



HONDA CR250M ELSINORE TEST

Honda's teamwork starts back at the factory. If it's made of metal and has moving parts, they can make it — and chances are, make it better



photography:
Douglas Mellor

■ In one quick and decisive motion Honda has muscled its way into the selective and highly competitive world of motocross. They've leaped over this tall obstacle at a single bound without so much as getting their mechanical design computer lukewarm. They've done the impossible, again, taking the accomplishment in stride and showing little emotion save for the slight alteration of their "Honda has it all" slogan to include "now more than ever," which is like Clark Kent returning quietly to the phone booth to change his Superman outfit after saving Metropolis and the world from almost certain disaster.

If anyone has doubted that Honda engineers were anything less than straight "A" students, the question has been settled. Getting the job done right is accomplishment enough, but doing it best at the first crack must be downright humiliating for other manufacturers who have spent years of design development ironing out the bugs. In the light of what we've come to expect from the current crop of competitive motocross machinery, the Elsinore has no bugs, no flaws. That's the way Honda likes to do things—they don't take three swings at the plate, just a homerun on the first pitch.

As anyone with more than a smattering of mechanical knowledge can tell you, the differences between a four-stroke and two-stroke engine are

Anyone with Honda's resources can predictably come up with a powerful engine, but the biggest surprise with the Elsinore, whether it be with the power full on or the brakes locked on going into a turn, is its excellent handling.

vast. For that reason it usually takes a manufacturer a few years of product development to be successful in making the two-stroke to four-stroke (or vice versa) transition. About the only element the two have in common is the connecting rod, yet the Elsinore is proof that Honda has done its homework.

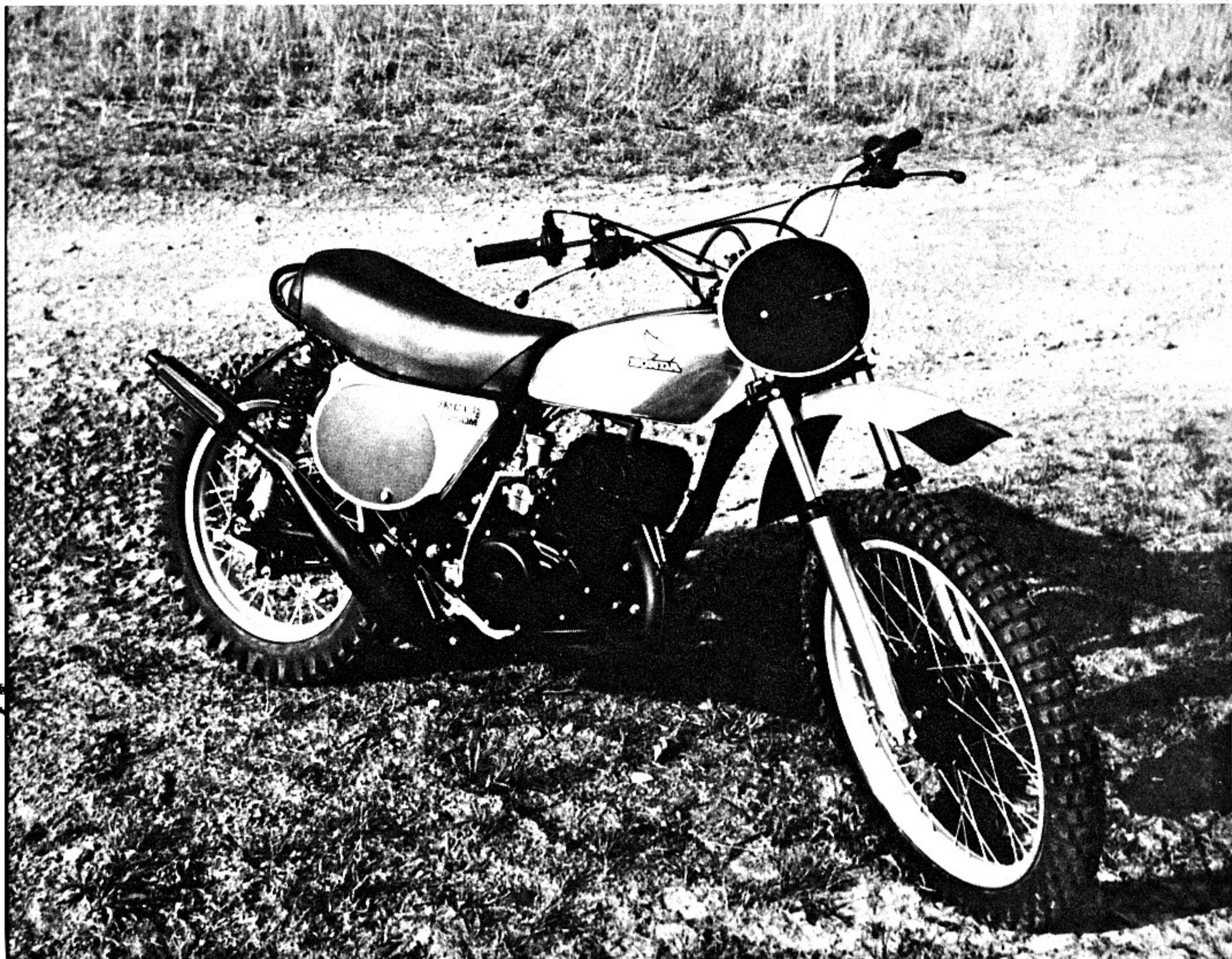
The fact that the company was breaking into virgin territory was as much bane as it was a blessing. Rather than developing, they were creating; the freedom of not having the restriction of being stuck, in a sense, with an old design to modify, in comparison to starting with a clean sheet of paper, is balanced by the uncertainty of working with a totally new, yet unproven design. Other manufacturers finding themselves in this position might have been tempted to "copy" someone else's already proven hardware. Not Honda, the Elsinore has some new ideas—and they

work. They have also discarded some accepted notions like the idea that reed valves are the ultimate solution for a broad power range.

Since this is apparently a no-compromise approach and a fresh attack on the ultimate two-stroke weapon by the largest manufacturer, the technical details bear some examining. Bore and stroke is an interesting statistic in this regard as four-stroke versus two-strokes have completely different aspects of their function that are affected by this design parameter. Hence, Honda's previous experience with bore and stroke ratios were of little or no value. In a four-stroke competition engine, Honda has always used very short stroke designs, providing high rpm capabilities and a large area for intake and exhaust valves. In a two-stroke, which has no valves in the head to be affected by the size of the bore, the question of which bore/stroke ratio is best isn't so clear cut. In the end, Honda's design is much like that of the rest of its Japanese competitors, slightly oversquare. In Europe they're not so certain, witness Bultaco's very short stroke and Maico's relatively long stroke.

Next let's consider intake valving. Rotary valving, reed valving and piston valving have all been used. Honda's choice? Simple piston valving.

They've thrown this in the face of their main competitor, who



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Levers have rubber coated ball ends and neat rubber boots to protect their hinge joints. Kill switch is mounted on the same clamp as the front brake on the throttle side.



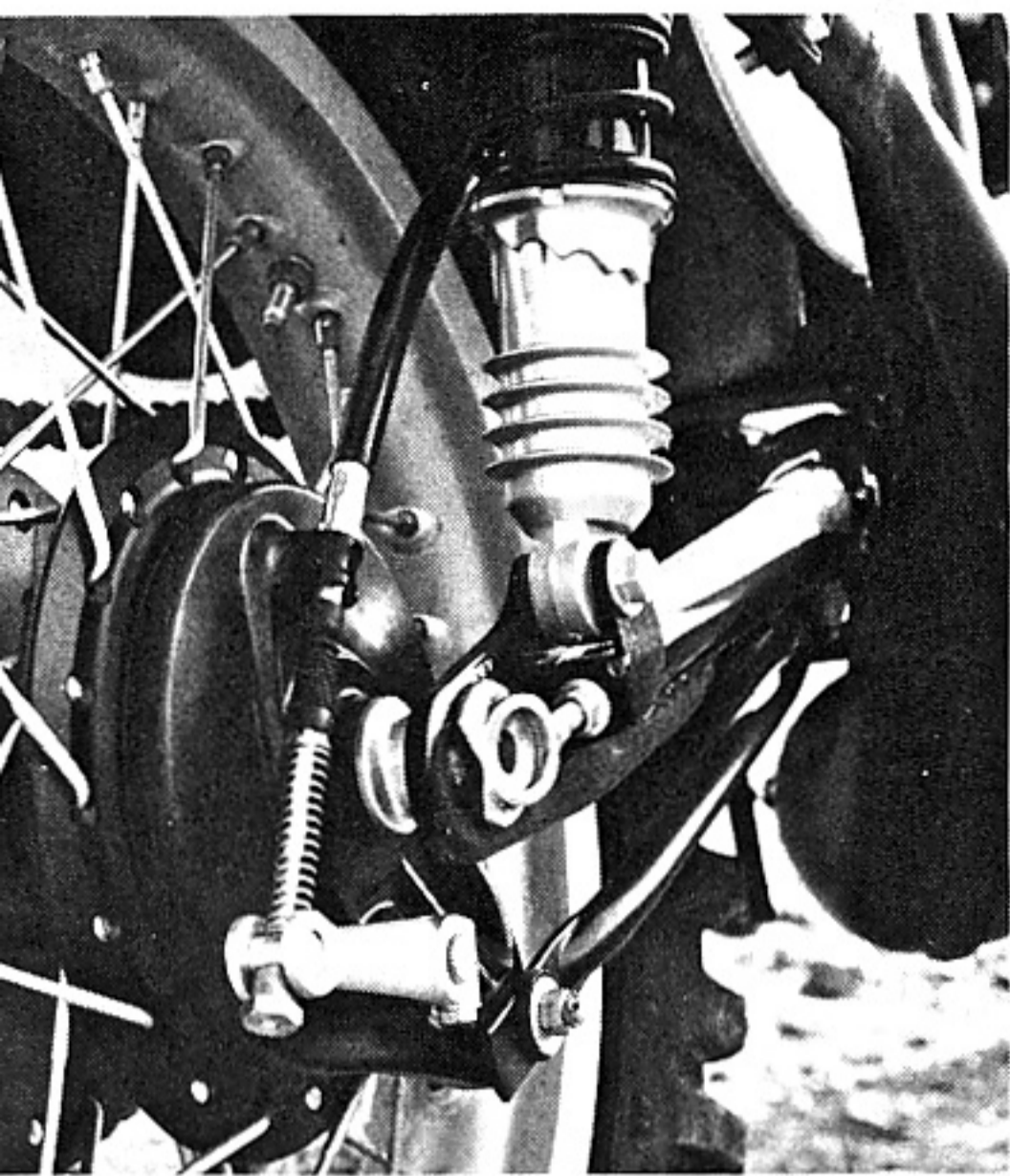
boasts the advantages of reed valving in concert with extra transfer ports by achieving similar results in a less complicated, more conventional manner. On the intake side, there's another point of interest; the intake tract which consists of a lead-in port cast into the cylinder, a connecting rubber spigot, the carburetor and a duct leading to the air cleaner is very long and apparently contributes to the Elsinore's tractable power at very low rpm. The carb is a 34mm Kehin.

Looking at the compression ratio we find a figure that appears somewhat lower than normal for an all-out racing engine. Using a combustion chamber shape that is evidently ideal for exhaust scavenging did not yield all that much compression. But what efficiency might have been lost here has been more than compensated for by really good scavenging which gives the engine more fuel to burn.

There are some who think that conventional, indeed old fashioned, contact breaker points have no place in a modern racing engine. But don't tell

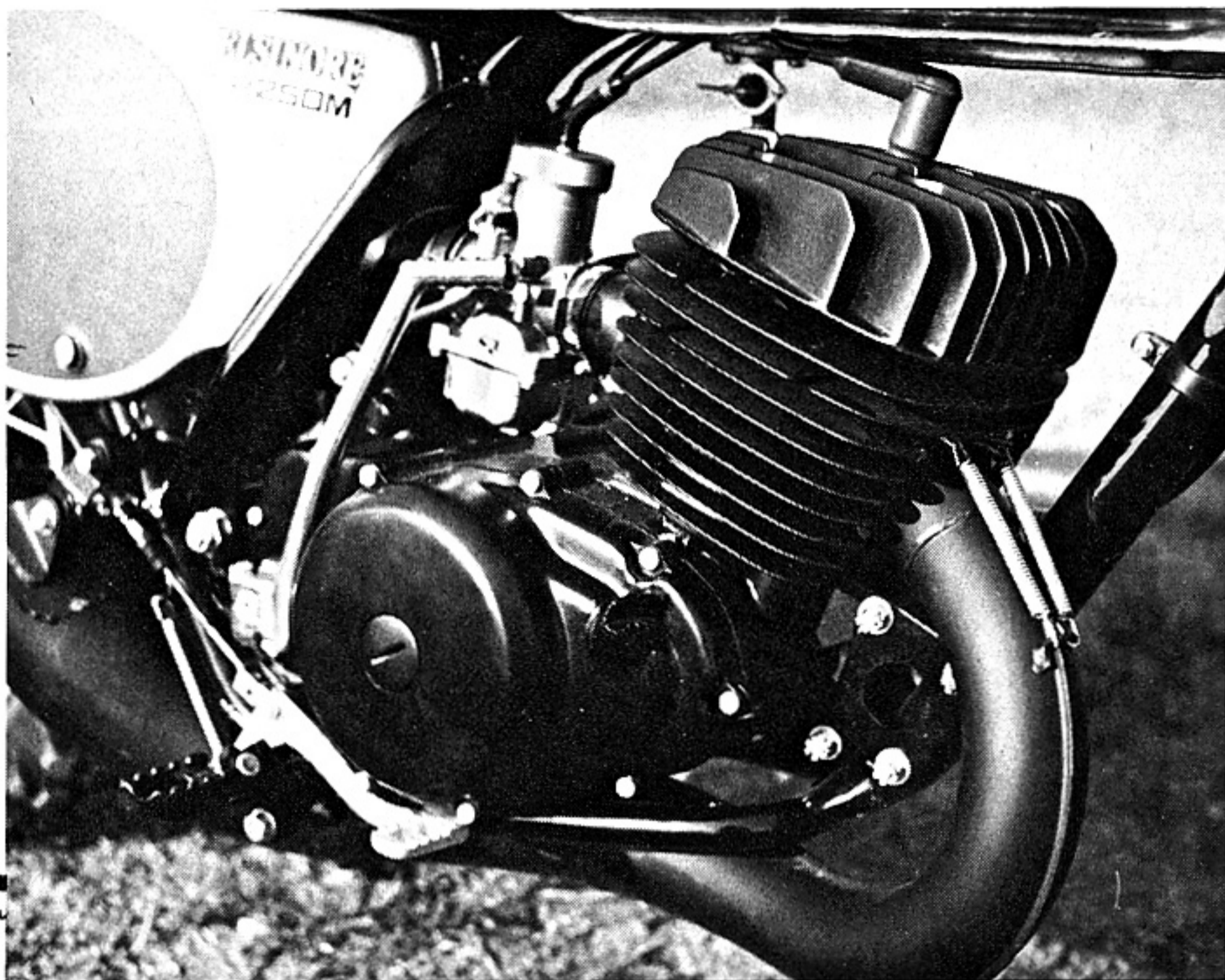
Honda's first two-stroke effort breaks two traditions: it's the first non-four-stroke Honda and it's a competition-only machine with no streetable counterpart. It's their first try in this highly competitive market and already they've got a product as good as any in the field.

Honda that, they've chosen a contact breaker energy transfer system that works well. It should be noted here that motocross racers are not designed for very high rpm duty, where the more advanced electronic system really shines. In use, the Elsinore will never see much more than a tad over 8,000 rpm and at that rate breaker points are quite satisfactory. In their favor are other more practical considerations like low cost and easy maintenance. Speaking of maintenance, setting the point gap or adjusting the timing on the Elsinore is a snap. One has only to relocate a slotted, outside stator to set the timing, for example, and the entire assembly is exposed to the mechanic as Honda uses an internal rotor; there's no flywheel-pulling involved.



Rear brake is "floating" and cable actuated. Note cooling fins at the base of the rear shock. Rear brake unit is conical in design but with a flange at the apex of the cone to permit strong, short, equal length spoking.

The one-piece exhaust pipe is very long yet fits the frame comfortably. Also noteworthy is the very high placement of the engine; a criterion used to be whether or not the crankshaft centerline was above or below axle height. Honda's entire engine package is above that height.



On the exhaust side we have what must be the most important single component to a two-stroke's power delivery. Honda never built an expansion chamber before — obviously — they never built a two-stroke engine before. But like the rest of the machine, they came up with a dandy right off. The pipe is one continuous smoothly shaped affair that, a la Suzuki, runs under the engine back up under the right footpeg and then sweeps up, back by the right rear shock. This location allows for about the longest pipe you can comfortably fit on the motorcycle. From the length the Elsinore gets good low end power. Also the initial divergent taper is very slow and the main body rather hefty. In all the total volume is probably greater than any other pipe on the market. The fact that Honda gets such good power from a rather low compression ratio means this pipe is really doing its job. Sound muffling, however, was not so good and obviously not yet up to the necessary 92 DBA standards.

Power from the crank is delivered back to the transmission by straight cut gears which are inexpensive to produce and efficient. The five-speed transmission is straightforward with no surprises. In conventional Japanese fashion, the kick starter is at the right and has a long, slender lever.

So much for the engine and how the Elsinore produces its power; there's more important ground to be covered,

and for a competitive motocrosser, that means handling. Two statistics that are eagerly pointed out to help describe handling are the rake and trail, two geometrical measurements of the frame's steering geometry. The Elsinore's rake at 32 degrees and trail of 5.8 inches are far from the ordinary. Both figures are high and out on the track the machine really feels it in most respects. The front feels a little heavy, but really glued on. In the turns there's some slowness in the steering. You can't just flick it through a corner like a Husky, but using the power the rake and a rather long wheelbase of more than 58 inches is easily managed. High-speed, straightline directional stability is excellent and the long travel suspension at the front and rear is well thought out. This is one time a Japanese rear suspension didn't feel oversprung. Finning around the base of the oil reservoir on each rear shock helps keep the oil temperature more constant and the damping consistent. Travel over rutted and cross grooved surfaces inspired confidence. The suspension must be rated at least as very good, and surprising, as this is one facet of motorcycle engineering that we are conditioned to believe comes only through years of refinement.

Once you're through the corner and straightened out, the Elsinore's power will carry you down the straights with

the best of them. In fact, Honda's 250 is as powerful, if not more so, than other production racers we've tested. The engine also runs cleanly throughout its operating range from 4,000 rpm up to about 8,000 rpm. Pulling up through the rev band, the bike really starts getting on the pipe at about, 5,000 rpm. Shifting the close ratio 5-speed at 8,000 rpm will easily keep you above that figure at all times. Honda doesn't advertise horsepower figures for this machine, but our opinion is that the engine peaks out somewhere close to an honest 30 horsepower.

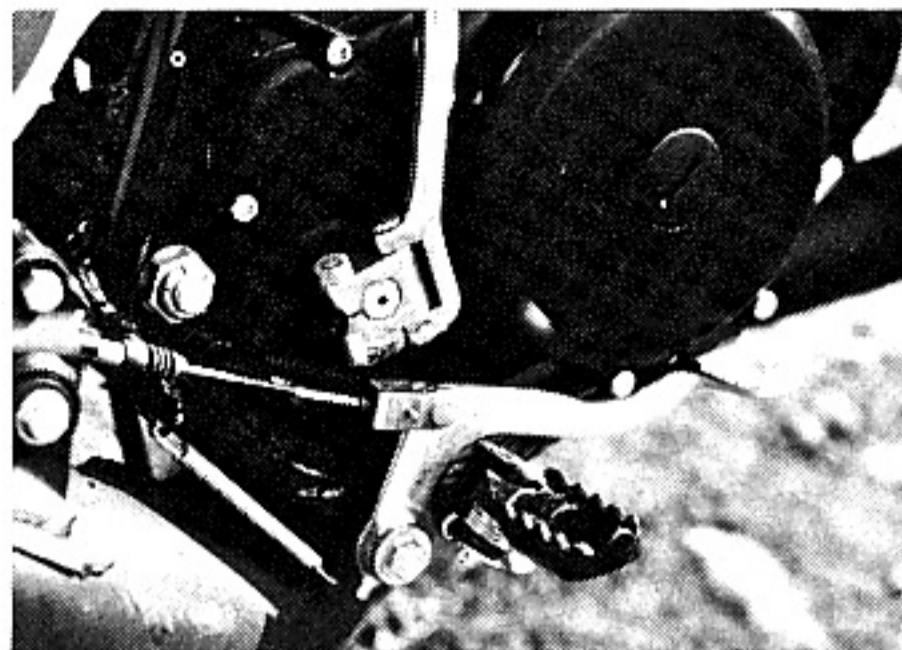
A point which helps all phases of the machine's performance, including handling and acceleration, is the bike's low weight. Our test machine weighed in at 225 lbs., ready to ride. That figure is right in there with the competition and if Honda's four-strokes are notable because of their weight, that tendency hasn't been carried over to their new two-stroke. All components of the bike are designed with weight saving in mind. The brakes are small (5-1/2-inch) full width hubs. Their size means that they're light, but unfortunately they don't do so good a job stopping the machine — one of the Elsinore's few shortcomings. The tank is stylish and the noticeable alloy unit holds a skimpy 1.8 gallons of fuel. Control levers are

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Both rear brake pedal and foot pegs are abbreviated for side clearance and heavily grooved to give a slippery boot extra grip. Note helper spring running between the frame and expansion chamber. The pipe is rubber-mounted and is bolted to the frame in only one place.

malleable alloy and are capped by flexible rubber booting at the hinge joints.

Two-stroke engines are very simple in a way — there are very few moving parts. Compared, for instance, to one of Honda's complicated touring multis. This particular racing two-stroke has that simplicity of design and there isn't that much metal to it, but the \$1,150 price gives you some idea of the



investment in sorting out the two-stroke magic that makes this demon run so well. Too, there are aspects to production of the Elsinore that make it much more costly, and while it's not purely handcrafted, it receives a great deal of attention during production.

In addition to being Honda's first two-stroke, it's Honda's first production racing machine ever sold to the public. It proudly carries the "CR" model designation that graced the Honda factory racing machinery during the mid-sixties. They were very serious about their racing then, and the Elsinore shows that they still mean business.

HONDA CR250M TEST

Price	\$1150.00
Warranty	none
Distributor	American Honda, Gardena, California
Resale value after one year	N/A

RUNNING GEAR

Frame	single cradle, tube steel
Rake & trail	32 degrees & 5.8 inches
Suspension	hydraulic: telescoping forks (f), swingarm (r)
Tires	
front	3.00 by 21-inch knobby
rear	4.00 by 18-inch knobby
Brakes	
front	5.5x1.0-inch s.l.s.
rear	5.5x1.0-inch s.l.s.
Electrics	energy-transfer magneto

GROSS MEASUREMENTS

Weight	225 lbs. (wet)
Wheelbase	58 inches
Seat height	31 inches
Ground clearance	7.5 inches
Handlebar width	31 inches
Fuel capacity	1.8 gallons

COMFORT RATING

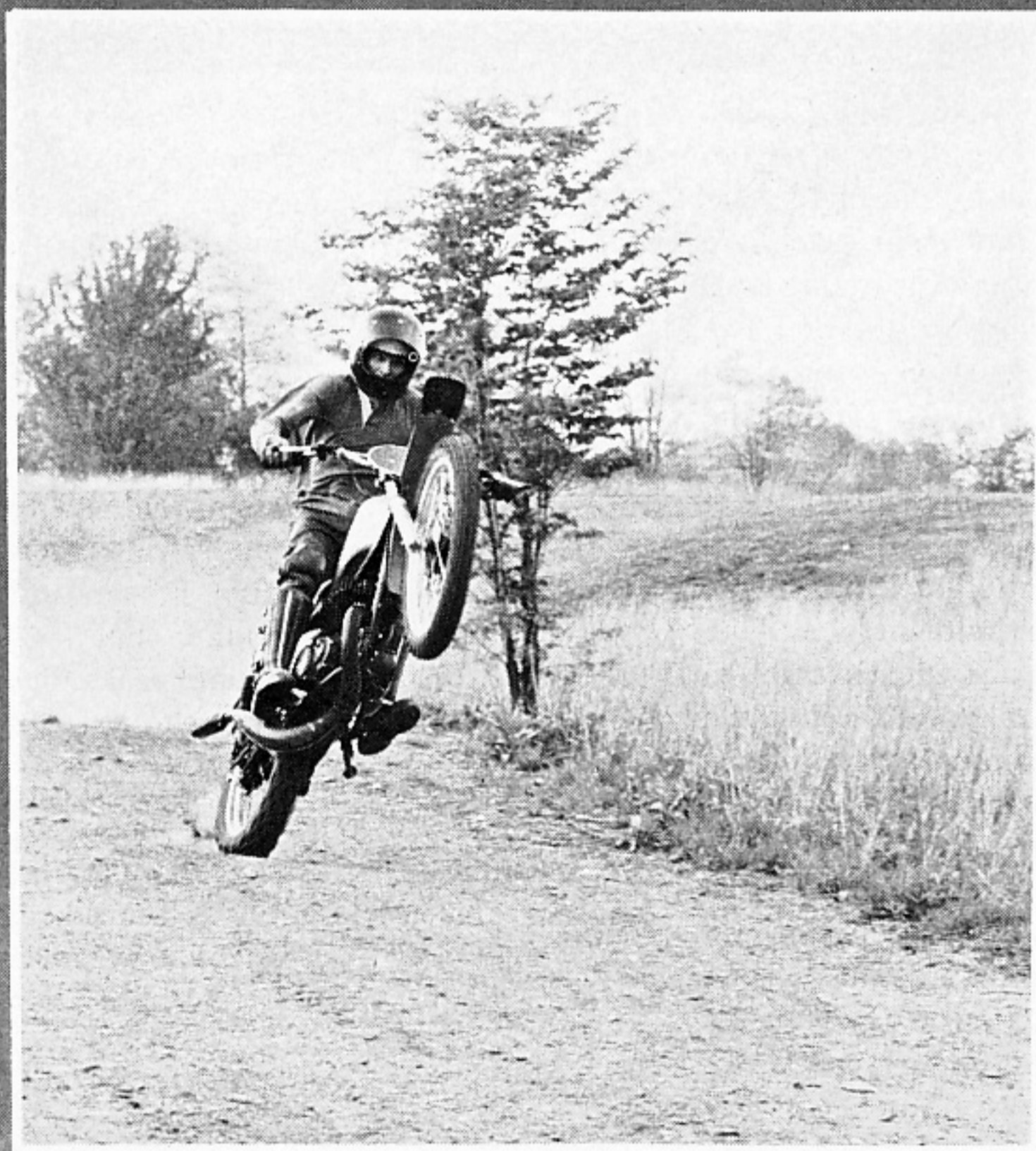
1. Vibration .....	.7
2. Suspension .....	.8
3. Noise level .....	.6
4. Seat .....	.8
5. Handlebars .....	.7
6. Start mech. ....	.7
7. Controls .....	.9
8. Stand .....	.8
9. Shift mech. ....	.9
10. Switches and instr.	N/A
Overall rating .....	.80

PERFORMANCE

1/4 mile	N/A
0 to 60 mph	N/A
braking dist. from 60 mph	N/A

SUMMARY

A very powerful and surprisingly good handling motocross bike for Honda's first effort into the two-stroke motocross field. Only time can tell of the bike's reliability.



ENGINE

Type	piston-port two-stroke single
Displacement	248cc
Bore & Stroke	70mmx64.4mm
BHP @ rpm	approx 30@8,000
Advertised c.r.	7.2:1
Carburetion	(1) .34mm Keihin
Overall gear ratios	
First	22.77
Second	17.40
Third	13.85
Fourth	11.49
Fifth	9.55