



CYCLE DIRT TEST

● "AND NOW, INTRODUCING THE ALL-NEW CR125R . . ."

"Wait a minute, we've heard that one before."

"No, this is for real; the totally redesigned . . ."

"Just a second. What are you doing?"

"Introducing the 1979 CR125R Elsinore. It's a completely different motorcycle."

"Sure."

Ah, but this time it really *is* for sure. Disregard the fact that the little Elsinore remained basically the same from its introduction in 1973 until last year. Disregard the fact that the best factory part the 125 shared with its CR counterparts was red paint. Disregard all previous Elsinore 125s. There's a new one waiting.

The new one-two-five is still scarlet enough to turn Karl Marx in his grave: red tank, fenders, 250-sized chrome-molybdenum frame and engine. But all other things are strikingly different. Most obvious, perhaps, is the *right*-side drive chain, replacing the (typically Japanese) left-hander. A 32mm Keihin carburetor replaces 1978's 30mm model. There's an upswept expansion chamber, a 23-inch front wheel and "claw-action" Bridge-

HONDA CR125R



Into the busy leapfrogging contest for 125cc motocross supremacy comes Honda's redesigned Elsinore. It's not perfect, but it does have a torquey engine and basically polite handling.

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stone MX tires front and back.

The engine has been totally redesigned. Up top, there's what Honda calls a quasi-radial-finned cylinder head. It has a basically normal squish band area and a centrally located spark plug hole.

The new cylinder is chrome-bored for several reasons. In the first place, an aluminum cylinder with a chrome bore dissipates heat better than an iron-liner cylinder, so a chrome-bore engine—all other things being equal—can be tweaked a bit more and allowed to generate more heat. Second, the piston-to-wall clearances in a chrome-bore cylinder can be very tight thanks to closely matched expansion rates of the piston and cylinder; consequently the running clearances have no power-robbing sloppiness.

Third, chrome-bore cylinders have no alignment problems between liner windows and ports, and so there's no unwanted turbulence created by mismatched parts. Finally, if manufactured on a large-batch basis, they may even be

more economical to produce.

But they are not without drawbacks. A chrome surface doesn't hold oil as well as its iron-liner counterpart or one with a bore coated by an electro-fusion process. This is especially true when the rings polish the chrome to a brilliant finish. Furthermore, at high temperatures, the .003-inch chrome becomes relatively soft—it's not as "chrome-hard" as is commonly believed. If seriously damaged by dirt, a popped-out circlip or even a serious seizure, the cylinder is a throwaway.

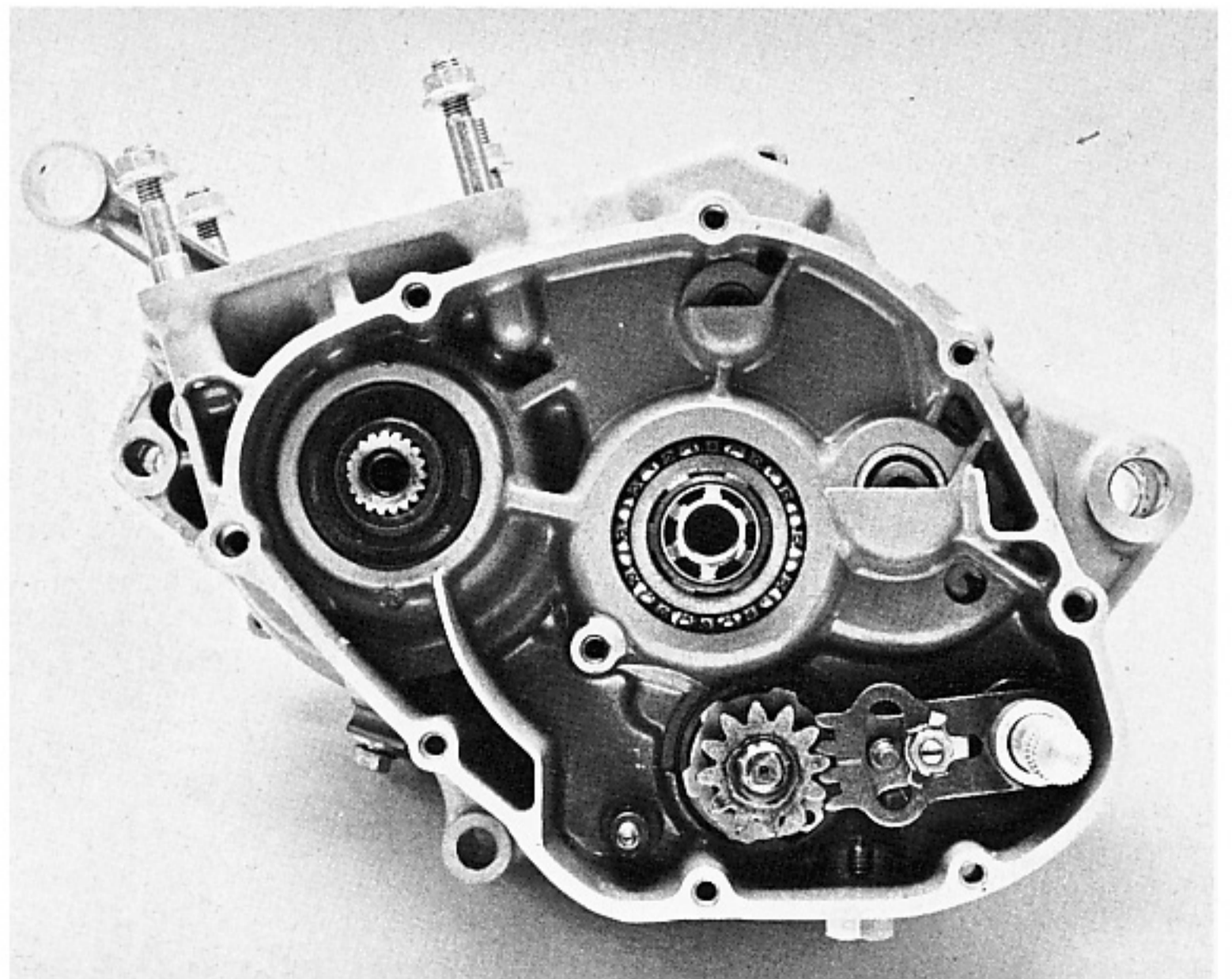
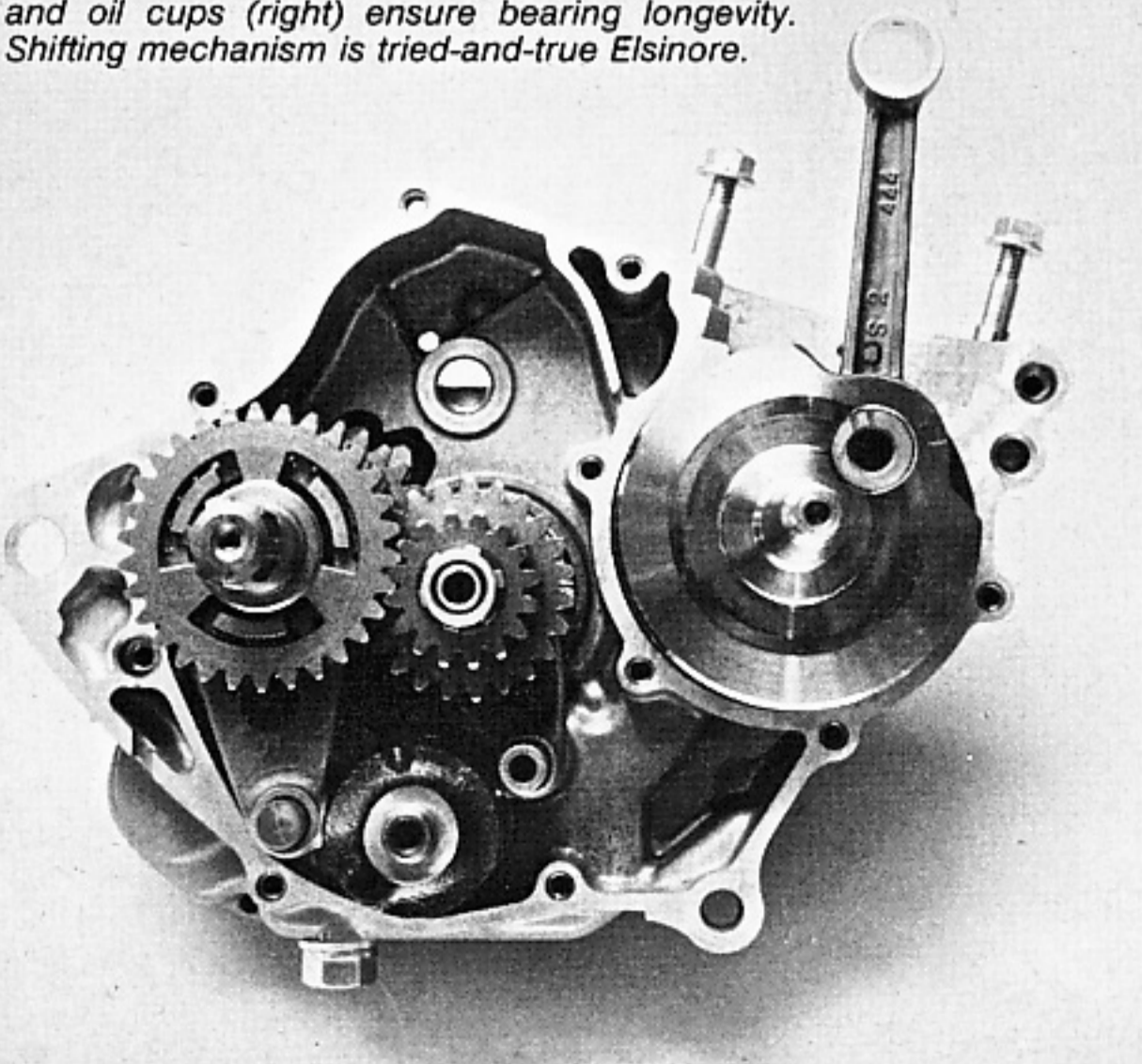
Reed-valve engines have become standard in motocross circles these days, and indeed with most high-performance piston-port two-strokes. Honda employs reed valves and a booster port in both the 1979 CR125R and 250R models. There are six stainless steel, photo-etched (for lightness) reeds which are pressure-sensitive. They open when there's any vacuum in the crankcase and shut when that system is pressurized.

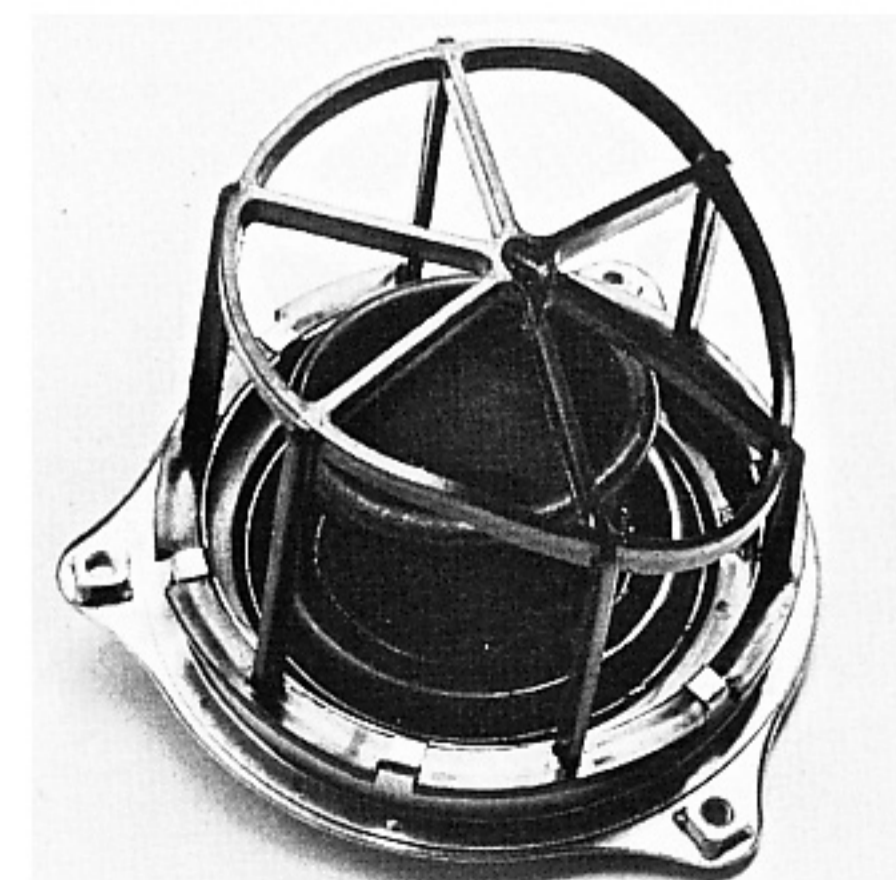
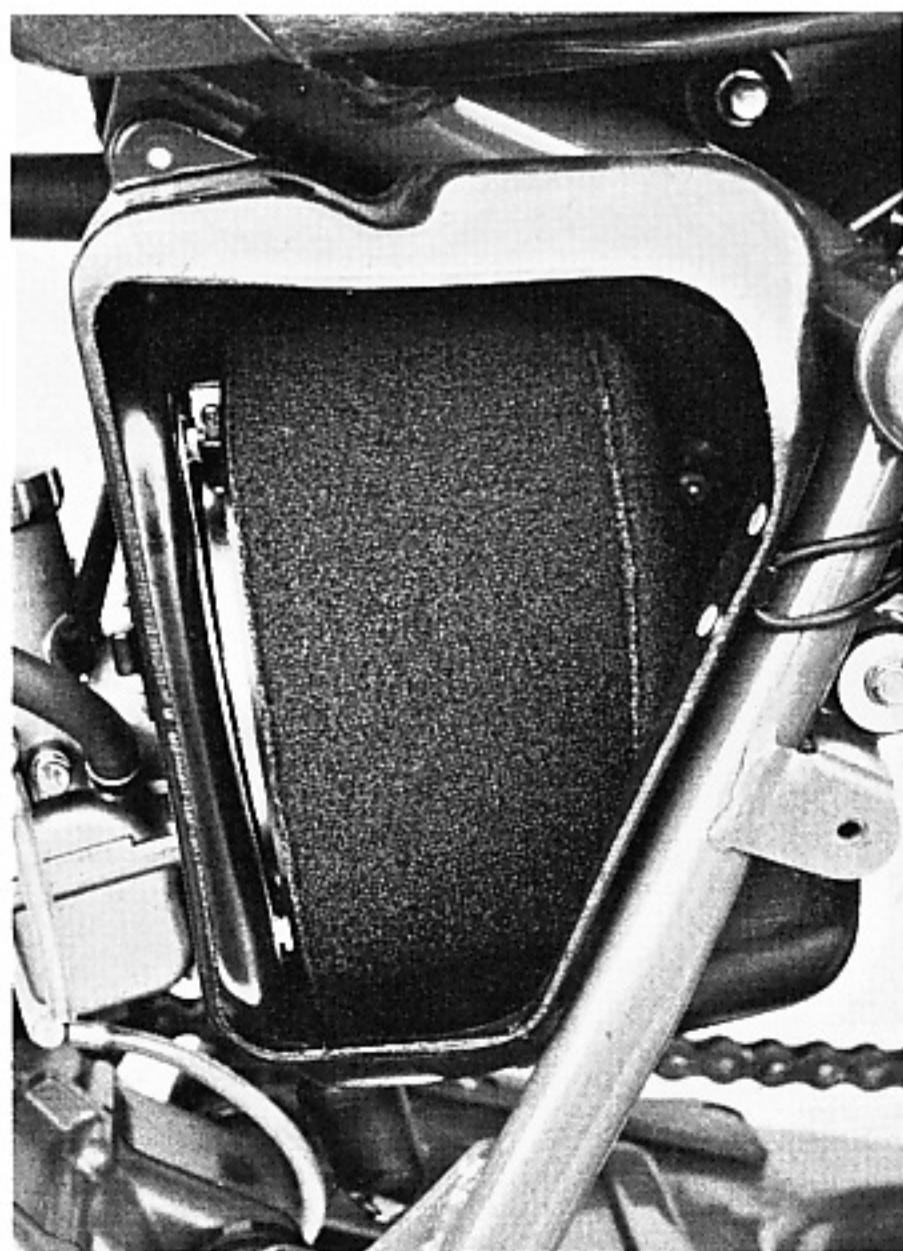
As the one-ring piston moves toward the bottom of its stroke, it tries to force some of the compiled fuel charge back

The CR-R slides perfectly on soft or hard ground, is full-sized and offers you plenty of room to move around. Deep sand and mud are no problem thanks to the engine's excellent torque output.



Aluminum engine cases are cored for lightness, and oil cups (right) ensure bearing longevity. Shifting mechanism is tried-and-true Elsinore.





This dual-density foam filter (left) wraps around a metal and plastic frame (above) which contains a tuned carburetor velocity stack. A cover shields the left airbox side, and air is drawn in through the top.

out through the late-closing intake port. This is where the reeds do their stuff. The petals seal on rubber seats that are molded directly into the reed housing block. They close when the piston—on its downward stroke—pressurizes the crankcase; in effect the reed action speeds up the intake closing which prevents part of the fresh charge in the crankcase from being blown out the carburetor. Reed valves allow designers to get away with using more radical port timing than would be acceptable on piston-port engines without reeds.

The CR125R has an additional quality in its reed valve technology, one it shares with the CR250R. In the intake tract there are two openings, one on each side of the main intake port, that lead into the crankcase via passageways behind the rear transfers. The effect is about the same as holes in the piston's intake face; these passageways provide a connection be-

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tween the carb and crankcase when the piston is near the bottom of its stroke and the transfers are open. Since the intake area downstream of the reeds has been pressurized, the reeds are closed. Thus part of the charge flows out of the crankcase, up the two small passageways, into the intake port area sealed off by the reeds, and then follows the aforementioned blown-back charge into the fifth transfer port which extends up from the ceiling of the intake port. The main fuel charge flows into the combustion chamber through four ordinary transfer ports.

Spark is provided by a magnetically triggered capacitor discharge ignition system. It is very similar to the type found on earlier CR125s. The ignition, unlike that on the CR250R, does not have a built-in high-rpm governor. The CR250R

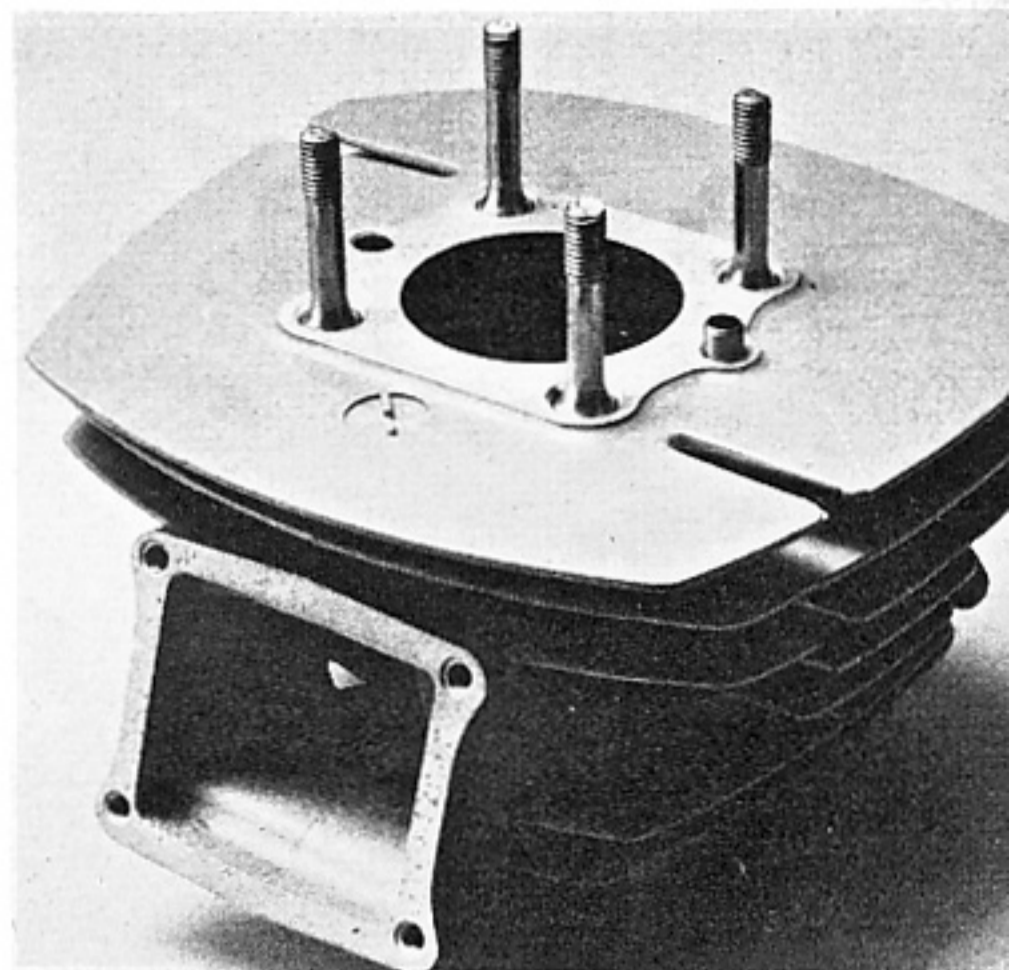
"black box" contains circuitry which retards the spark timing at a certain rpm rate. This discourages over-revving the engine and helps to suppress detonation.

Exhaust gases are discharged through a stamped-steel, down-around-and-up expansion chamber, and the racket at its end is quieted by a non-repackable fiberglass-lined silencer. The Honda does not meet the 86-decibel requirements of the off-road mandates, and so operating the bike on public domain is "illegal."

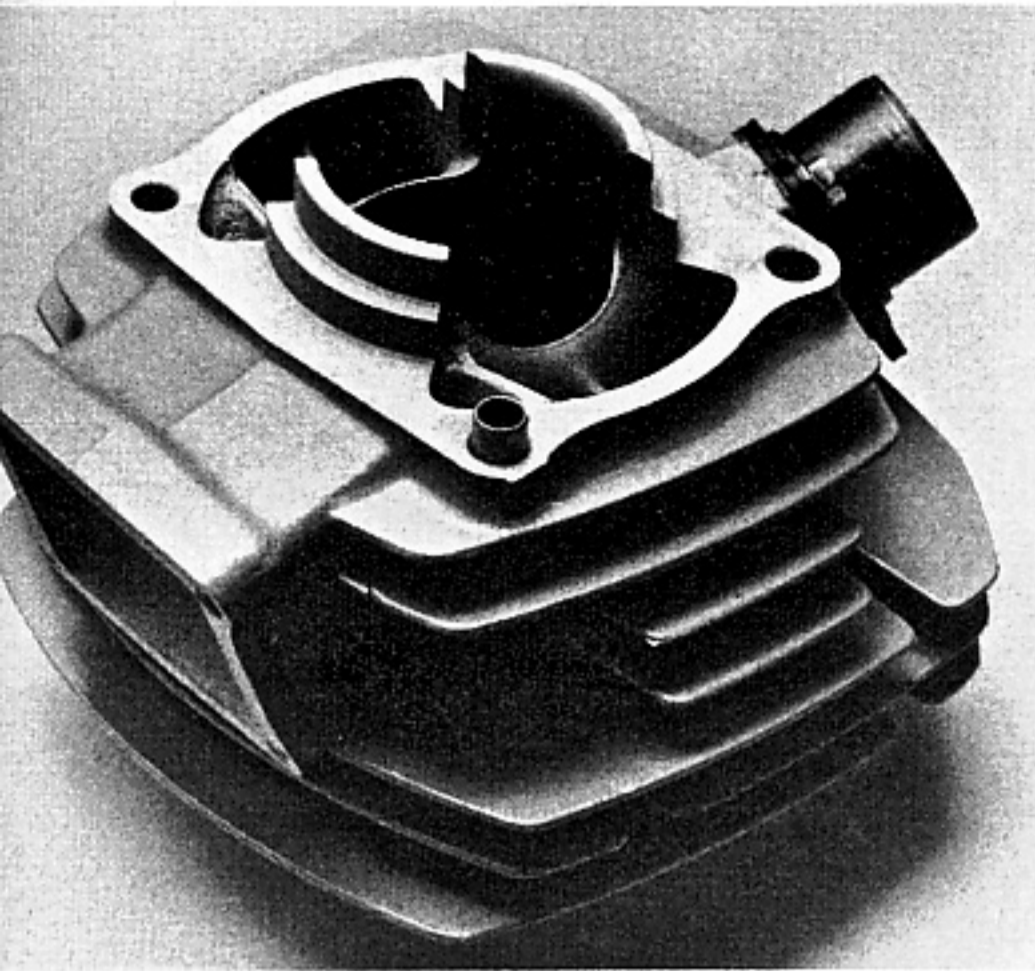
Behind the red aluminum clutch cover lives the 49-pound engine's primary drive and clutch. Straight-cut gears handle the initial reduction, and the clutch is a six-layer affair with bonded aluminum drive plates and steel driven plates. These pieces and the gearbox components swim in a 0.7-liter oil bath.

Motorcycle transmissions which have meshing gears on two separate shafts

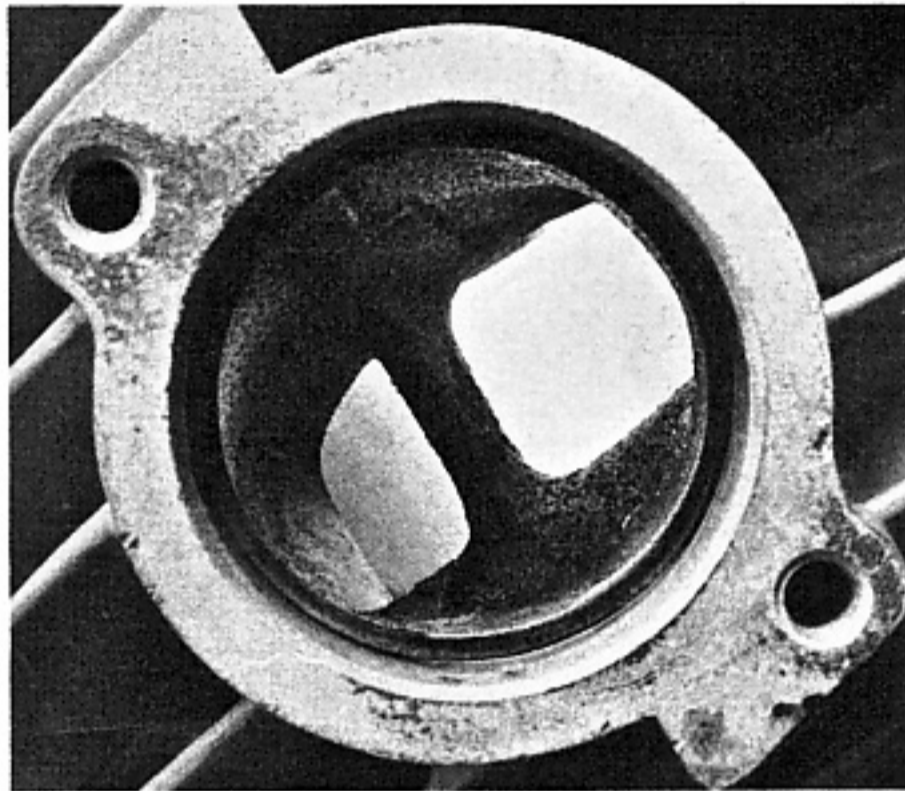
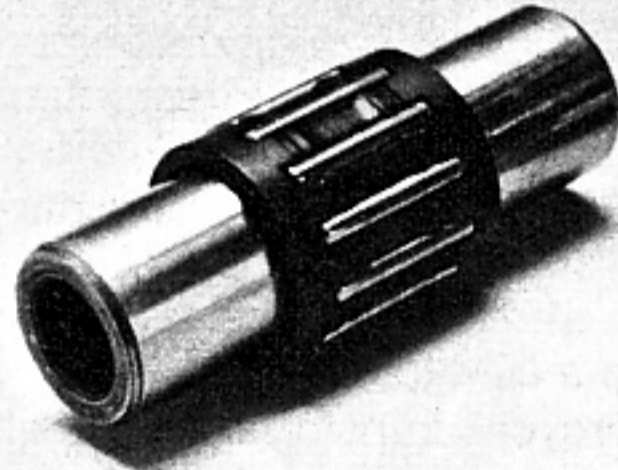
Large reed-valve chamber sits aft of cylinder; 8mm studs affix head to cylinder and cylinder to cases.



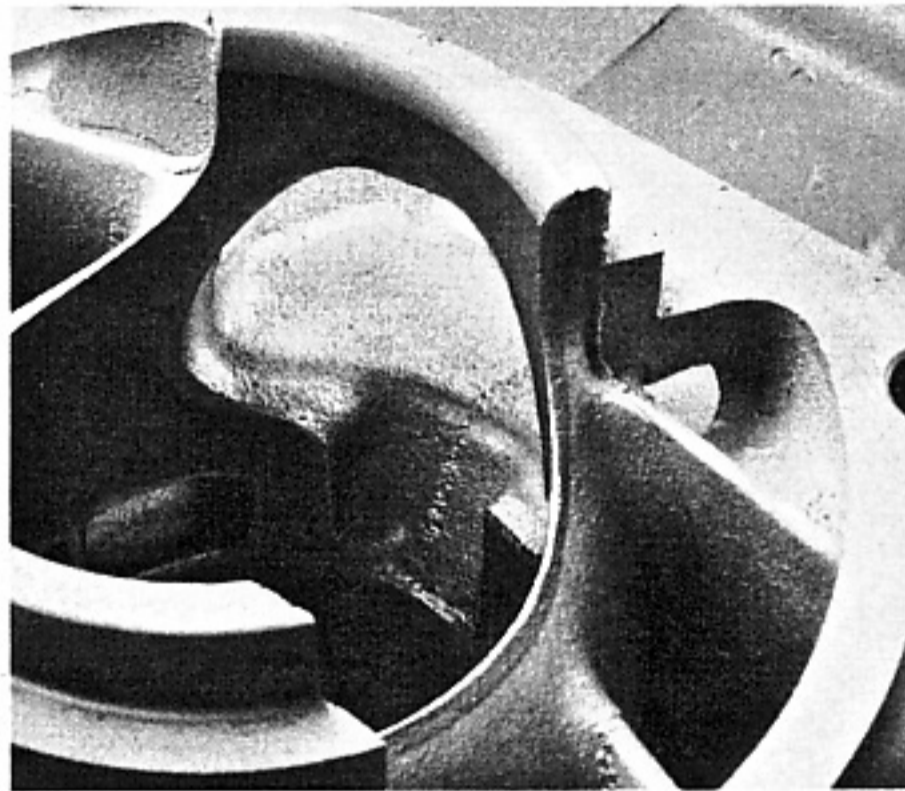
Bottom view of chrome-bore cylinder shows irregular finning and exhaust port/exhaust pipe junction.



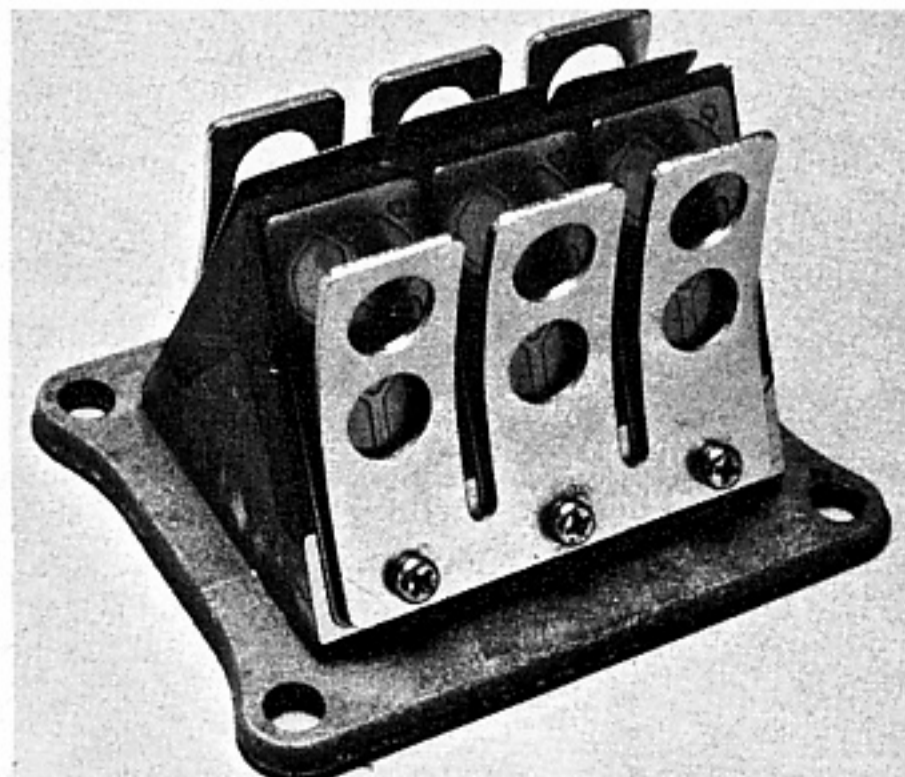
Standard motocross technology calls for a one-ring aluminum piston, hardened-steel wrist pin and steel-caged needle bearings.



Roughly cast bridged exhaust port bears gases from cylinder. Port shape is far more crucial than texture.



Twin booster ports join the crankcase and the reed chamber. Raised inlet port completes "boost" link.



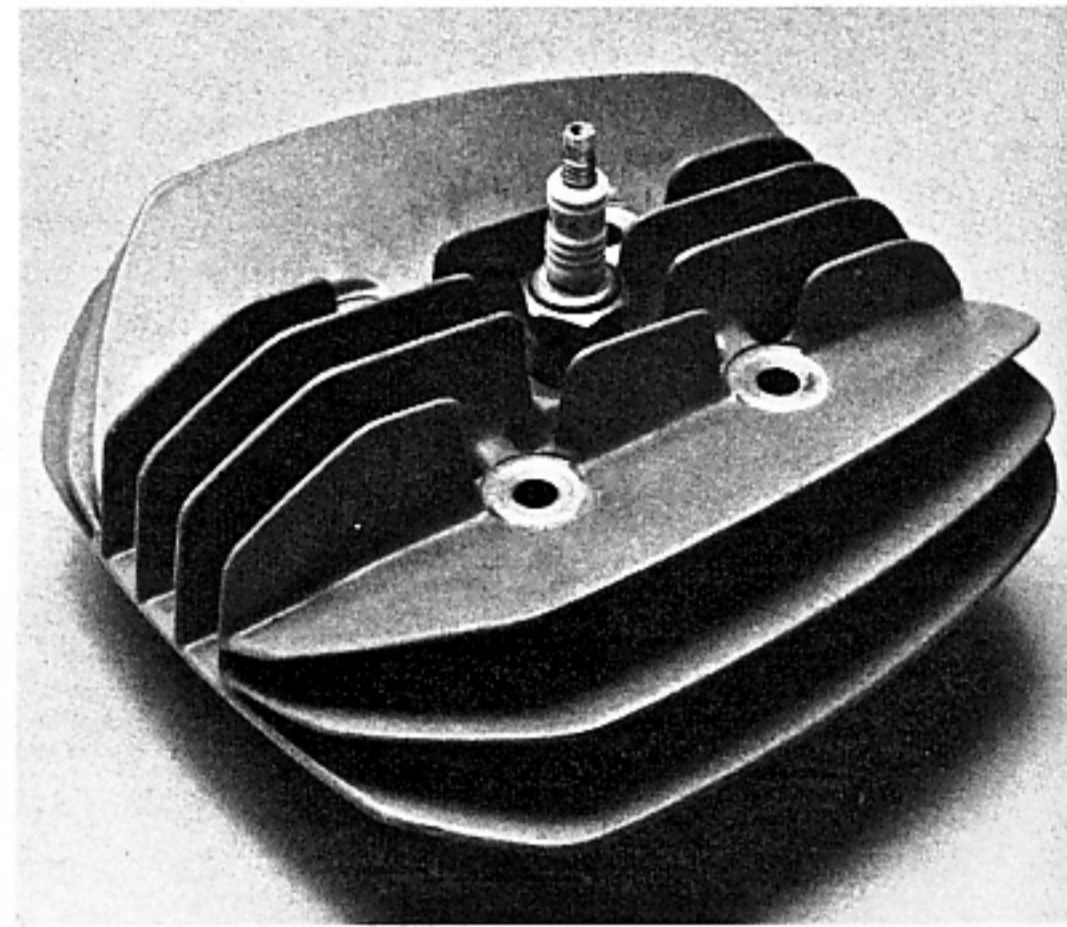
The Honda engine's performance cornerstone is this steel-backed, rubber-seated, six-petal reed block.

change gear ratios by sliding certain gears back and forth on their shafts, engaging adjacent gears. A sliding gear couples with a nonsliding gear by means of engaging dogs that cog into similar protrusions on its mate and/or into slotted reliefs on the adjoining gear. In the CR125R's dog-and-relief system, the reliefs are substantially wider than the corresponding dogs. Although this feature adds to drive-line snatch, it also makes the CR more likely to go into the proper gear even if a rider partially blows or pot-shots a shift.

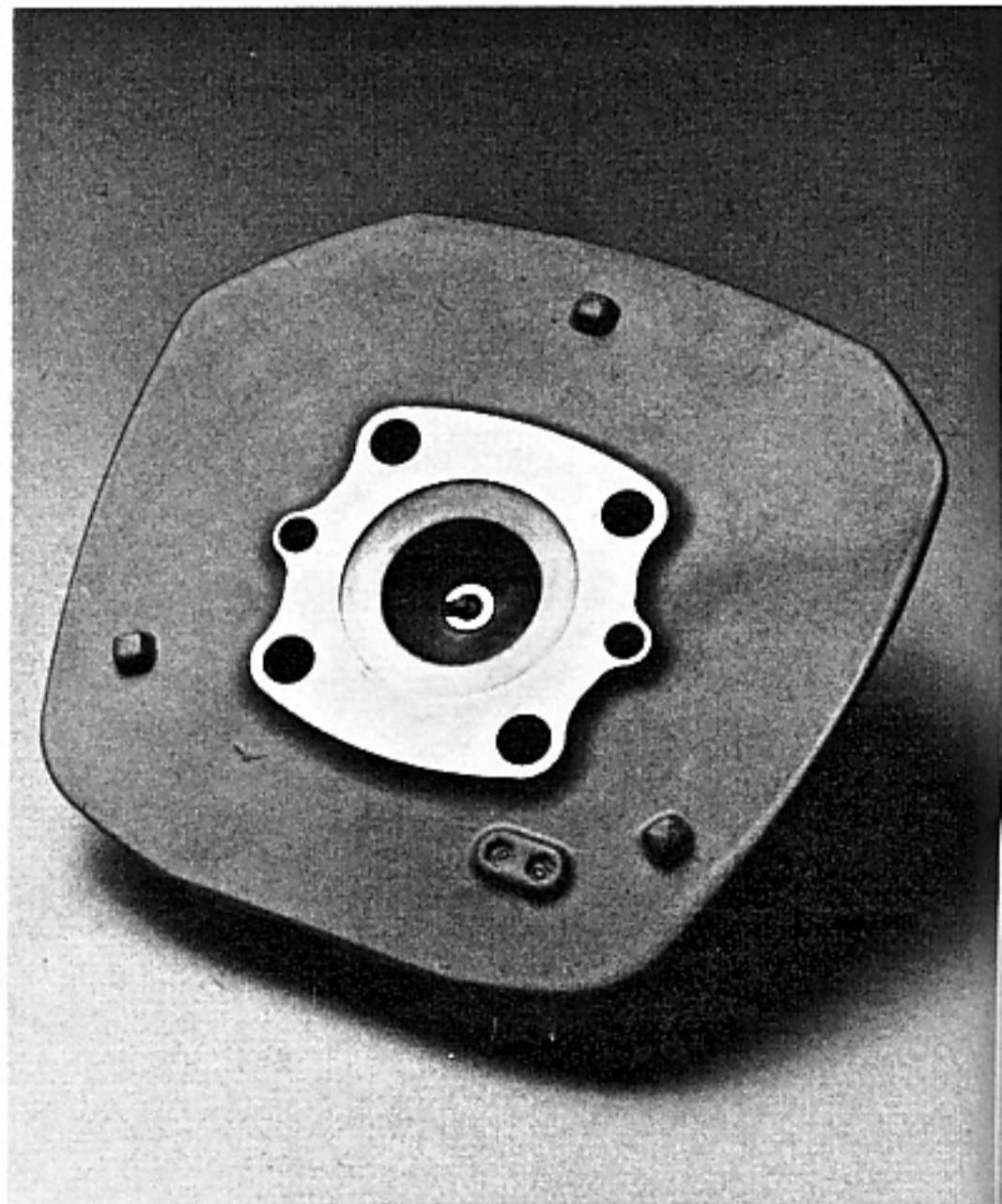
There's a bigger change in the drive-line system. Honda moved the $\frac{5}{8} \times \frac{3}{8}$ inch (# 520) chain from the left to the right side in order to reduce the CR's unsprung weight by placing both the rear brake and the driven sprocket on one side of the rear hub. By doing this, Honda could build a lighter, true conical hub. Without a doubt, a left-handed combination hub/driven sprocket could have been produced, but to retain left-hand shifting, a crossover for the brake actuating rod or cable would be necessary. So Honda placed the final drive on the right. And why not? The entire engine was being redesigned anyway. To keep production costs down, only the engine's magneto/chain guard is magnesium.

The backing plates for the brakes, front and rear, are cast magnesium. For cost-effectiveness, the hubs themselves are aluminum. Happily, this year's CR125R has an absence of in-line chain tensioners. The needle-bearing swing-arm pivot now does double duty as the rear engine mount, thus moving the swing-arm pivot to only 64mm (2.5 inches) from the countershaft center. Instead of spring-loaded tensioners, there are two rubber pads and two aluminum rollers that turn on sealed needle bearings. The pads and rollers help to keep the chain off the frame and swing arm. Draw-stud type rear axle adjusters make wheel alignment simple.

The new CR125R has a 56-inch wheel-base, 38mm (1.5 inches) longer than last

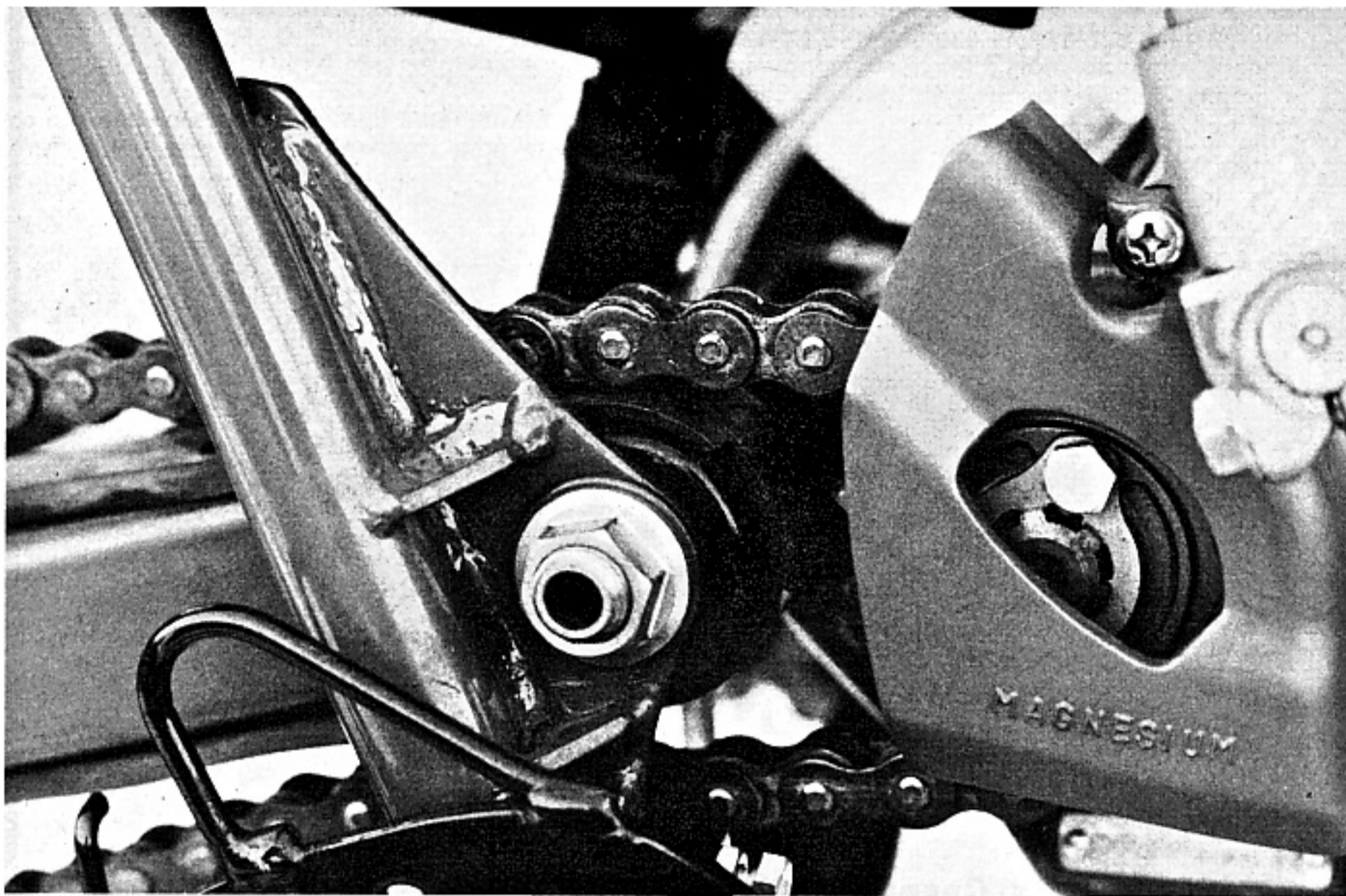


Quasi-radial cylinder head fins are broader at the front than at the back to promote uniform heat radiation.

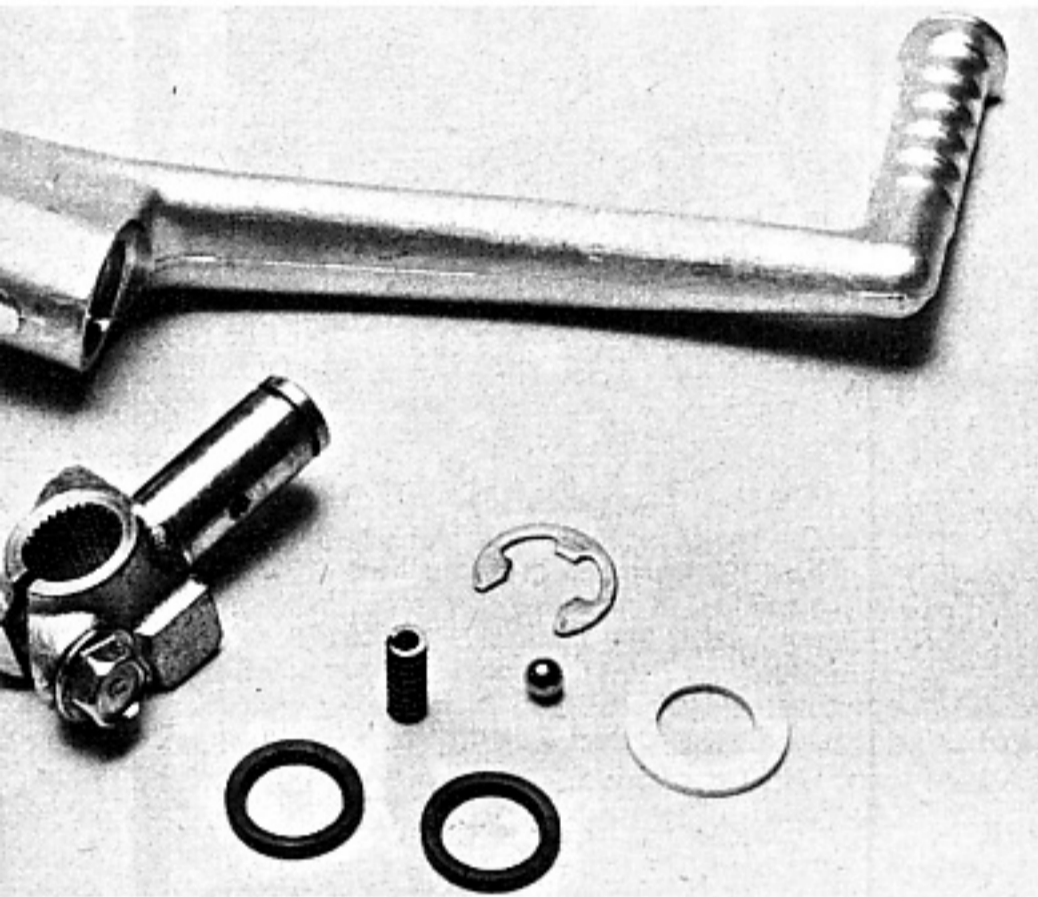


Upside-down cylinder head reveals six stud-mounting holes, squish band and centrally located spark plug.

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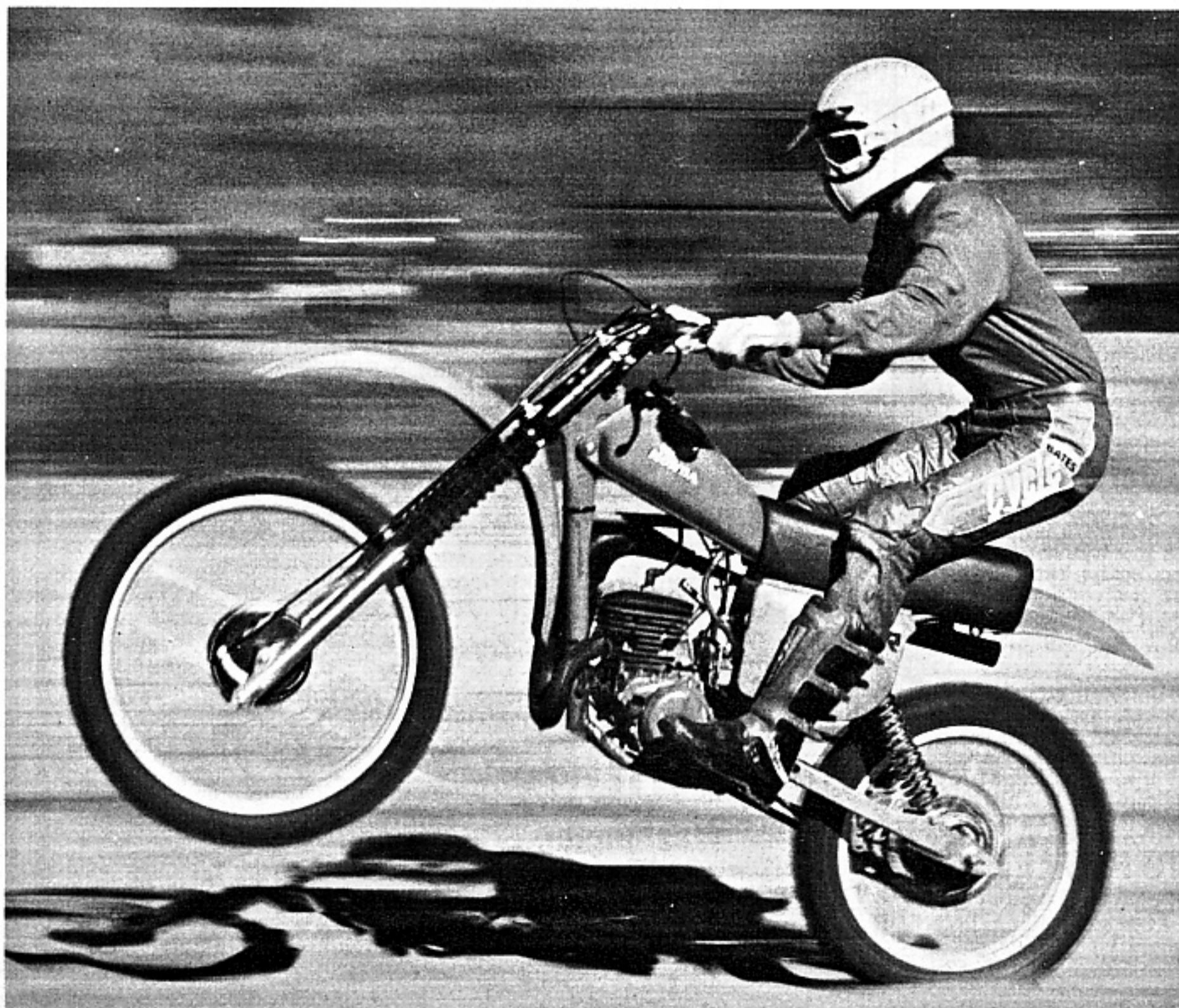
Hooray! No chain tensioners are necessary because the countershaft and swing-arm pivot centers are close.



Miniature rubber seals are employed to keep debris out of the alloy-and-steel kickstart arm pivot . . .



. . . but the right peg was bent back by a rock and caught the kickstart arm the next time it was used.



year. The swing arm measures 549mm (21.6 inches) from pivot-pin center to axle-center. The arm itself bears little resemblance to the mild-steel, tube-and-stamping structure of the old CR125. The CR-R's is a chrome-moly affair that uses box-sections for strength and lightness.

Contributing to the CR's lofty 940mm (37 inches) seat height this year is the long-travel suspension. The leading-axle front fork and the gas-charged rear shocks provide 11.0 and 10.9 inches of travel respectively. The Elsinore's coil-spring, oil-damped front end (no air) uses four pinch bolts at each 37mm stanchion. A cap and four six-millimeter studs hold the axle and right-hand slider leg firmly together. Each red-bodied shock has three spring preload positions. To change preload, the rider must move a small circlip from one recess to another on the shock's housing. Changing the glorified wire-clip when the shock has been covered with mud, dust and grit can be a hassle. It escapes us why simple and effective ramp-collars aren't used.

Honda and Bridgestone joined forces last year to design a new off-road tire called the "claw-action." These tires come in a variety of sizes and appear on this year's CR and big XR models. The CR125R mounts a 3.00 x 23-inch front (for easier going over rough terrain and more surface area on the ground) and 4.00 x 18 rear. Next year, the monkey-puzzle tires may appear on other brands of scooters; for now they belong exclusively to Honda.

Basically, the positioning, number and thickness of knobs make the claw-action tires different. There is a rectangular perimeter of knobs that compresses towards center as weight is placed on the casing; supposedly this results in a claw-gripping action on the ground. Side knobs stick out at obtuse angles to put more surface area in the dirt while pitched over in a turn. Finally, there are paddle-like protruberances to do the heavy moving work in soft soil. All the knobs are relatively close together, and the tires appear to have limited value in really soft terrain. In mushy or sandy dirt, the monkey-puzzles are not dynamically better than the "normal" brands currently available.

On the hard-pack, however, the tires work splendidly. We tried substituting the claw-action front tire for a 23-inch Yokohama which proved to be skittery and a general liability on firm ground but quite acceptable on soft. So nothing has changed much—there's no one tire that's universally splendid on all racetracks, and tires must be changed to suit terrain.

The 211-pound CR125R doesn't feel a great deal like the old Elsinores because it's so much higher-standing. The kickstarter (and its new rubber-sealed pivot) is still on the right side, unlike that on the 250R. The 125 starts in a couple of kicks when cold and revs quickly, reminding the

rider there's almost no flywheel effect. The choke can be taken off almost immediately, and after a run through the gears the engine is up to operating temperature.

Starts can be executed in first or second gear—although in most instances number two is the hot tip. The clutch needs to be slipped a fair amount in second, while wheelies are the order of the day in first-gear launches. So the rider should scoot up and lean forward a lot.

The CR125R's 10,000-rpm, 21.53 horsepower is about on par with the other three Japanese motocrossers. Usable horsepower is confined between 8500 and 10,000 revs. In acceleration, the CR doesn't take much, or give it away. Drag-race victories will depend on rider dexterity and weight. But the torque spread



Frail-looking clips adjust the rear spring preload and are hard to use when the shock bodies are dirty.

on Honda's little screacher is very impressive. It puts out a maximum of 11.78 pounds-feet at 8500 rpm, and it delivers in the mid-elevens from 8000 to 10,000 revs.

The transmission's six gear ratios are well coupled to the engine's smooth power output, although the gap between fourth and fifth gear is pretty small; sometimes it's hard to tell whether the ratios really changed or not. Speed-shifting may be done in two ways. The first method holds the quarter-turn throttle WFO and just fans the clutch while nicking the shift lever. The second method ignores the clutch altogether but nips the throttle back just an instant while shifting. In rare circumstances the Elsinore can be shifted

(Continued on page 99)

Make and model 1979 Honda CR125R
Price, suggested retail \$1275

ENGINE

Type Two-stroke single, air-cooled
with five-transfer, reed-controlled-intake cylinder
Bore and stroke 56.0 x 50.7mm (2.21 x 2.00 in.)
Piston displacement 125cc (7.6 cu. in.)
Compression ratio 8.4:1 (trapped)
Carburetion (1) 32mm slide-throttle Keihin
Exhaust system Upswept exhaust with
silencer/spark arrestor
Ignition Capacitor-discharge,
magnetically-triggered magneto
Air filtration Two-stage oiled foam element
Oil capacity 0.7 liters (0.7 qts.)
Bhp @ rpm 21.53 @ 10,000
Torque @ rpm 11.78 @ 8500

TRANSMISSION

Type Six-speed, constant-mesh, wet-plate clutch
Primary drive Straight-cut gear, 19/60, 3.16:1
Final drive 1/4 x 5/8 in. chain, 13/51 sprockets, 3.92:1
Gear ratios (at transmission) (1) 8.02, (2) 5.92, (3) 4.91,
(4) 4.11, (5) 5.39, (6) 3.19

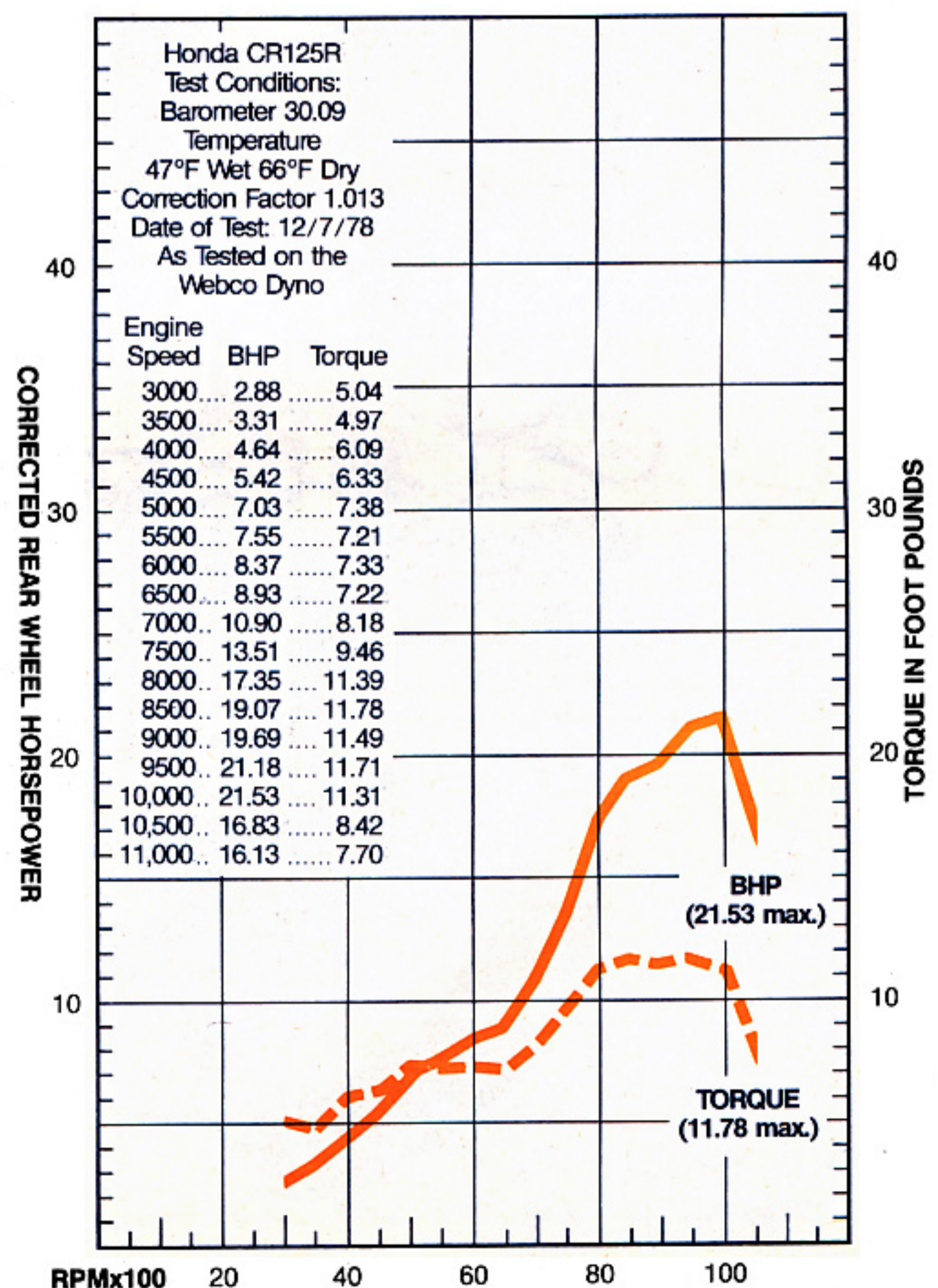
CHASSIS

Type Single-downtube, partial-cradle,
chrome-molybdenum steel
Suspension, front Leading-axle fork
rear Aluminum swingarm with (2) gas shocks
Wheelbase 1420mm (55.9 in.)
Rake/Trail 28°/132mm (5.2 in.)
Brake, front Cable-actuated, 140 x 25mm
(5.51 x 0.98 in.) drum, single-leading shoe
rear Rod-actuated, 130 x 25mm
(5.12 x 0.98 in.) drum, single-leading shoe
Wheel, front Wire, 36-spoke, aluminum alloy,
1.60 x 23 in., one rim lock
rear Wire, 36-spoke, aluminum alloy,
1.85 x 18 in., two rim locks
Tire, front 3.00 x 23 Bridgestone Motocross M15
rear 4.00 x 18 Bridgestone Motocross M16

Seat height 940mm (37.0 in.)
Ground clearance 356mm (14.0 in.)
Fuel capacity 6.6 liters (1.8 gal.), no reserve
Curb weight, full tank 95.5 kg (211 lbs.)
Test weight 170.5 kg (376 lbs.)

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without bothering the clutch or the throttle. Forget about the clutch on downshifts; it's a waste of time. The gearbox always provides convenient and positive shifts.

Some corners require the use of first gear, and a few hairpins demand first gear *and* clutch slip. When called into action, the clutch takes punishment with little complaint. It loses some capacity to disengage when heated from extensive slipping, but its feel returns to normal shortly.

The CR is tremendous in anything even remotely resembling a corner. Control is easily had, especially under power. The rear end is as well behaved as anyone could wish for—it steps out a foot or two and just sticks. The leading-axle front end feels amazingly light; it lofts like a 250's. But the bike steers nicely on the rear wheel using body lean and/or throttle. With both tires touching Mother Earth, it rarely gets very sideways out of slick turns and steers beautifully on loose surfaces.

The Elsinore escapes having one unsettling characteristic of heavier and more powerful quarter-liter and open-class motocrossers. Under throttle, the CR doesn't sit up or fall over in corners.

Sometimes the full-floating back brake chatters the rear wheel a bit and this can kill the engine. But so little force is necessary to turn the crankshaft, the power plant will re-start instantly once the brake is released. Directional stability is good on downhills; the back end of the bike doesn't go hopping all over the map. The front wheel tracks well in ruts and grooves that run parallel with the track. The front brake, supplemented by an external return spring, is superb in all regards—it's light and powerful with excellent feel.

Jumps are no problem—there's plenty of room to crawl all over the 250-sized bike. Point it anywhere you like; it'll go. There's an abundance of ground clearance for the rider's feet on landings and while cornering feet-up.

The rear suspension can be bottomed on really harsh berm-shots or on very hard landings; that indicates the spring and jounce damping combination is just about right. Rear wheel traction remains good during acceleration over choppy terrain. Not too much tail-jarring shock finds its way through the Honda's comfortably padded saddle.

The lengthy front fork does an admirable job of soaking up most of the nasties

found on motocross courses. Nearly a foot of travel can go a long way towards ironing out even the biggest bumps and drop-away jumps, and the damping and overall spring rates are well suited to the CR-R and rider's combined weight. The 23-inch front wheel, long fork and high handlebar mount combine to make the front end seem quite tall. But during low cornering there's an acre of space available under the handlebar for the rider's leg.

Our 165-pound testers found the front fork to be somewhat unresponsive during contact with short stutter bumps during braking. A lighter primary spring rate and some air pressure might make the fork more acquiescent in these conditions.

The new Honda does exhibit one quite disconcerting trait. During braking or under neutral or trailing throttle conditions on almost any significantly rough terrain (from the short stutters to full-blown sand whoops), the front end does violent tank-slappers. This may partially result from the CR's lengthy suspension travel. Normal fork rake is 28 degrees, but when the front suspension is fully compressed, it is reduced to about 20 degrees. Steering trail vanishes as dramatically. When front end rake and trail are diminished by braking, steering stability at high speeds is adversely affected. And the more the fork springs are compressed, the less responsive the fork becomes to small bumps. It takes a powerful bear-grip on the chrome-moly handlebar to control incipient tank slapping. If you're forewarned and if you have hands and arms of 4130 Reynolds steel, then you can hold things under decent control. If not, you're in trouble.

Honda has created new handlebar grips with seals, they claim, that keep out dirt and water. The left-hand grip on our test bike came sliding right off after about 30 minutes of testing in the rain. But they're very comfortable anyway.

Our CR125R test bike had few reliability bothers. The exhaust system leaked oily exhaust from both the cylinder port and the chamber/stinger slip-fit connections. As delivered, the jetting was just a bit rich, and the spark plug showed a trace of detonation, suggesting that the ignition timing was advanced slightly, though not dangerously so. The wheel spokes stayed remarkably tight during the test, and required only infrequent attention. Those who are sticklers for detail will be happy to know that Honda includes a complete owner/shop manual with every bike.

The new CR125R will put Honda back into the highly competitive 125 class. The nicely constructed bike has a wide powerband, horsepower and torque rivaling the class favorites, and fine handling that, alas, is flawed in one area. The CR can use a little attention at the front fork. But we think it will do just fine when thrown in the middle of a buzzing nest of 125 berm-bouncers. At least this time when Honda said all-new, it meant it. ©