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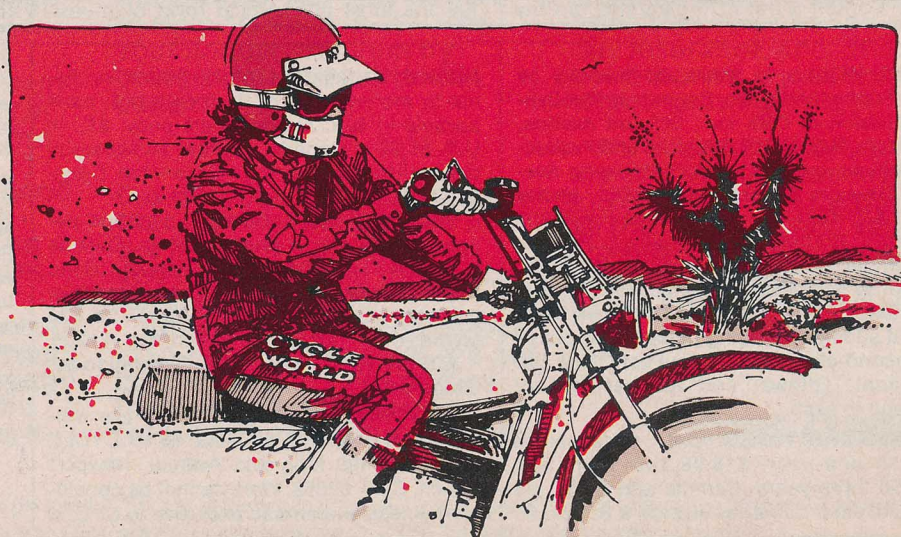
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KAWASAKI KZ1300 DRESSED FOR THE OPEN ROAD/*photographed by Mark Katayama*





# HONDA XR/XL185

*Two Lightweight Four-Strokes That Would Be Good Bikes Even If They Weren't Four-Strokes.*



■ **Don't-We-All-Wish Dept.:** You are head of research and development for a large motorcycle manufacturer. You and your team have just finished a major project, a range of dual-purpose bikes into which you put every new idea in the house.

Now management has another assignment. Do another set of dual-purpose bikes. This time they must be smaller and because the marketplace is fiercely competitive and price conscious, this project has a limit. You must review all the breakthroughs from the earlier job and then decide which ones should be on the little uns and which ones aren't needed.



If you did the job right, you'd come up with Honda's XR185 and XL185.

The 185s are excellent work. They're also a pair of bikes with the same general outline and yet with marked differences. Siblings, so to speak, but not twins.

The shared parts begin with the 185 engine, offered in XR and XL form. They are basically the same engine, descended from the XL125.

Right, the 125. The XL175 had the correct displacement but it was in effect a scaled-down 250; too tall and too heavy. Honda R&D worked out how to pack 185cc worth of gears and primary drive and crankshaft, etc., into the 125 cases and topped that with a new barrel. There's one camshaft, on the head, and two valves. The trimmed-back package was predicated on low weight, so the engines didn't need

complicated ways to get power.

The XL engine has a normal compression ratio, 9.2:1, a 24mm carb and a hefty muffler. That and the carb jets are set for road-standard emissions.

The XR engine has a 26mm carb, a lighter muffler limited to public land and forest service standards; less restriction and a few more decibels. The XR185 has the incredible c.r. of 10:1. Honda's CX500 also has a 10:1 c.r., but in that application, the water cooling protects the engine. The XR185 is air-cooled, and the factory recommends low-lead gas. And it works.

Because of the variation in c.r. and breathing, the XR is rated at 18 bhp at 9000 rpm, and the XL at 15.3 bhp at 8000.

What's new about the shared engine parts is the compression limiter, first seen on the 250 and then justified on the 500.



Overdone, one might think, as although there are many of us who've been bitten by a big four-stroke Single the smaller Hondas have not had this habit.

What the 185 doesn't have is counter-balancers, dual or single or anything. Just the normal weighted crankshaft and the alternator/flywheel. R&D decided or proved through experiments that whatever degree of smoothness is required for the stressed-member frame can be achieved with the smaller engines without going to the balancers.

Price note here. The rule until now has been that when you offer dirt and dual-purpose versions of the same basic model, you make the dirt job by taking things off the streeter, which also means the play bike sells for less.

Not with the XR and XL. Honda has packed another gear into the XR, for six total, while the XL still has five. As you'd guess, the internal and sprocket ratios are juggled to match intended use. A nice bit of juggling it is. The two engines use the same primary drive ratio, but the enduro-aimed XR has a lower, that is, higher numerically, first gear, the better to chug through mud or sand. The lighter-duty XL doesn't need the grunt on pavement or trails. Respective top gears, 5th for the XL and 6th for the XR, are nearly the same. But the sprocket ratios aren't. The XR is turning faster at equal road speeds so it has more pulling power, more acceleration. The six-speed box is in a way a wide ratio system. The XL has more top speed, lower revs per mile and goes more miles per gallon. To each what it's supposed to do.

And a useful feature for the extra money.

Honda surely does like the stressed-member frame, with the engine serving as its own cradle. We were told with the 250 and 500 that the counter-balancers were there to keep vibration not from the rider, but from the frame, which would otherwise have had to be heavier.

The 185s don't have this much vibration, evidently. The stressed-member frame in this application means no tubes under the sump. That's an extra inch or so of ground clearance, or a lower engine that also gives a lower seat height, center of gravity, etc. Or you can give added wheel travel because you've got more room with the engine at normal height.

Which one comes first matters little here. Instead, the result is a competitive combination of seat height, ground clearance and wheel travel when compared to the XR/XL's natural rivals, the IT/DT Yamahas and PE/TS Suzukis, each of which has either less clearance or less travel or a higher seat. Not bad, considering the traditionally high four-stroke in the Honda models.

The frame is also different in execution. The junction of steering head, downtube and backbone—a narrow over-and-under triangle—is formed from a combination of tubing and stamped steel sections. Good

way to spread load and reduce stress, although because the stamped steel frame was phased out of most applications years ago, it gave us a turn to see it here. Another stamping joins the downtube and the engine. The engine mounts and swing arm pivot share a lug and there's a head stay from the rear of the head to the backbone-rear frame tubes junction. The aft section of the frame is a duplex Y, with the short tail of the Y extending down to become a mounting place for the rubber-cushioned footpegs. The springiness of these pegs, which fold and are properly toothed, by the way, can be surprising to watch when the starter lever bumps the right one or either one flexes under foot. Held up, though.

Both models have a carefully formed skid plate running the full length of the engine and even curled up behind the cross-tube back of the engine. The plate is narrow, though. The XR has folding shift and brake pegs, the XL doesn't. Both sets extend beyond the plate.







(Getting out of sequence, we managed to bend the shift levers on both bikes, spring-loaded or not. This happened during a "Betcha" section of our test riding: "Betcha I can ride up that narrow creek.")

"Hail you kin."

"Just watch."

Both bikes made it. And both levers proved malleable enough to be straightened on the trail.)

The 185s' suspension is similar to the 250s and 500s, with no-air forks, leading axles, and long gas-charged shocks with the lower shock mounts atop the rear axle. Rear springs are straight-wound for the XL, and just slightly progressive for the XR.

The spring and damping rates are different for the two models. Honda tech people said one of the reasons for the XR selling for more than the XL was that the XR comes with better suspension. There is no sign, from the specifications or from riding, as to where and how this cost-cutting was done.

The 185s are less developed than the 250s and 500s, in that the bigger bikes share with the motocrossers the four-bolt fixing caps for the front axles, and the double-bolt clinchers on both triple clamps. The 185 axles use tapered holes in the slider castings, and only one bolt for the upper triple clamp.

Suspension measurements are different, too. Due to its intended use, the XR has 0.6-in. more front wheel travel and one full inch more rear wheel travel. This naturally brings more ground clearance and a higher seat and because the front wheel is farther from the steering head, the XR has a longer wheelbase.

Not as much longer as you'd expect,

though. The frames differ at the steering head. The XR is steeper, 27.2° vs 28.5°. Trail is the same for both, because the XR's taller tire tread lifts the axle and thus extends the distance between the wheel contact point and the line from steering head to ground. We'd guess the steeper rake is to equal out the longer wheelbase. Both models are stable at top speed, and both feel alike on the straight.

Missing from the 185s is the 23-in. wheel and tire Honda now uses on the larger four-strokes, and the CR125. Why? They didn't say. Most likely it's because the taller front wheel requires a higher steering head and more clearance for the downtube and between the top of the tire and the fender. To do this on the 185s would have meant changing the rest of the bike and presumably Honda didn't reckon the benefit to equal the bother.

The 185s do get the Honda-developed tire treads, the semi-knobby (trials universal? Will they be legal in trials competition?) for the XL, the claw-pattern with enduro side knobs for the XR. The 2.75 cross-section is surely right for the light XL185, although it means we owners of older enduro bikes can't get the tires in a 3.00 x 21.

Brakes on both are smallish drum. The 250's protected positioning of the front lever and cable are missing here, although we had no trouble with the leading-link, as it were.

XR and XL differences within the 185 line are almost all street vs dirt, that is, the XL has full road equipment, with a battery living in a house with picture window and with turn signals on flexible mountings, a lightweight taillight and a tool box bolted to the rear of the frame just below the fender. The instrument panel is less styled

than the one on the XL250 and 500 and the choke knob is next to the speedo, rather closer than the gloved hand will find convenient. The XR's trail headlight lives in the square number plate and the tiny taillight is rubber-mounted on the rear fender. The tool box is a molded plastic tray with a vinyl cover, closed by zipper and snaps. The tool kit is held in the box with a damnable rubber strap. One quickly learns first, that one cannot repack the tools as closely as they were packed in the first place, and second, that the expanded tool roll makes the rubber strap a two-hand pull. Don't the R&D guys ever wear gloves when they're testing prototypes?

The dirt equivalent to self-cancelling turn signals has got to be the chain tension guide on the chain guard of the XR185. It's a diagram, with pictures showing when the chain is too loose and has been pulled up to *here* by the tensioner, and showing how low the chain should be when properly adjusted. As with cancellation by computer, first you laugh that the factory thinks you need help, ha ha. And then you learn how easy it is to look at the picture every few rides and adjust until the chain and picture line up. It's hard to stay mad at somebody who's got your number.

Okay, Honda's budget-based dual and dirt 185 get the new tires, the suspension and stressed member frame. They have the lever-linked compression limiter. They don't have four-valve heads, or dual exhaust pipes, or counter-balancers.

They also don't have weight. In the 250 and 500, the extra poundage is justified. With the 185s, it simply isn't there. The bigger Hondas weigh more than the competitive two-strokes.

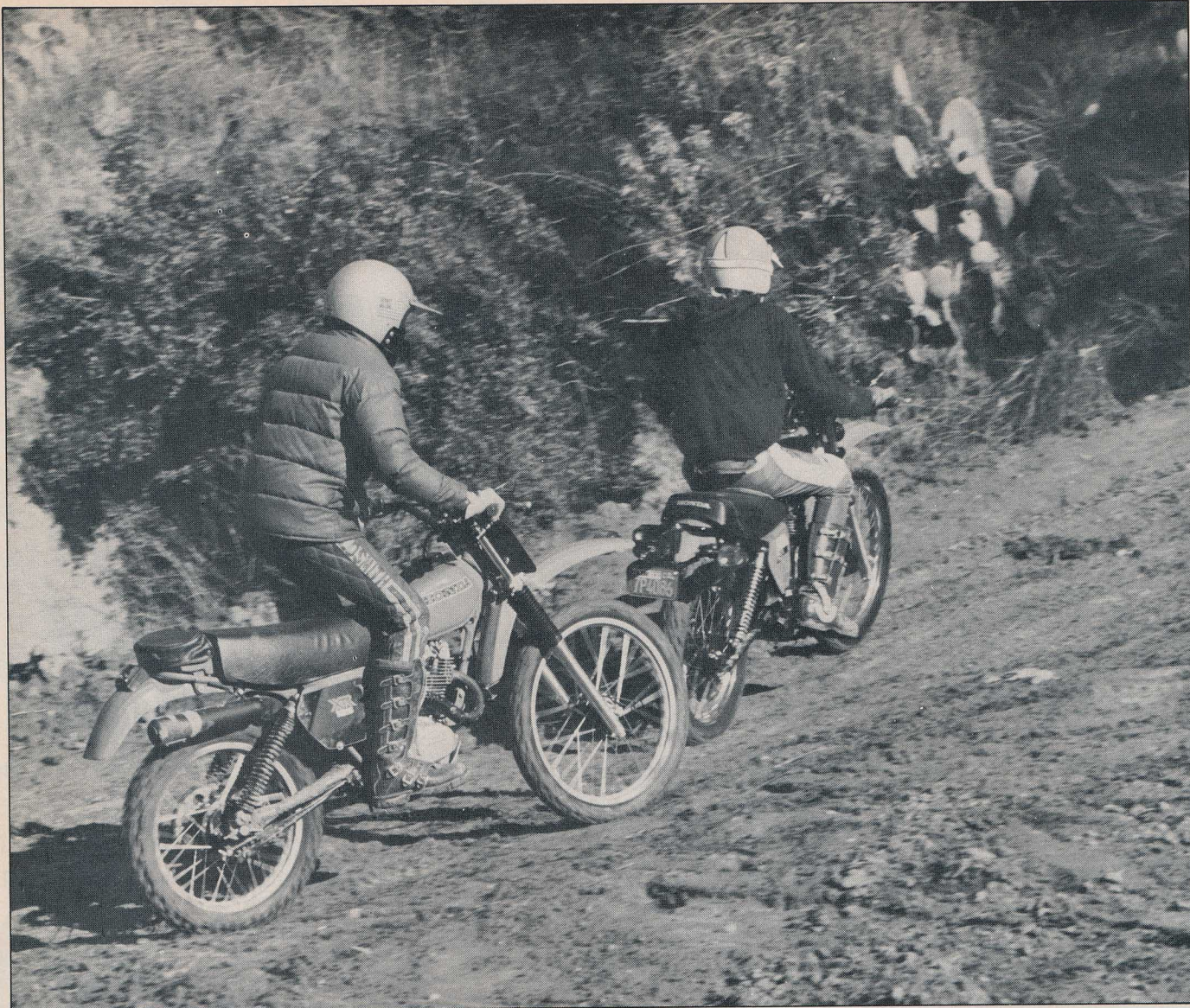
Test weight of the XR185 is 234 lb. Our test weights for the PE175 Suzuki and IT175 Yamaha were 228 and 236 lb. respectively. We're a bit out of touch with the dual-purpose Yamaha and Suzuki but we'd bet the XL's 249 lb. is right close to the others. Better than ballpark, in other words and although the XL185 won't out-drag the late-lamented Can-Am T'NT 175, the class champ, it's safe to say that the Honda 185 in either trim is equal to the Suzuki or Yamaha 175 two-strokes in similar trim, i.e., dirt or emissions-controlled.

Now that's something new. Those of us who've been waiting for the two-stroke fad to blow over can honestly say that we have with the Honda 185s two lightweight bikes. No need to mention reliability, miles-per-gallon, different engine characteristics. The 185s need no handicap. The bigger four-strokes offer something different, the 185s offer parity.









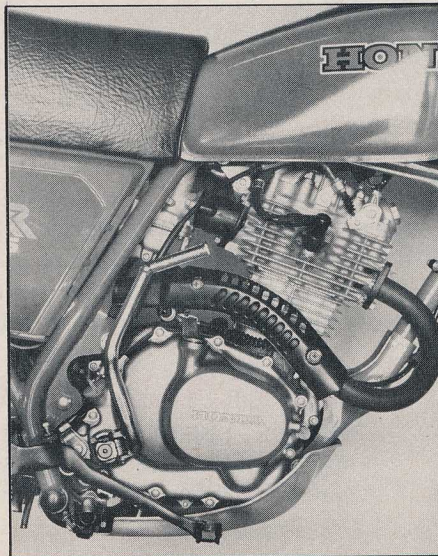
We are speaking of two models here. Because they are different, we should mention what one will do and the other is forbidden to do, that is, play in the traffic.

We were initially surprised by the XL185. We knew about big four-strokes and were happy to report that the Honda 500 is no more difficult to start than, say, a 185.

Flop that. Turns out the 185 is no easier to start from cold than a 500. It isn't the effort, as in how hard it is to kick down. The compression limiter takes care of that. Instead, the 185 is touchy in regard to how much choke is needed. Most cool mornings it took a few minutes of jumping on the lever and fiddling the knob before the 185 would keep running. Doesn't leap out of bed with a smile, in short. Yeah, it may be the feds and their rules, but other Singles meeting the same rules aren't this picky.

Also on the debit side of the ledger, the shifters on both XL and XR were troublesome. They'd balk in neutral, and next thing you know a brush of the toe would flip the gearbox from 1st or 2nd into neutral. Just what you need on a tricky

rock section. The test bikes were early production models, so early that the factory kept calling with changes in specifications while this was being written, and one



*Stressed-engine frame and shaped skid plate give good ground clearance and low tank/seat height, despite valve gear.*

hopes the problem will be fixed ASAP.

The odometers don't have instant rewind. The XL's turn signals are tucked out of harm's way and out of sight, while the warning light isn't bright in the daytime, so our less organized riders found they left the lights on more than usual.

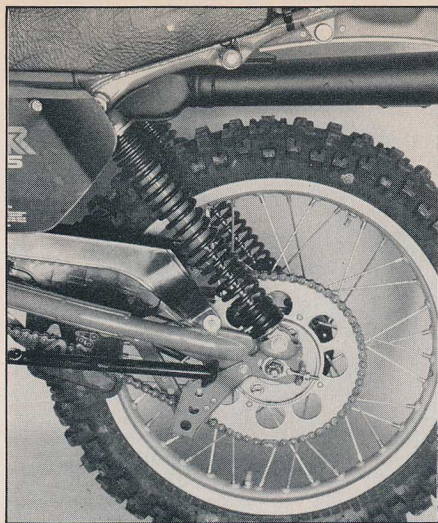
End of debit side of ledger.

Our mileage loop tends to favor large engines, as the rules call for maintaining posted speeds or keeping up with traffic, whichever seems safer. For the CBX or KZ1300, such speeds are the equivalent to sitting up in bed. For the XL, with a top speed of 65 or so, it's flat out all the way, wound to the max in all gears . . . for a result of 75 mpg. Wow.

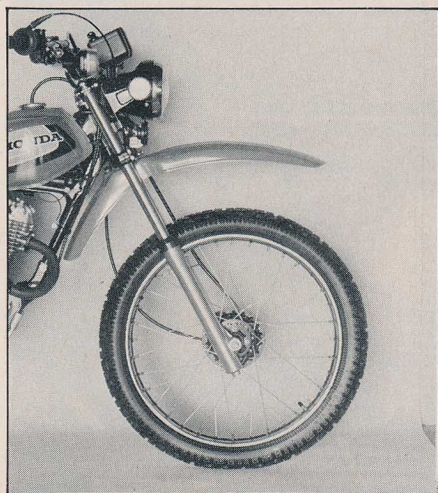
The XL's brakes lack the sheer power of dual front discs, no big deal as the brakes equal the performance. Prudence, as with any small bike, is all it takes. Once again, Honda's tires work well on pavement, with as much grip as needed. Vibration is only noticed through the pegs, the seat is good for at least an hour at a time.

The seat-bars-pegs relationship is fine. One size fits all, as they say. Kids on staff rode the XL off-road and had no trouble.





*XR and XL have long gas-charged shocks tilted severely forward. Look closely between swing arm and chain and you'll see the diagram for chain adjustment.*



*Conventional 21-in. front wheel gives better clearance and equal travel for the same steering head height. Honda's trials and knobby tire tread designs are fitted to the appropriate 185. Both work well.*



*Leading axle forks use tapered shoulder on both sides. Brake lever looks exposed, but didn't suffer damage during test. Sturdy return spring protects against mud clogging the works.*

Our tallest man, 6-ft plus, reported a complete lack of cramping.

The XL is practical transportation, in sum.

There's value beyond that. Sometimes we get specialized and although the usefulness comes through, we forget that a small bike has virtues all its own. If the CBX is rewarding because of all that performance, never mind if you can use it, the XL is rewarding because you can use it all, never mind how much there is. How often do most of us get to run a motorcycle flat out, all the time, right to the stops? How many times do we use the performance we've paid so dearly for? You'll use it all with the XL, so if an occasional Corvette dusts you at a light, the next 500 he meets will even the score. Or he'll get nailed by a cop who won't even glance up as you rocket past, flat on the tank.

For the XR, we get dirty. Comparing note for note, the XR is better tuned than the XL. After a week or so of learning just how much of what to use when, starts became first kick, hot or cold. The XR's transmission had the same problems, though.

The uncharacteristic characteristic for the XR was that for a four-stroke, it was mighty like a two-stroke. The high compression comes through not with ping, but with fins that ring, the full-power noise you also hear from the high c.r. enduro bikes from Europe. Didn't seem to do any harm, though.

The exhaust noise isn't low. It's, well, toned. There is no bark or sharp edge to the sound, so that while there isn't much back-pressure and thus the engine is working efficiently, there isn't enough noise to bother people.

The flywheel and the four-stroke's natural willingness to keep turning over under load blend for a fine hillclimber. Just run right up any slope within reason. You can back off for a rock or ledge and get back on the power without having fallen off the cam or pipe.

The intermediate gears seem well chosen. Hard to tell about that low 1st, which comes into play mostly in tight, as in trials, sections.

The XR is a disappointing trials bike. Right, it isn't supposed to be one. But the four-stroke does have that strong low end with traction-aiding kick every two turns, and the XR is short and steep, for quick steering.

The XR also has too much throttle response. Right, too much. Instantly you open the throttle it leaps forward. Instantly you close the throttle, it stops. The XR will coast through tight stuff with precision. It will climb twisty bits under power with precision. In between, uh-uh. No way you can control the throttle closely enough, so all we could tell about the lower gears was that with the revs up, the XR will pull in either of the lower three.

What the XR does best is cover trails fast. The quick throttle works against it in



*Tool bag strap for tool roll is rubber and nearly impossible to fasten.*

slow going and with 18 bhp you're not gonna make time on graded roads anyway, except of course in class with the 175s.

As a mini-comparison, the XR has a shorter wheelbase than the IT or PE, and the XR also has the steepest steering rake and carries a smaller percentage of its weight on the front wheel.

In consequence, the XR steers the quickest, with the IT slowest and the PE in the middle.

Whether quickest is best depends on riding style, as those of us who prefer a stable bike found the XR a touch nervous. Those who complained about the IT's slow steering found the XR much better. The XR works best when ridden with body English; up on the tank for the turns, back on the fender in sand, lightning correction with the bars on switchbacks and the XR keeps pace with anything you'll meet.

Wheel travel falls within class expectations, although because the XR has more travel in front than in back and more weight in back, compared with the IT and PE again, when jumps and such are overdone, the XR tends to bottom the rear wheel more often than the front. Fine. It's the front wheel landings that hurt.

Spring rates worked out about right for the XR's speed. The fastest man, also the heaviest at 185 lb., could have used more stiffness but found no bad manners when he didn't have it. The lightest, 140 lb., managed to hit the stops only once, at the end of a series of 40-ft. whoops. For racing, stiffer springs will be handy. For riding, no need.

Damping is a shade light at both ends on rebound. The forks reveal this by topping out on hills, and the rear wheel sometimes returns to full extension quick enough to kick the back into the air, usually going up a square step or across a narrow gully.

Good part here is that this light damping keeps the wheels on the ground. The XR's rear brake is as good as a full-floater, especially on downhills. (The four-stroke's engine braking adds to this, of course.)

Excellent, in sum. As proof of that,



Team Honda's Jay Tullius is winning the 200A class with an XR185 that's stock except for suspension.

As off-road companions the XR and XL are, well, companionable. The XR has less weight, knobbier tires, more wheel travel and more power. It will (you guessed?) run off and hide from the XL. That's the price you pay for the license plate, after all.

And the XL's softer engine tune and power that can be dialed in rev by rev makes the XL more fun for play trialing.

In between the two, the XR and XL are alike. The staff guys who spent most of their time on the pair are both cowtrailers and they rode for several days trading back and forth, with no complaints about who had the best one now and I get it next.

Honda's tires, once again, are remarkable. Many of the test sessions were spent in mud. Both treads will pack with wet clay, the trials style first, and both will clean out quickly on hard ground. In sand

the knobby style has the edge. On clean rock, we'd pick the trials. Most important, the only drop suffered by the XL came when the rider looped it coming up a mud bank. Yes. Too much traction.

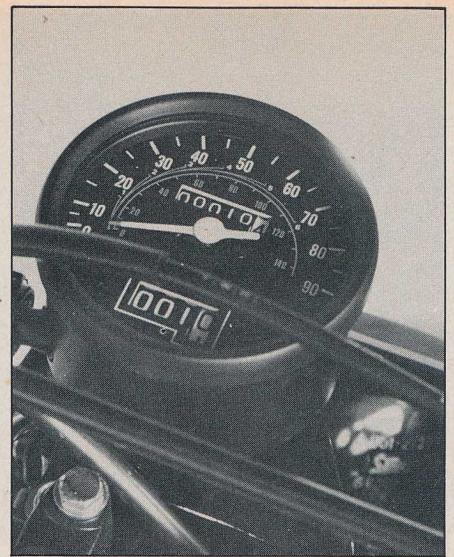
Amazing how different the 185s are from the XL250 and XR500 tested to date. A good big four-stroke is different from a good small four-stroke. A test ride should be enough for any rider to tell which one he prefers.

Or we can look at Honda's selection of features in a racing context.

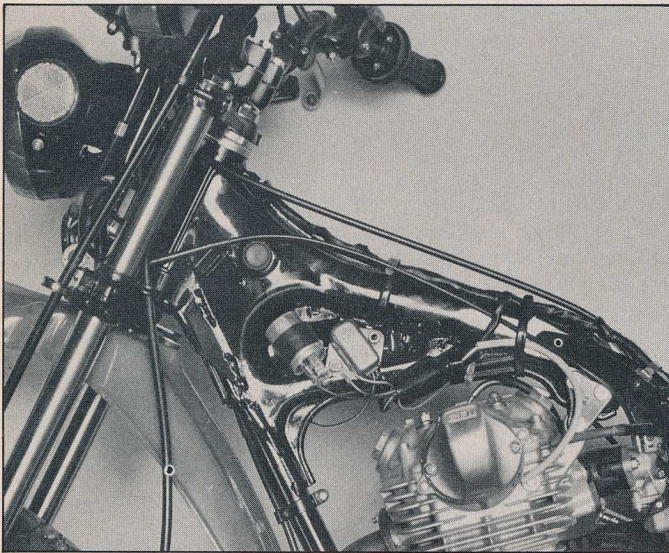
What usually happens in racing is that the genius designer spends all year equipping the new machine with every improvement he can dream up.

Then early in the season the diagnostician rider tells the designer which 30 percent improvement isn't needed. When he's right, the team wins.

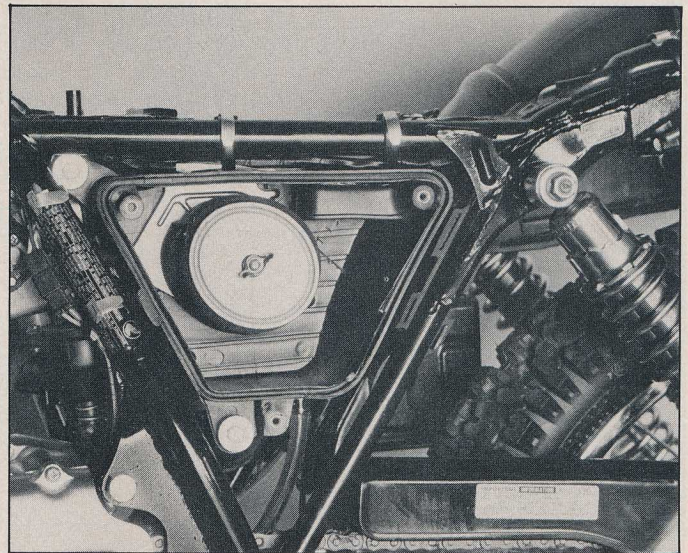
Honda has two winners here.



*Nice big numbers, nice big rewind knob, but no instant re-set.*



*Frame junction at steering head is made of stamped steel on both the Honda XL and XR185.*



*Airbox on the Honda XL185 is adequately sealed, takes in air from under the seat, and is easy to clean.*





# HONDA XR185

## SPECIFICATIONS

List price .....\$1248

Fork travel .....7.9 in.

Fork stanchion  
tube diameter .....31mm

Rear wheel travel .....6.5 in.

Tire, front .....2.75 x 21,  
Bridgestone-Honda knobby

Tire, rear .....4.10 x 18,  
Bridgestone-Honda knobby

Engine .....sohc Single

Bore x stroke .....63 x 57.8mm

Piston displacement .....180cc

Compression ratio .....10:1

Claimed power .....18 bhp

@ 9000 rpm

Claimed torque .....na

Carburetion .....26mm Keihin

Ignition .....CDI

Lubrication system .....wet sump

Primary drive .....# 425 chain

Gear ratios, overall:1

6th .....10.12

5th .....11.90

4th .....14.57

3rd .....18.69

2nd .....25.02

1st .....39.74

Oil capacity .....4.8 pt.

Fuel capacity .....1.8 gal.

Fuel tank material .....steel

Swing arm material .....steel

Starter .....primary kick

Air filtration .....oiled foam

Frame material .....steel

## DIMENSIONS

Wheelbase .....51.9 in.

Seat height .....33.5 in.

Seat width .....8.5 in.

Seat length .....21.5 in.

Seat front to steering  
stem center .....13.5 in.

Handlebar width .....33 in.

Footpeg height .....13 in.

Footpeg to seat top .....21.3 in.

Footpeg to shift  
lever center .....5.5 in.

Footpeg to brake  
pedal center .....5.2 in.

Swing arm length .....19 in.

Swing arm pivot  
to drive sprocket  
center .....3.2 in.

Gas tank filler  
hole size .....2.3 in.

Ground clearance .....11.3 in.

Fork rake angle .....28.5°

Trail .....4.8 in.

Test weight w/half  
tank fuel .....234 lb.

Weight bias, front/  
rear percent .....44/56

## FEATURES

Forks adjustable  
with air? .....no

Rear shock  
damping adjustable? .....no

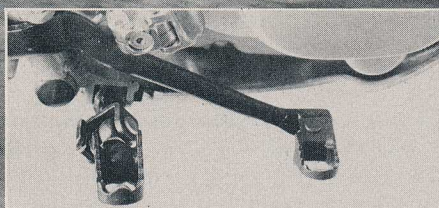
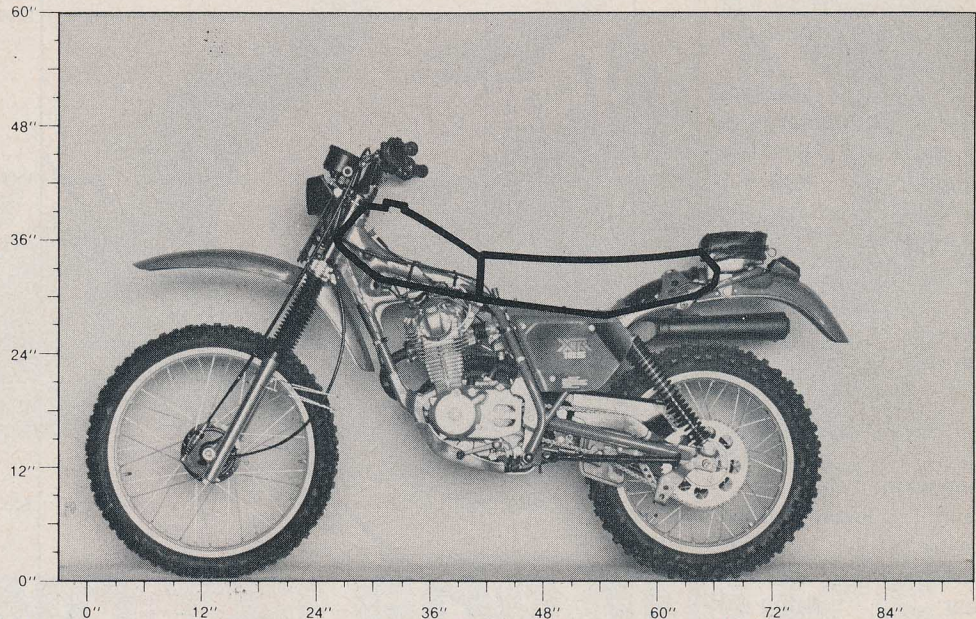
Rear shocks  
rebuildable? .....no

Provision to check  
transmission oil  
level? .....yes

Does owners manual  
show how to disassemble  
complete engine? .....na

Does pipe burn  
rider? .....no

Brake pedal  
height adjustable? .....yes



XR brake lever folds. Both shift and brake levers and folding pegs on both models extend beyond skid plate.



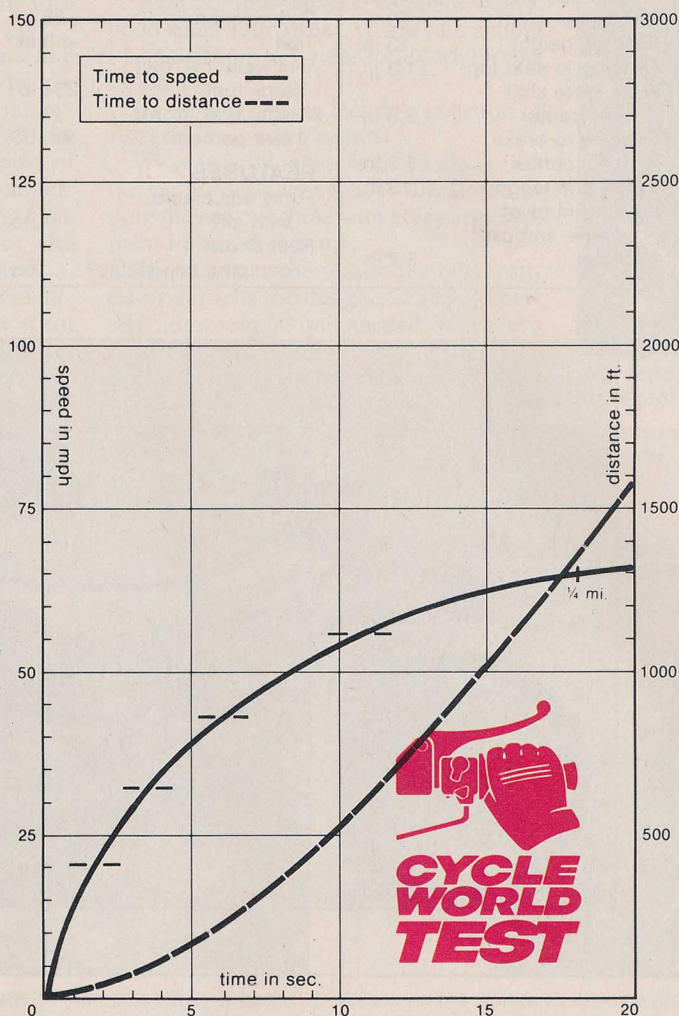


# HONDA XL185

## SPECIFICATIONS

List price .....\$1065  
 Engine .....sohc Single  
 Bore x stroke...63 x 57.8mm  
 Displacement .....180cc  
 Compression ratio .....9.2:1  
 Carburetion .....24mm  
 Air filtration.....oiled foam  
 Ignition.....CDI  
 Claimed power ....15.3 bhp  
 @ 8000 rpm  
 Lubrication  
 system .....wet sump  
 Oil capacity .....2.4 pt.  
 Fuel capacity .....1.8 gal.  
 Recommended  
 fuel .....low-lead  
 Starter .....primary kick  
 Alternator .....6v/108w  
 Headlight.....36/35w  
 Clutch .....multi-disc wet  
 Primary drive .....chain  
 Final drive .....chain  
 Gear ratios, overall:1  
 5th .....9.25  
 4th .....11.90  
 3rd .....15.14  
 2nd .....20.49  
 1st .....32.95  
 Suspension  
 front .....telescopic fork  
 travel .....7.9 in.  
 Suspension  
 rear .....swing arm  
 travel .....6.5 in.  
 Tire, front.....2.75 x 21 in.  
 Trail Wing Bridgestone  
 Tire, rear .....4.10 x 18 in.  
 Trail Wing Bridgestone  
 Brake, front .....drum  
 Brake, rear.....drum  
 Total brake swept  
 area .....26.8 sq. in.  
 Brake loading (160-lb.  
 rider) .....15.8 lb./sq.in.  
 Wheelbase .....51.6 in.  
 Fork rake angle .....27.8°  
 Trail .....4.8 in.  
 Handlebar width .....32 in.  
 Seat height .....32.5 in.  
 Seat width .....7 in.  
 Footpeg height .....12.5 in.  
 Ground clearance .....11 in.  
 Test weight (w/half-  
 tank fuel) .....249.5 lb.  
 Weight bias, front/rear,  
 percent .....43.6/56.4  
 Gross vehicle weight  
 rating .....470 lb.  
 Load capacity .....220.5 lb.

## ACCELERATION



## PERFORMANCE

Engine speed  
 @ 60 mph.....7611 rpm  
 Power/weight ratio (160-lb  
 rider) .....26.76 lb./bhp  
 Fuel  
 consumption .....75 mpg  
 Speedometer error:  
 30 mph indicated ....27.1  
 60 mph indicated ....56.0  
 Braking distance  
 from 30 mph .....38 ft.  
 from 60 mph .....165 ft.  
 Standing start  
 1/4-mile .....17.81 sec.  
 @ 64.00 mph  
 Speed  
 after 1/2 mile .....69 mph  
 Maximum speed in gears  
 1st .....20 mph  
 2nd .....32 mph  
 3rd .....43 mph  
 4th .....55 mph  
 5th .....71 mph  
 Acceleration  
 0-30 .....3.21 sec.  
 0-40 .....5.32 sec.  
 0-50 .....8.40 sec.  
 0-60 .....14.89 sec.

