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NEWS FLASH

After four gruelling days at the Australian Enduro Championships, winner*, John Hand really appreciated the comfort of his Lazer helmet.

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DIRT BIKE TESTS



HONDA XL500RC vs XT550J: Thumpers to Cape York!

YAMAHA XT200J vs HONDA XR200: Two-strokes beware!

SUZUKI DR250 and HONDA XL250R: Market leaders analysed.

KAWASAKI KDX175 and KLX250B2: Big Green's dirt runners.

YAMAHA IT250J and SUZUKI PE175: Enduro-winners both.



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Bruce Allard

By the editors of
TWO WHEELS Magazine.
ARTIST — John Taylor

TWO WHEELS DIRT TESTS is published by The Federal Publishing Company Pty Limited, 140 Joynton Avenue, Waterloo, NSW 2017. Phone (02) 662-8888 Sydney. Printed by ESN - The Litho Centre, Sydney. Distributed by Gordon and Gotch Limited, Sydney. Cover price \$1.25 (maximum and recommended Australian retail price only). All material published in this magazine is copyright and cannot be reproduced, in part or in full, and by any means, electronic or mechanical, including photocopying, without the written permission of the publisher. All rights reserved.
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Dirt Test

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KAWASAKI KLX 250

Can A 'Clean Green' Ever Be Serious About Enduros?

The free-spinning forest firebreathers have little to fear from Kawasaki's four-stroke alternative, but it is light, good on steering and suspension and offers ADR approval and a very competitive price tag.

In a marketplace covering extremes in off-road machinery, Kawasaki's KLX250 offers an attractive compromise between the full-on enduro machinery and the less-than-adequate dual-purpose trail bikes.

The KLX represents an unusual and unique combination of motocrosser, trailster and enduro mount. From the motocrosser it has inherited a lightweight yet rigid frame. The trailster provided the four-stroke powerplant — albeit a touch underpowered — and the enduro clothing and suspension are in part reminiscent of Kawasaki's successful KDX175. The combination of these generic characteristics has culminated in the KLX250, a bike with

handling and suspension unparalleled by any previous Japanese four-stroke dirt bike.

So, what's the merit of a bike with handling and gadgetry worthy of a serious enduro machine if it's fitted with an impotent motor? Many riders would retort that the KLX fulfils a role as a serious off-road mount and yet retains some of the niceties and road manners of a four-stroke powerplant. We concur; here the KLX has found favour with the serious trail rider and this appeal has been demonstrated by the popularity enjoyed by the model since its inception in early '80.

Engine and gearbox

Although the KLX displays many of the fine characteristics of an enduro machine its four-stroke powerplant puts it at a considerable disadvantage when lined up in direct competition against its two-stroke rivals. Indeed the other enduro mount in the Kawasaki stable, the two-stroke KDX175, would have the KLX eating dust in most encounters. But this is not where the KLX is at: It offers tractable, usable power adequate for most applications while retaining the economy and reliability characteristic of most four-stroke machines.

Basically, the KLX powerplant was inherited from Kawasaki's dual-purpose trailster the KL250. It retains the slightly oversquare 77 x 64 mm bore and stroke and the same, dependable bottom-end, though in these days of patented combustion chambers, four-valve heads, twin exhaust ports and dual-throated carburetors the basic two-valve design does seem a little behind the times. By modifying the breathing of the KL engine Kawasaki has been able to raise the power output by a couple of kilowatts to

a barely-adequate 17.5 kW. The modifications include different cam profiles, a more-than-sufficient 32 mm (slider) Mikuni carburettor and a new exhaust pipe. Furthermore, the compression ratio has been raised to a hefty 10.7:1.

Unfortunately, these modifications (especially the latter) have introduced a few liabilities. In standard tune the fuel/air mixture tends to run rich when the engine gets hot (like when trying to keep up with two-strokes). We're also aware that some KLX engines knock when under load. If allowed to continue unabated this premature detonation could destroy the piston and/or bottom end. To overcome these symptoms on our test bike we corrected the float level, lowered the needle one notch and ran a 1:4 mix of Shell 115 octane and supergrade petrol. This eliminated the knocking and marginally improved the overall performance.

Obviously the KLX represents a bonanza to manufacturers of after-market hot-up accessories. There seems to be no end of local and imported big-bore kits, performance cams, valves and pipes designed to extract more horsepower from the KLX donk. Here we offer a word of caution. Engine manufacturers such as Kawasaki go to great lengths to ensure components such as pistons, bearings and overhead gear are compatible. We know from personal experience that not all hot-up kits are ideally suited to an engine. If you have ideas about increasing performance, research them first. Find out from several dealers or, better still, other owners, just how well the modification works and if it has caused any unforeseen difficulties.

A simple (and inexpensive) port and polish would go a long way, combined with fitting a less restrictive, tuned exhaust pipe.

In keeping with a philosophy of weight reduction the KLX engine has no counterbalance weights, though the magneto flywheel imparts a substantial amount of momentum. Complementing this, the five-speed gearbox offers an excellent range of ratios, with first gear low enough (28.5:1) to allow the rider to attempt difficult terrain at comfortable speeds. One inconvenience of the overall low gearing though is that the engine tends to over-rev when speeds exceed about 80 km/h. Ideally, we would like to see the KLX with a six-speed gearbox so faster cruising could be afforded without sacrificing low speed agility.

While both clutch and gearbox operated without fault throughout our test, the same could not be said about the final drive chain. Amongst other factors, the large distance between swingarm pivot and the "small" 14-tooth countershaft sprocket meant that chain stretch was excessive and required constant attention. Consequently, the chain had a tendency to rattle against the nylon swingarm protector, especially

when the power was backed off. The rear sprocket also had a tendency to

vibrate loose. Owners would be well advised to wire or locktite the mounting bolts into the rear hub.

The KLX airbox is well designed, containing a one-way valve in the base, with air entering from under the seat of the bike. During our test we found the KLX to be amazingly watertight, even during brief periods in tank-depth river crossings the engine burbled on. Unfortunately the magneto cover did leak some water, though unlike a breaker-points ignition, the KLX CDI unit remained unaffected by moisture. A light coating of Silastic on the gasket surface would cure this problem.

Servicing the aircleaner requires the removal of the seat (two bolts) and a protective rubber covering. From this position the oiled foam filter can easily be detached. Bearing in mind the difficulties experienced with the fuel-air mixture, it would be advisable to service the aircleaner regularly, especially if a lot of dusty riding is anticipated. Ideally, we recommend soaking the filter in a very low viscosity oil, being careful to remove any excess.

Starting the KLX involved no undue drama. Cold, using the choke, it would usually start first kick, certainly within three. When hot it was a little more variable, usually ranging between one and five kicks to inspire engine life. We liked the oil level sight glass as it meant the rider was more inclined to check the oil level than usual.

Frame and suspension

Today's KLX owes much of its handling grace and trim figure to the pre-Uni Trak KX125 motocrosser from which it was sired. Frequently engine transplants transform a fine-handling

machine into a wicked hybrid, but in that sense the metamorphosis into the KLX has been one of engineering bliss.

To accommodate the taller four-stroke powerplant the upper backbone gusseting has been altered slightly, including a new mount for the engine rocker-cover and slight modification to the existing mounts. Other minor changes included a slightly steeper steering rake, relocation of the upper rear shock mounts and the addition of a grab-rail and support for the larger rear guard.

The strength and rigidity of the frame have not been compromised in its transformation, and the fine balance and compliant suspension have ensured a superb handling package. If there's an Achilles heel it's the largely unsupported overhang of the subframe loop. Excessive loads on the extreme rear of the bike could provoke fracture near the upper shock mounts.

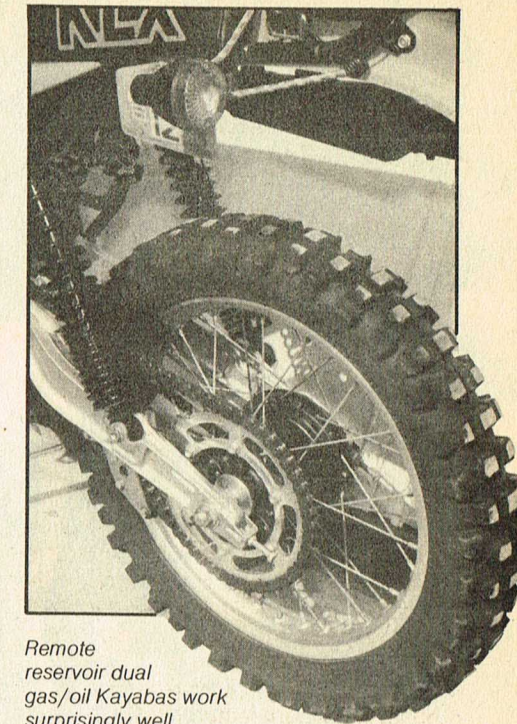
The point is though that less pipes mean less weight. It is primarily the lightweight chassis which accounts for the surprisingly low all-up weight of the KLX. By way of comparison, the KLX at 100 kg, is one kilo heavier than Yamaha's two-stroke IT250J, and some nine kilos lighter than the non-registerable XR250 Honda.

Moreover, by using lightweight suspension components coupled with the retention of the small yet effective brakes from the KX motocrosser (common also to the KDX) the unsprung weight of the KLX has been minimised.

While the bike retains a conventional twin, laid-forward shock setup the action of the rear units is impressive. By using dual-rate coil springs the 250 mm of rear wheel travel has been complemented by a mild rising-rate resistance to compression. The inverted Kayaba gas/oil damping units feature remote reservoirs which have been tucked away behind the sidecovers out of harm's way. Adjustment to the spring pre-load is achieved by depressing the spring and inserting the circlips at the appropriate setting — a fiddly procedure.

Supported by needle rollers, the massive I-beam aluminium swingarm combines strength and lightness with an unusual beauty. The region near the swingarm pivot is heavily gusseted and the quality of the fillet welds ensures that the swingarm remains flex-free. If we were looking for ideals though we'd demand grease nipples at the swingarm pivot (on all off-road bikes).

Up front the leading axle forks are air-assisted, affording greater diversity in controlling the 250 mm of front wheel travel. Pivoting on tapered roller



Remote reservoir dual gas/oil Kayabas work surprisingly well.

bearings, the alloy triple clamps use eight pinchbolts to secure the 36 mm fork stanchions. We couldn't detect any difference between the KLX front end and that of the more serious KDX.





Though small, brakes on the KLX are fairly effective. Slowing from high speeds on good surfaces they're characteristically impotent, but for most trail work they performed adequately. Brief watercrossings did not dampen their spirit to any great extent.

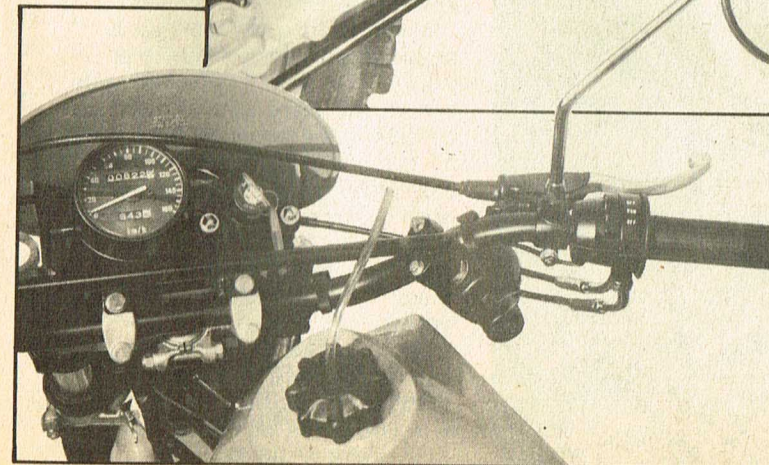
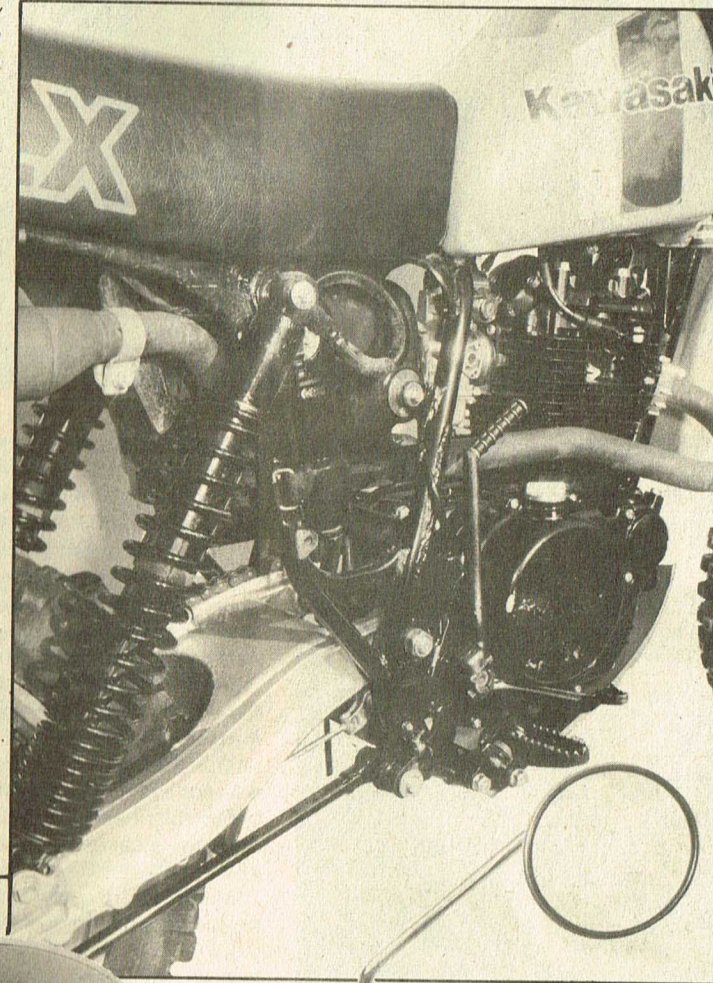
Off-road riding

The first impression when sitting in the saddle of the KLX is its considerable seat height. At 945 mm it soars over comparable machines by a considerable margin. Such is the legacy of the long-travel suspension the model enjoys.

For a bike which, in the final outcome, is rather under-powered the KLX can

Extravagantly large I-beam swing arm on the KLX is a real eye-opener. Frame gusseting near pivot point is obvious here. Combined with the inverted dual-rate shocks, the handling gains make it all worthwhile.

Below: The usual "dual purpose" instruments and controls. Token blinkers tucked out of harm's way by being handlebar mounted, speedometer only and conventional throttle. Tank appeared to be curiously larger in capacity.



certainly be used so it's no slouch off-road. Unlike the two-strokes it takes a while longer to wind up, but once underway it can be amazingly quick — kinda sneaks up!

But of course all the power in the world is of no use if you can't apply it. Whether competing in an enduro or just social trail riding, it is more important to have a machine with good balance, compliant suspension and precise steering — essentially a machine which handles well over all types of terrain. It's here that the KLX shines. What it gives away to competitors in raw power is more than compensated by its refined off-road manners.

The bike's trump card is most certainly

its superb steering. Whether fireroading or in tight forest sections, the KLX steered both quickly and precisely. Complementing this, the low weight and good balance mean the bike is highly responsive to rider inputs — throwing the bike about was easy even for smaller riders.

Certainly one of the important considerations influencing the fast steering is the steep 28 degree fork rake and short 121 mm trail. From this geometry we expected some difficulty in steering through deep sand or loam, however our fears proved to be purely imaginary. On hard ground even at higher speeds the standard Bridgestone rubber seemed to be the only limitation to an otherwise excellent responsive steering.

Actually we found the best way to tackle most trails was to hold the throttle on and use the gearbox to regulate speed — kick down a gear or two coming into a corner and use engine braking to slow, get the bike sideways into the turn and power on for a speedy exit out of the bend. What astonished us was the forgivingness and strong self-preservation instinct displayed by the KLX. By keeping the power on instead of panicking the KLX would usually ride out the turmoil. For those other instances the KLX proved to be amazingly resilient, usually coming off better than the fallen rider.

Over all types of terrain the suspension maintained a good posture, giving adequate "feel" free of back wheel chatter over small surface irregularities and progressively absorbing larger jolts. Scrambling over rocky, boulder-strewn slopes both front and rear units performed as a team allowing the rider to retain line. Although the recommended air pressure for the front forks is 12 psi we found that with 15-18 lb the front wheel tracked better and was less inclined to disappear under the bike when braking hard.

Road riding

Normally we would pay little attention to this category because most enduro machines are totally unsuited to regular road use. While we realise that little can be done about the ineffective brakes and headlight, the KLX has potential as a commuter only for short distance highway use.

We did not ride the bike extensively on the road, but quickly found that many of its off-road attributes proved equally applicable. Unlike two-stroke enduro machines, which are difficult to maintain at a constant cruising speed, the KLX purred along quite effortlessly. Along tight or windy roads, especially badly-surfaced sections, the KLX



returned an impressive performance — better than many road bikes.

But at conventional highway speeds the bike is revving its heart out. Regularly we would try to change up to a sixth gear that didn't exist. Above 90 km/h (7000 rpm) the vibration through the footpegs became quite uncomfortable. The solution is simple —

alter the final drive chain ratio; say 15-tooth countershaft and/or 44-tooth rear. The KLX powerplant could easily accommodate this taller gearing without detracting from its off-road performance. An added bonus would be an improvement in fuel economy.

In hillclimbing most four-strokes have a natural advantage — the KLX more so.

Outstanding engine tractability, suitable gearing, good traction and frame design combine with reckless bravado to produce a machine which has the ability to climb slopes that seem to defy the Laws of Physics. Actually the KLX did try to climb a tree once — nearly succeeded too! It was a nasty business. The bike has much better luck with trees that have already fallen. Climbing over logs the engine momentum inspired by the massive flywheel proved extremely useful. The ground clearance of 310 mm was sufficient, though the aluminium bashplate does not adequately protect the engine cases especially near the clutch actuator.

Starting from a stationary uphill position presented few difficulties, though once underway the transition into second gear was often awkward because of the large ratio jump. Many riders found the tall saddle on the KLX prevented them from footing, especially when climbing hills or over obstacles. This problem is better solved by individual riders to suit their personal needs — we recommend longer legs or high heels.

Dressed in full enduro attire the KLX features the same quick release headlight, toolbag and broad mudguards as the KDX. The fuel tank (peeling stickers and all) holds closer to 11½



litres than the 9½ claimed by Kawasaki — handy for your two-stroke friends who run out of juice. However the bike retains the archaic and vulnerable twin cable throttle and pull-back chain tensioner.

Conclusion

Well, there you have it. A handsome performer off-road, and capable on-road within obvious limitations! With quick, precise steering, superb handling and suspension worthy of comparison to the trick single-shock designs, the KLX could only be described as a magic little package.

One of the most impressive aspects of the bike is its light weight — 110 kg for a four-stroke 250! We don't know of any other four-stroke dirt bike for under \$2500 which can claim so many fine traits. While the motor is under-powered by comparison to its two-stroke opposition, the KLX delivers ample usable power for non-competition use. After all, upgrading the power output of the motor is considerably easier (and cheaper) than transforming an ill-handling bike into a machine with the handling grace of the KLX.

While the model would be quite at home in any enduro it would be more suited to the rider interested in the enjoyment (?) of the event rather than its



"Watch me fly! Maybe one day I'll have a big green grunty monster . . ."

conquest. Ideally, the KLX is a bike for the serious trail rider, fulfilling all of the functions of a dual-purpose trailster but displaying much more off-road refinement.

Although we have yet to evaluate

Suzuki's DR250, at present Kawasaki's only direct challenge comes from the non-registerable XR250 Honda and at \$1624 (or less) it has a \$250 price advantage. That's good value for money if ever there was!

KLX 250

ENGINE

Air-cooled, single-cylinder, four-stroke. Single overhead camshaft with two-valve head. Pressed crankshaft supported by roller bearings with needle-roller big end and plain little end.

Claimed power.....	17.5 kW at 8500 rpm
Claimed torque.....	20.2 Nm at 7500 rpm
Bore x Stroke.....	70 x 64 mm
Displacement.....	246 cm ³
Compression ratio.....	10.7:1
Carburetion.....	32 mm (slider) Mikuni
Air filter.....	Oiled foam
Ignition.....	Electronic capacitive discharge
Lubrication.....	Wet sump

TRANSMISSION

Straight-cut primary gear drive through wet multi-plate clutch to five-speed gearbox. One down and four up pattern. Final drive by single row No. 520 roller chain. Primary kickstart.

Ratios (overall) and calculated speeds at 8000 rpm.

First.....	28.45:1 (34 km/h)
Second.....	18.70:1 (52 km/h)
Third.....	14.00:1 (69 km/h)
Fourth.....	11.33:1 (85 km/h)
Fifth.....	9.44:1 (102 km/h)
Primary reduction.....	3.285:1 (69/21)
Secondary reduction.....	3.285:1 (46/14)

FRAME

Tubular, welded full cradle. Single front downtube, double lower cradle and upper backbone. Welded, aluminium, I-beam swing-arm supported by needle-roller bearings. Alloy triple clamps pivoting on tapered roller bearings.

FRONT SUSPENSION

Kayaba leading axle hydraulic forks, 36 mm diameter stanchions, two-way oil-damped with single-rate internal coilsprings. Air-assisted preload.

REAR SUSPENSION

Laid-forward, inverted Kayaba gas/oil damper units with dual-rate external springs; circlip preload adjustment and remote damping reservoirs.

Front suspension travel.....	250 mm
Rear suspension travel.....	250 mm
Fork rake.....	28 deg
Front wheel trail.....	121 mm
Front brake.....	120 x 28 mm sls
Rear brake.....	130 x 28 mm sls
Front wheel.....	DID 1.60 x 21
Rear wheel.....	DID 1.85 x 18
Front tyre.....	3.00 x 21 Bridgestone Motocross M-23
Rear tyre.....	4.00 x 18 Bridgestone Motocross M-22

DIMENSIONS

Dry weight.....	110 kg
Seat height (bike unladen).....	945 mm
Wheelbase.....	1435 mm
Ground clearance.....	310 mm
Swingarm length.....	510 mm
Fuel capacity (incl. reserve).....	9.5 litres (no reserve)

EQUIPMENT

Footpegs.....	Folding, cleated
Controls.....	Dog-leg levers, non folding gear/brake
Kill button.....	Yes
Centrestand.....	No
Owner's manual.....	Fairly comprehensive
Toolkit.....	Hardly - two tools
Throttle.....	Conventional twin cable

SUMMARY

	Poor	Below Average	Average	Above Average	Outstanding
RATINGS					
ENGINE					
Responsiveness			●		
Smoothness			●		
Low rev power				●	
Midrange power			●		
Top end power		●			
Starting			●		
Quietness				●	
TRANSMISSION					
Clutch				●	
Gearbox operation				●	
Ratio suitability			●		
SUSPENSION					
Front travel				●	
Rear travel				●	
Front operation				●	
Rear operation				●	
Front/Rear match				●	
RIDING					
Steering — soft ground tracks				●	
Steering — hard ground tracks				●	
Brakes overall			●		
Ability to slide			●		
Stability on jumps				●	
Stability and predictability overall				●	
Slow, tight radius turns				●	
Medium, variable radius turns				●	
Fast, wide radius turns				●	
Ease of riding in mud conditions				●	
In sand conditions				●	
Manoeuvrability overall				●	
Ability to forgive rider error				●	
Hill climbing				●	
Competition suitability			●		
GENERAL					
Riding position				●	
Wheel changing			●		
Ride comfort				●	
Tyres		●			
Location of controls				●	
Quality of finish				●	
Mechanical access			●		
Overall design				●	
VALUE FOR MONEY					
				●	

TEST MACHINE

Manufacturer.....	Kawasaki Heavy Industries Ltd.
Test machine.....	Kawasaki Australia, Alexandria, NSW
Price.....	\$1624

Best points: Excellent suspension, handling and steering. Lightweight. Good engine tractability and fuel economy.
Worst points: Modest engine performance, noisy drivechain, tall seat height.



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