blink. The horn made a faint noise if the engine was revved to about 4000, but any more rpm caused the exhaust note to bury the horn's shallow voice. The main battery fuse had blown and all systems were dependent upon magneto power only. Since no spare fuse could be found, the decision was to carry on.

Whether or not the Honda's horn worked seemed a moot point. Chances were that no motorist could miss the procession of four motorcycles carrying riders wearing leathers, helmets, goggles, motocross boots and red enduro jackets with luggage strapped on behind and a pickup truck (photographer enclosed) at times pursuing, leading, or pacing side-by-side.

It was as the group approached the biggest Interstate hill in that area that the photographer resumed hanging-out and shooting. The truck driver tried to stay within the proper shooting distance of the bikes, while the riders worked to keep close together for the photographer. Gradually, in the midst of maneuvering, the group's speed fell until mid-way up the hill everyone was moving at an indicated 50 mph or so. The two larger bikes—the Suzuki and the Yamaha—were chugging happily along in top gear. Both the 250s—the Honda and the Kawasaki—were buzzing away in fourth. Given a high enough approach speed and clearance to use full throttle all the way, the 250s can climb most Interstate hills in fifth gear. But once momentum is lost and the speed drops below 55 or 60 mph, it's fourth gear or bog.

Of course, what does or does not appear to be 60 mph depends upon which bike a rider is on at a given moment. For example, when the Honda's speedometer tells the rider that he is traveling at 60 mph, the bike is actually moving at 58.3 mph. The Kawasaki indicates 60 when it is going only 53.9 mph; the Suzuki, 52.5 mph; the Yamaha, 59.6 mph.

But while the Suzuki has the least accurate speedometer, it has the most true odometer, with no detectable error. The Honda has a minus 1% odometer error; the Kawasaki, plus 5%; the Yamaha, plus 2%. Translated into real life, after 47.2 miles, the Honda's resettable trip odometer reads 46.9 miles; the Kawasaki, 49.7 miles; the Suzuki, 47.2 miles; the Yamaha, 48.0 miles. The tripmeters on all four bikes

can be reset by tenths of a mile. In theory, that means that if a rider takes his bike on an enduro, he can compensate for differences between his bike's odometer readings and the official mileages, thus zeroing both loops and winning a big trophy. It also means that setting the tripmeter back to zero from, say, 47.2 miles takes a long time and a lot of spins on the reset knob.

When the expedition turned off road—sending the support truck up the highway to a rendezvous point—the things that counted on pavement lost significance. As the route led down double-rut dirt roads, cross country, along sand washes, up ridge-running narrow dirt trails, through rock fields, and over bounding whoop-de-doos, enormous differences between machines became obvious.

In all types of off-road terrain, the XL250S handles better than the other bikes. A lot of the advantage comes from the Honda's tire tread design, which gives better traction than the traditional, block-tread trials-universal design. Tires limit cornering; the Honda steers and turns the most accurately, on all sorts of dirt surfaces.

On dirt roads, the Kawasaki and the Yamaha both push the front wheel drastically, reducing safe cornering speed. Trying to ride either bike fast on a winding double-rut road sends the bike all over the place in spite of the rider's best efforts, with the rear end often hanging out and the front end pushing as well. In sand washes, the front ends of the Kawasaki and the Yamaha wander, skate, slip and slide around, making it difficult to maintain an intended course. Just because it is lighter, the Kawasaki is easier to deal with than the Yamaha.

The answer is simply to slow down. As long as their limiting speed for any given situation is not exceeded, both the Yamaha and the Kawasaki are not threatening. A problem does exist. Riding slowly through soft sand is nearly impossible—some momentum is essential. Finding the point where the Yamaha will go down a sand-wash in a more-or-less straight line, yet not exceeding the speed at which it becomes impossible to turn the motorcycle, can be tricky. The KL250's limiting speed is higher than that of the Yamaha, but the Kawasaki's front end oscillates slightly as speeds increase in straight, smooth washes or dry river beds.

The situation is better on mostly-level, mostly-smooth, straight dirt roads. Both the Yamaha and the Kawasaki can be ridden at full speed under those conditions. But the rider must remain alert for rain ruts, bumps, arroyos, logs, stream crossings, road crossings or anything else interrupting the dirt road surface. In the case of the Kawasaki, the front end can handle most obstacles and whoops if approached at moderate speeds. But the rear end bounces straight up and threatens to

throw the rider over the bars at speeds greater than 40 or 45 mph, and both ends bottom on whoops. When the Yamaha hits a ditch or bump, the front end wallows in a slow shake. Sharp jolts, like the edges of rain ruts cutting across trails, start the Yamaha's front end wiggles even at moderate speeds. Above 40 or 45 mph, even smoother bumps start the wallow, and sharper impacts bottom the forks and the shocks. The XT500 often goes sideways on whoops if the approach speed is too great.

In rougher or tighter terrain, like rocky trails or narrow canyons, the Kawasaki has several advantages over the Yamaha. The Yamaha's clutch is grabby, strictly on/off. That makes close-in maneuvering and slow-speed work difficult and distracts the rider at awkward moments. The weight of the XT500 means more effort for the rider in close quarters and in rocks. The Kawasaki is easier to pick through tough spots and has a better clutch. The KL250's low exhaust pipe should be a handicap, but a piece of strategically-placed angle iron seems to adequately protect it. The only damage visible after a section of rocky terrain was a few scratches on the angle iron.

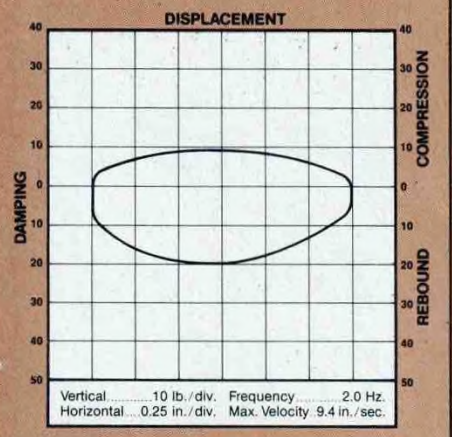
The Honda and the Suzuki are more at home off-road than the Kawasaki and the Yamaha, and the Honda works significantly better than the Suzuki. Where the Kawasaki and the Yamaha push the front end and snake off course, the Honda runs straight. While not quite as accurate as the Honda, the Suzuki has less tendency to skate and plow the front wheel in washes and while turning, even though it, like the KL250 and the XT500, has trials-universal tires.

The rider still must wrestle with the Suzuki's bars and sit up on the tank to make it turn, but there is a difference: The rider can go much faster on the Suzuki. The SP370's limiting speed for any given situation is greater than the maximum speed on the KL250 and XT500, but still slower than the fastest safe speed on the XL250S (excepting flat, straight, smooth fireroads). Considering that it wears traditional tires instead of the Honda's revolutionary new approach to dual-purpose rubber, the Suzuki steers very well.

The Suzuki's suspension also works better than that of the Kawasaki and the Yamaha, but the Honda remains champion. Very sharp jolts (as encountered in>

HONDA

FRONT FORKS

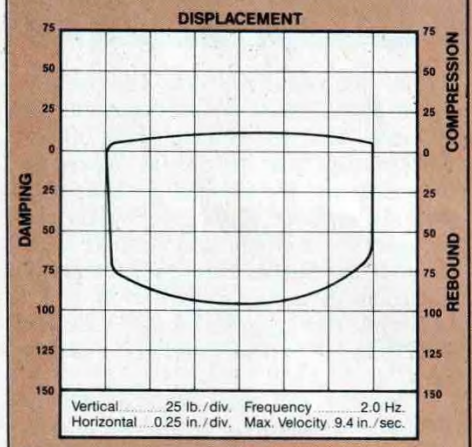


Showa leading-axle fork

Fork travel	7.7 in.
Engagement	6.2 in.
Stanchion tube diameter	35 mm
Spring rate	27/40 lb./in.
Compression damping force	9 lb.
Rebound damping force	20 lb.
Static seal friction	10 lb.

Forks on the S-model XL250 are conventional Showa units, and work well on- and off-road. The spring rate gives good control and comfort on the street, yet is not overly stiff for dirt riding. Damping rates are good for most riding, and although the sliders lack the familiar top bearing, compliance is more than adequate.

REAR SHOCKS



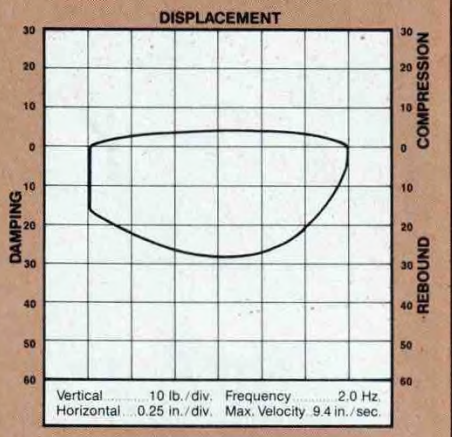
Showa gas-pressurized shock

Shock length	16 in.
Shock travel	5.1 in.
Wheel travel	7.0 in.
Spring rate	93 lb./in.
Compression damping force	12 lb.
Rebound damping force	90 lb.

The XLS's rear suspension differs from that on most other dual-purpose machines. Exceptionally long (16 in.) shocks are employed, allowing full wheel travel with a conservative 1.37:1 lever ratio. Damping and spring rates are higher than might be expected, and contribute to the bike's firm and predictable character.

KAWASAKI

FRONT FORKS

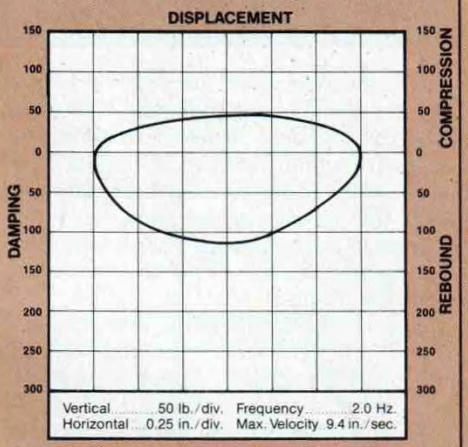


Showa straight-leg fork

Fork travel	7.0 in.
Engagement	5.0 in.
Stanchion tube diameter	35 mm
Spring rate	25/50 lb./in.
Compression damping force	4 lb.
Rebound damping force	28 lb.
Static seal friction	14 lb.

The KL's forks work fine for most street riders, and are acceptable for an occasional off-road journey. Those who ride the bike hard will benefit by using heavier oil; substituting slicker seals will improve the action in all applications.

REAR SHOCKS



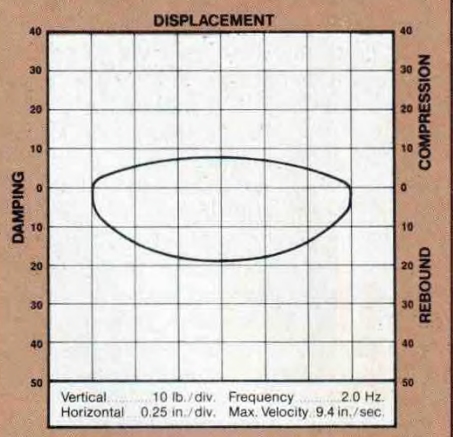
Showa shock, non-rebuildable

Shock length	13.8 in.
Shock travel	3.8 in.
Wheel travel	5.0 in.
Spring rate	61/160 lb./in.
Compression damping force	40 lb.
Rebound damping force	115 lb.

Like the front, the rear suspension works well on the street, and is adequate for easy off-road riding. Spring and damping rates are fine, but suspension action is limited by its relatively short travel. Considering the nature of the bike, however, most riders will find the KL's suspension acceptable with no modifications.

SUZUKI

FRONT FORKS

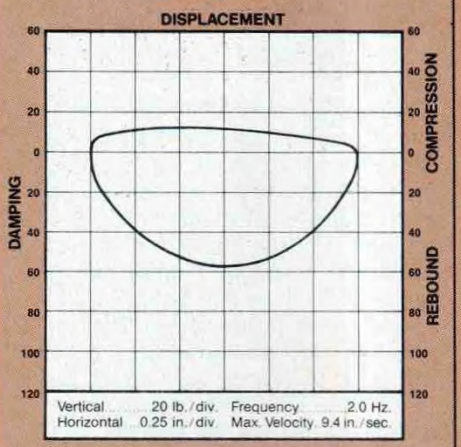


Kayaba leading-axle fork

Fork travel	6.6 in.
Engagement	5.7 in.
Stanchion tube diameter	36 mm
Spring rate	18/32 lb./in.
Compression damping force	8 lb.
Rebound damping force	18 lb.
Static seal friction	7 lb.

On the dyno, the DR's forks had the right measurements, but bottomed easily as if compression damping was non-existent. The lack of a damper-rod "top hat" allows excess oil to accumulate in the stanchion tube, starving the damper assembly. A deflector, similar to a '74 Husky unit, should be installed.

REAR SHOCKS



Kayaba shock, non-rebuildable

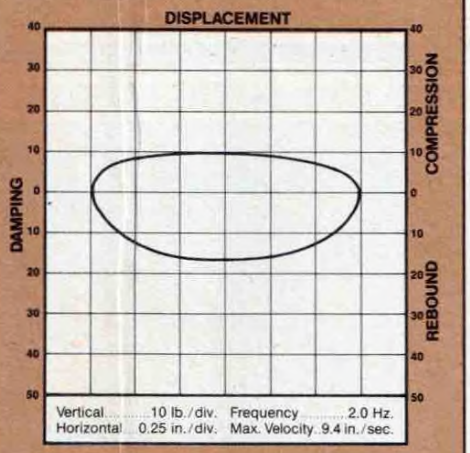
Shock length	14 in.
Shock travel	3.7 in.
Wheel travel	5.0 in.
Spring rate	60/95 lb./in.
Compression damping force	12 lb.
Rebound damping force	57 lb.

The DR's rear suspension is too soft for the bike's potential. At maximum preload, the springs are adequate, but insufficient and quickly-fading damping rates provide marginal wheel control. Installation of a different set of shocks would be beneficial for faster riders.

Tests performed at Number 1 Products

YAMAHA

FRONT FORKS

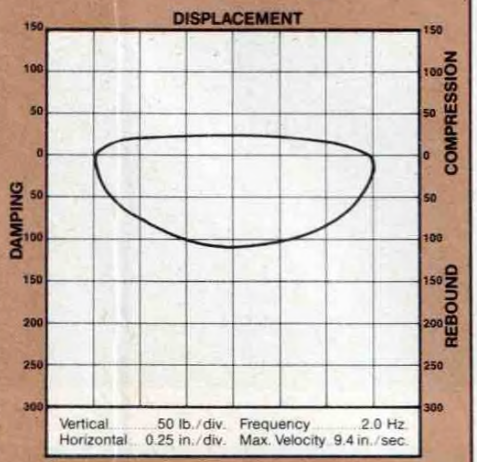


Kayaba straight-leg fork

Fork travel	7.5 in.
Engagement	4.2 in.
Stanchion tube diameter	36 mm
Spring rate	23 lb./in.
Compression damping force	10 lb.
Rebound damping force	17 lb.
Static seal friction	11 lb.

The XT's forks are limited primarily by their short travel. For a bike of the weight and speed capability of this 500, 7 inches is not enough, even though damping and spring rates are fine. For riders who find bottoming a problem, heavier fork oil will help some; switching to progressive springs with a higher secondary rate will also be beneficial.

REAR SHOCKS



Kayaba shock, non-rebuildable

Shock length	14.4 in.
Shock travel	4.4 in.
Wheel travel	6.8 in.
Spring rate	91/134 lb./in.
Compression damping force	24 lb.
Rebound damping force	108 lb.

The rear end of the XT works fine as is; spring and damping rates are balanced to provide good action both on- and off-road. Adjusting the spring preload will provide ample compensation for various rider weights and styles, and allows aggressive riding.

deep cross-ruts) bottom and top the Suzuki's front forks with a clang, but the bike always lands straight and continues on its way. On smoother bumps, the forks don't bottom, but the shocks, even at maximum preload, do. In one case, the rider on the Suzuki was chasing another rider on the Honda down a powerline-access road at about 70 mph. The wind shifted, and the Honda's dust obscured the surface of the road, the Suzuki hit a hidden bump and the rear wheel headed skyward. The force of the seat hitting his butt sent the standing rider into a flying-W, rolling-handstand-on-the-bars. He hung on, the bike landed, and both continued on their way. The Honda's rear end had jumped up over the same bump, but hadn't sent the XL250S into a nosestand. Like the Suzuki, the Honda lands straight after impacts, an especially important trait in whoop-de-doos.

Both the Honda and the Suzuki are lighter than the Kawasaki and the Yamaha. Both are easier to deal with in tight conditions and rough ground. Both the Suzuki and the Honda have excellent, progressive clutches.

The Honda does have flaws. Above 50 mph on flat, smooth dirt roads, the XL250S sometimes shakes its head in a front-end oscillation. Experimenting, the rider who first noticed the effect found that he could control it by pushing on the bars and gripping the tank with his knees. The same effect was noticed on some straight, downhill pavement sections above 70 mph, with the same cure applicable.

Before the group reached pavement and re-connected with the photo truck on a two-lane highway, the weight of the gear piled on the home-built luggage rack had buckled the Suzuki's steel rear fender, which wasn't designed to hold a lot of extra weight. A long series of whoops left the license plate bracket bent underneath the fender, which dragged on the tire. In turn, the tire ripped off all the taillight wiring routed underneath. Re-locating the Suzuki's pack onto the rear of the seat made it possible to bend the fender roughly back into position.

By that time, the Kawasaki had been crashed twice by an over-eager rider who was unwilling to watch the Honda and the Suzuki disappear into the distance ahead. Too much speed in whoops—and again in a sandwash later—put the Kawasaki out of control. One of the crashes broke out the bike's headlight lens.

Riders often swapped bikes to make comparisons. During one stretch of straight pavement, the staffers on the Honda and the Kawasaki at the time tried several informal drag races. With a 140-lb. rider on the Kawasaki and a 185-lb. rider on the Honda (without making allowances for the weight of gear strapped onto each bike), the Kawasaki barely inched ahead every time from a standing start race, a fourth-gear roll-on and a fifth-gear roll-on. But with the riders reversed, the Honda ran away from the Kawasaki. Anyone looking at the specification and performance charts can figure out that the Honda is quicker than the Kawasaki. The point is that real-life conditions—such as rider weight and vehicle load—can greatly affect a motorcycle's performance when compared to that of other machines.

Riding techniques, even on pavement, can also make a difference. With almost-equally-sized riders and close-to-even luggage, the Honda and the Kawasaki proved to be an even match in a top speed contest. Why? Because the instant one or the other inched ahead the trailing rider moved over into the lead bike's slipstream and drafted. With both riders tucked in along one lonely stretch of road, the two 250s constantly switched position; whichever one had the draft could move past the other, which had the disadvantage of fighting wind resistance. If the two riders stayed >

side-by-side and didn't draft, the Honda slowly pulled away.

When the foolishness was out of everyone's system and the group had stopped to wait for the photo truck, the impromptu top-speed and drafting tests had covered almost 30 miles. After being run that far as fast they would go, the 250s seemed to run as well as they ever did. The Kawasaki's engine remained perfectly oil tight, with no seepage or leaks anywhere. The Honda seeped a little oil along two inches of the left engine sidecase gasket, but not much, and nowhere else. A quick check revealed that neither of the little bikes had used any oil. Group speed was limited by the smaller-displacement motorcycles, but the Suzuki and the Yamaha, although not run constantly at or near redline, still had a good workout. The Yamaha seeped oil at a dozen places all over the engine. The

SPECIFICATIONS

	HONDA XL250S	KAWASAKI KL250	SUZUKI SP370
List price	$1249	$1199	$1389
Engine	sohc Single	sohc Single	sohc Single
Bore x stroke	74 x 57.8mm	70 x 64mm	85 x 65.2mm
Piston displacement	249cc	246cc	370cc
Compression ratio	9.1:1	8.9:1	8.7:1
Carburetion	28mm Keihin	28mm Keihin	32mm Mikuni
Air filtration	oiled foam	oiled foam	oiled foam
Ignition	CDI	magneto/points	magneto/points
Claimed power	20.2 bhp @ 7500 rpm	21 bhp @ 8000 rpm	na
Claimed torque	14.5 ft.lb. @ 6000 rpm	15.2 ft.lb. @ 6500 rpm	na
Lubrication system	wet sump	wet sump	wet sump
Oil capacity	3.2 pt.	3.2 pt.	3.4 pt.
Fuel capacity	2.5 gal.	2.3 gal.	2.2 gal.
Recommended fuel	low lead	unleaded	low- or no-lead
Starting system	primary kick	primary kick	primary kick
Electrical system	6v 80w alternator	6v72w alternator	6v 75w alternator
Battery rating	4 amp-hour	6 amp-hour	4 amp-hour
Clutch	multi-disc, wet	multi-disc, wet	multi-disc, wet
Primary drive	straight-cut gear	straight-cut gear	helical gear
Final drive	#520 chain	#520 chain	#520 chain
Gear Ratios: 5th	8.10	8.21	6.97
(overall:1) 4th	10.00	9.86	8.53
3rd	12.38	12.20	11.03
2nd	16.66	16.27	14.92
1st	25.21	24.75	22.47
Suspension, front	telescopic fork	telescopic fork	telescopic fork
Suspension, rear	swing arm	swing arm	swing arm
Tire, front	3.00-23	3.00-21	3.00-21
Tire, rear	4.60-18	4.00-18	4.00-18
Brake, front	5.5-in. drum	5.5-in. drum	5.9-in. drum
Brake, rear	4.3-in. drum	5.9-in. drum	5.9-in. drum
Total brake swept area	33.4 sq. in.	39.5 sq. in.	40.9 sq. in.
Brake loading (160-lb. rider)	13.1 lb./sq. in.	11.5 lb./sq. in.	10.9 lb./sq. in.
Wheelbase	54.7 in.	55.1 in.	55.7 in.
Fork rake angle	28.5 deg.	29 deg.	31.0 deg.
Trail	5.4 in.	5.0 in.	5.6 in.
Handlebar width	33.2 in.	33.0 in.	33.0 in.
Seat height	33.2 in.	33.2 in.	33.4 in.
Seat width	8.0 in.	9.5 in.	8.0 in.
Footpeg height	12.5 in.	12.0 in.	12.1 in.
Ground clearance	10.2 in.	8.25 in.	9.5 in.
Curb weight (w/half-tank fuel)	278 lb.	293 lb.	287 lb.
Weight bias, front/rear, percent	45.5/54.5	42/58	42.5/57.4

PERFORMANCE

Engine speed @ 60 mph	6496	6502	5412
Power/weight ratio, (160-lb. rider)	21.7 lb./bhp	21.6 lb./bhp	na
Fuel consumption	50.0 mpg	48.9 mpg	52.1 mpg
Range, full tank	125 mi.	112 mi.	115 mi.
Speedometer error:			
30 mph indicated, actually	29.2	28.1	26.2
40 mph indicated, actually	38.8	36.6	35.1
50 mph indicated, actually	48.5	45.6	44.4
60 mph indicated, actually	58.3	53.9	52.5
Odometer error	−1%	+5%	nil
Braking distance			
from 30 mph	40 ft.	39.5 ft.	39 ft.
from 60 mph	149 ft.	146.5 ft.	137 ft.
Standing start ¼-mile	16.56 sec. @ 74.93 mph	17.46 sec. @ 71.09 mph	15.59 sec. @ 80.57 mph
Speed after ½-mile	80 mph	77 mph	84 mph

Suzuki stayed cleaner than the Yamaha, but still seeped a little oil at the sidecase gaskets. The Yamaha had used no oil, but the Suzuki had. By the time the group reached camp in a mountain meadow after a 250-mile day, the Suzuki took a full

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YAMAHA XT500E

	$1548
	sohc Single
	87 x 84mm
	499cc
	9.0:1
	32mm Mikuni
	oiled foam
	magneto/points
	na
	28.2 ft.lb. @ 5500 rpm
	dry sump
	5.0 pt.
	2.3 gal.
	low- or no-lead
	primary kick
	6v 74w alternator
	6 amp-hour
	multi-disc, wet
	straight-cut gear
	#520 chain
1st	5.49
2nd	6.47
3rd	8.40
4th	10.98
5th	16.64
	telescopic fork
	swing arm
	3.00-21
	4.00-18
	6.3-in. drum
	5.9-in. drum
	37.7 sq. in.
	12.7 lb./sq. in.
	55.9 in.
	29.5 deg.
	5.0 in.
	33.8 in.
	33.5 in.
	9.0 in.
	13.0 in.
	8.5 in.
	319 lb.
	43.5/56.5

	4263 rpm
	na
	51.0 mpg
	117 mi.
1st	27.9
2nd	38.6
3rd	49.2
4th	59.6
	+2%
	38 ft.
	137 ft.
	15.19 sec. @ 82.94 mph
	89 mph

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quart, and a little puff of blue smoke was visible with each fast downshift. (The bike would need another quart at the journey's end. The other three bikes used no oil on the trip.)

As might be expected, running that hard did nothing to improve gas mileage. During the entire trip, all the bikes averaged close to 50 mpg (see chart). But the tankful including the wide-open pavement stretch went at an average of less than 40 mpg for the larger machines. The Kawasaki and the Honda both averaged about 36 mpg.

Once at camp, staffers discovered that carrying down sleeping bags inside nylon stuff bags strapped to operational headlights isn't a good idea. Heat from the always-on Suzuki and Yamaha headlights had burned the nylon cover sacks and the surface of the enclosed sleeping bags as well. (Bags weren't attached to the headlights of the other machines.)

After a cold mountain night at 6000 feet elevation, the frost-covered Kawasaki, Suzuki and Yamaha all started without complaint. The Yamaha, in fact, started first kick, and the riders agreed that the XT500 is easier to start when cold than when warm. The Yamaha won't start when hot unless the throttle opening is exactly right. The Honda is the opposite: it starts very easily when warm, but requires critical choke adjustments when cold. Once a rider blows the initial attempts at starting the XL250S, it takes a long series of run-and-bump pushes to get the bike fired up.

The Honda features a cable connecting the kickstarter and the exhaust valve lifter. The device automatically releases engine compression for the first part of the kickstarter stroke, making it easy to spin the engine. Although it lacks both the Honda device and the XT500's manual compression-release lever, the Kawasaki is almost as easy to kick through as the Honda. The Suzuki only takes a firmer prod on the kickstart lever than the 250s. Like the XT500, the SP370 has an indicator window on the side of the right-hand cam cover; positioning a mark in the window tells the rider that the piston is just past TDC and makes starting easier. But the Suzuki's window is hard to see from the saddle, and, unlike the Yamaha, the bike starts easily enough without bothering to look.

The second day was largely devoted to moving from one photo location to another. But before the entourage left the silty dust of higher-altitude dirt roads behind, the Kawasaki was gagging and refusing to rev. Quickly pulling out the easily-accessible oiled-foam filter showed that it was choked with dirt. One rider pulled off a gas line and soaked the filter several times, squeezing and washing out the powder dust. That done—without oil added to the filter—and with the engine cleared out, the Kawasaki ran like its old self again.

The plan had been to ride from one campsite across the mountains to another camp on the opposite slopes. But snow still blocked the one transverse road, and the U.S. Forest Service had closed it. So the expedition headed down the way it came, went around the base of the mountain range, and rode back up the other side.

The road leading to the second site was two lane, paved and as twisty as any canyon racer could wish. It was amazing enough that the trials tires (and the Honda's dual-purpose treads) had endured extended high-speed running on hot pavement the previous day. Even more notable was how fast the bikes could be ridden on curvy mountain roads without getting sideways or crashing due to tire slippage. Traditional trials tires aren't supposed to work well on asphalt. It wasn't possible to dive into corners with all the lean and knee dragging of a road racer. It was possible to put the dual-purpose machines through turns at a very good clip, as long as the rider didn't lean over too far (trials universal tires don't have much wrap-around tread). The Honda's tires were especially sure-footed.

As surprising as the four machines proved to be in the twisties, they weren't so good that a rider could run through all turns wide open. There were, as always, corners that could only be taken at less-than-maximum speed. Which brings up brakes.

The Suzuki's brakes look best on paper and seem to work best in the field, with more power and less fade than the others. The Honda's brakes are the worst, and are simply not strong enough for maximum safety. The Kawasaki and the Yamaha fall between the other two, but the Yamaha's brakes, although as strong as the Suzuki's in spec-chart braking tests, fade relatively quickly. In one stretch of fast riding on a curvy road, the Yamaha filled the air with that crispy-brake smell while the required force at the front brake lever—and lever travel—increased with each succeeding turn. Unless used hard time-after-time in the canyons, the Suzuki, Kawasaki and Yamaha have adequate brakes. The Honda's brakes are marginal.

For the variable traction of off-road riding, all have sufficient braking power. The Kawasaki's rear brake, however, lacks controllability. It locks up instantly, especially in sand or on a loose surface with harder dirt underneath. Keeping the rear brake unlocked on downhills is easiest on the Honda.

It was homeward bound on the third day, via a combination of highway, power-line-access dirt roads, and some trails. A wheelie contest proved that the Suzuki and the Yamaha can loft the front wheel easily in third gear because they have power. The Honda can wheelie straight-up for miles—providing the rider starts in first gear, powershifts into second and stays there—because it has near-perfect balance. Standing up the Kawasaki for any distance is impossible.

Once at speed, a rider can't just dial on the power and bring the front wheel up to clear obstacles on any of the bikes—they don't have the kind of power-to-weight ratio and light front end that better off-road two strokes do. And on an expressway near the trip's end, the two 250s couldn't hold an indicated 60 mph in the face of a strong headwind, unless the rider tucked in.

The perfect dual-purpose bike remains to be built. Honda's work has reduced weight with open-loop frame and stressed engine; gained handling with innovative tire tread patterns and more travel; and improved comfort with secondary balancers and compliant suspension; all bringing the XL closer to the ideal. But the Suzuki is almost as light, and naturally has more power. The Kawasaki isn't quite enough, the Yamaha a bit too much, and both lack fork and shock travel. If the Honda had more engine or the Suzuki had more suspension . . .

As it stands now, the Honda is the best of the bunch. It isn't the quickest or the fastest and it needs better brakes. But it's the smoothest on the pavement and the surest in the dirt.

Each bike has its limitations. But each can carry a rider and gear from the city into the country and back again, with pleasure, and that's the whole idea.