

Cycle

MAHNE

£1.05 JANUARY 1983

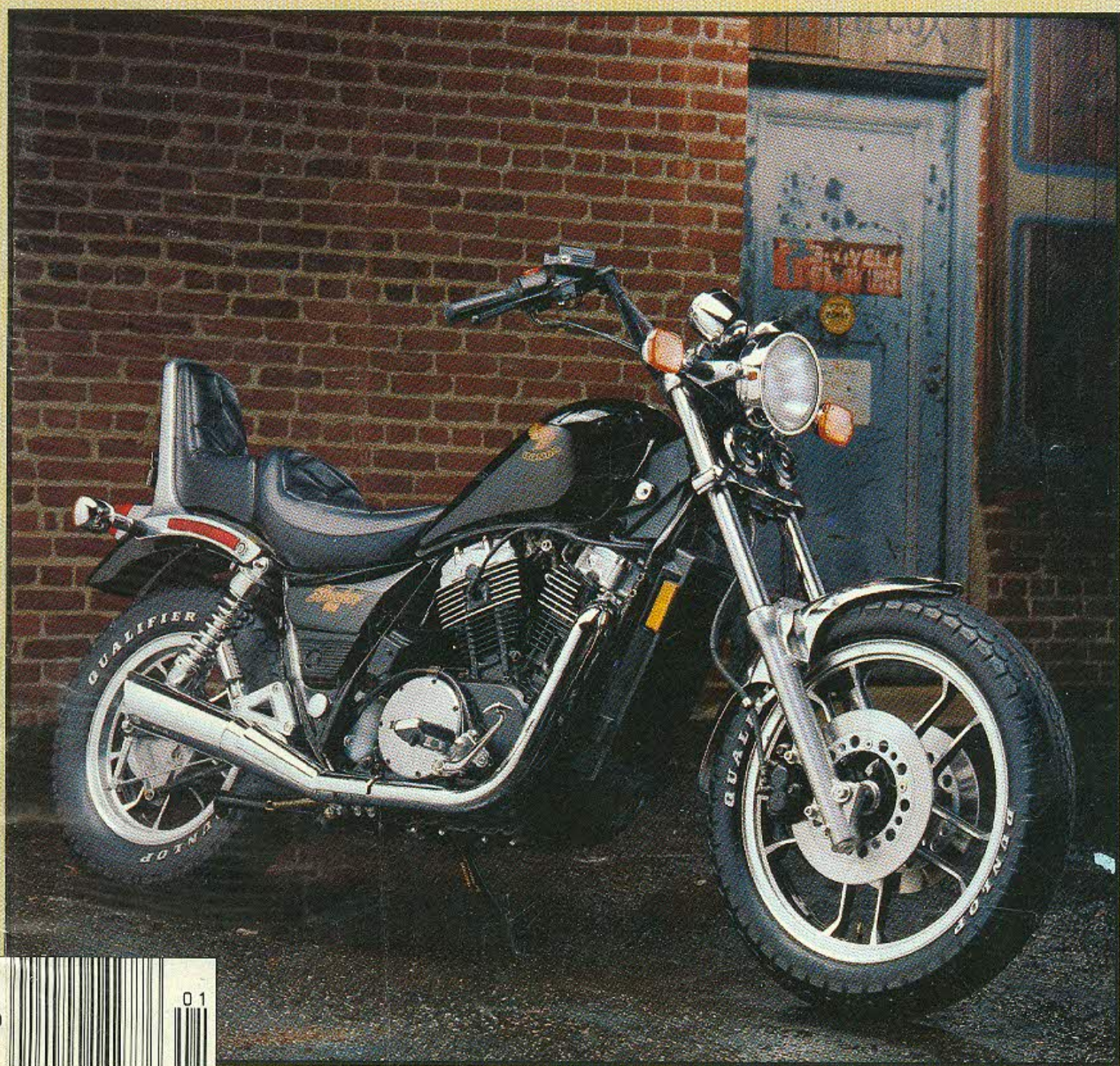
Honda CB1100F
Quickest & Fastest
Superbike Yet

KTM 504 MXC
Best Dirt
Four-Stroke

Honda VT750C

The Most Radical
Honda Ever Built!

Yamaha 650 Maxim
Looking Good,
Going Fast



KTM 504 MXC

□ Even though the resurrection of the four-stroke off-road single occurred some time ago, not until recently did the species evolve to the point at which it can be considered the technological counterpart of the best and brightest two-strokes.

Yamaha initiated the movement

with the TT500 in 1976. For two years, the big Yamaha remained basically unchanged, okay from a marketing standpoint because it was the only 500cc four-stroke dirt bike widely available. If you've got the only art around, then you're the sole possessor of the state of it. With the ex-

ception of the aftermarket engine and chassis people and a whole bunch of garage engineers, Yamaha's competition was scarce.

Not for long, though. In 1979 Honda filled out the four-stroke playbike market with the introduction of its XR series. By constantly refining



PHOTOGRAPHY: JOHN STEW, STEVE BROADBENT

Attention, Honda XR and Can-Am Sonic owners: There's a new King Thumper on the block. (And you motocrossers—relax. Two-strokes are still the ticket for racing.)

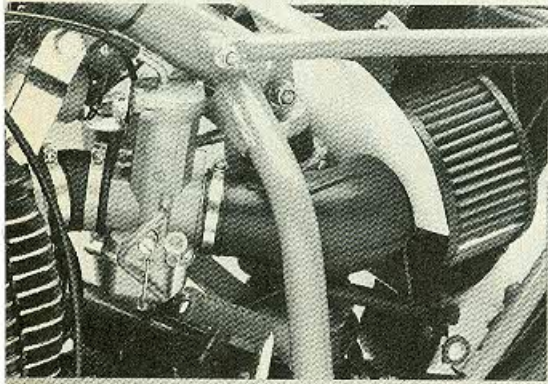
the XR500 and incorporating the Pro-Link rear suspension system in 1981, Honda took lead of the class. Honda's refinement did something else: it made a "playbike" something a racer would consider owning. The XRs handled well enough to allow near-competitive speeds. In the

meantime, Yamaha continued to improve the TT500, and Suzuki bumped its four-stroke single from a 370 to a 400 to a full 500 in 1981. Even so, Honda continued to offer the best off-the-shelf thumper.

Enter 1982 and our friends from Canada—Can-Am. Can-Am's long-

awaited thumper appeared as a 1982 model in the form of an off-road playbike/enduro racer. The Sonic was built along the guidelines thumper freaks had set down for their one-off playbikes. Equipped with the latest in 500-single power (a Rotax four-valver), the Can-Am had a stout chas-





The black dipstick makes reading the oil level difficult. Frame oil capacity is 3.2 quarts.



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sis which provided good handling in almost all conditions, and it sported some of the best suspension components in the business—a Marzocchi fork and Ohlins shocks. Though the Can-Am didn't have much power over the XR500, it performed a little to a lot better in nearly every area and so became the new thumper king.

Which brings us to the latest four-stroke goodie on the market—the 1983 KTM 504 MXC Pro-Lever. Although the KTM is powered by a stroked version of the same basic Rotax engine the Can-Am uses, the MXC powerplant features first-rate engineering and some innovative designs which may extend its service life considerably. The single overhead camshaft, for instance, rides on roller bearings instead of the usual plain bearings. A toothed Gilmer belt drives the cam, taking its power from the left side of the crankshaft, and the composite belt is guarded in its own compartment. To maintain constant tension and prevent resonant flapping, two rollers tension and guide the belt along its path from crank to cam.

The cam-follower/rocker-arms are

other high-quality pieces. The intake and exhaust rockers are each forked (to open the four valves); the cam operates them via roller-bearing cam-followers (replacing the flat plain-surface shoe-type). To operate properly, both types require an oil shield between the working surfaces of the cam and follower; however, because the roller-type rolls rather than slides over the cam lobes, it generates much less friction than the shoe-type. Less friction results in less heat and, consequently, less wear. Screw-type adjusters regulate valve lash, and the good-sized rocker cover plates allow easy access to the adjuster screws.

The Rotax engine is stout from top to bottom. The crankcase is well ribbed, making it strong yet light. Although the cases are compact (an advantage allowed by the dry-sump lubrication system), don't assume that it's a short engine—the powerplant measures 18 inches from drain plug to cam cover, average for a 500cc four-stroke single.

The 504's big end differs from the Can-Am Sonic's by featuring its own connecting rod and crankshaft, both necessary changes to bump the stroke 1.6mm over the 494cc Can-Am's.

In the rest of its particulars, the en-

gine is straightforward. The nearly flat piston has a wrist pin which rides on a plain-type bronze bushing. The big end relies on needle bearings, while caged ball bearings support the crankshaft. Straight-cut gears run the primary gears and counterbalancer, and the five-speed transmission delivers power through an eight-plate wet clutch. Since the dry-sump system precludes splash lubrication, a pressurized spray bar lubricates the transmission.

The five ratios are fairly widely spaced, which you'd expect with a big-bore four-stroke single, but the overall gearing is pretty short. Although short gearing can be a bonus for bopping through a tight woods section, on fast fireroads you might wish for taller overall gearing.

The KTM/Rotax powerplant breathes through a 36mm round-slide Bing carburetor. It mounts on a rubber-elbow-type manifold, needed to angle the carburetor and airbox away from the centrally located shock absorber. The air filter, a K&N wire-mesh/oiled-gauze element, resides in a small, maze-like airbox. An intricate array of channels prevents water from reaching the filter, but the airbox cover may make the precautionary channels useless. Two



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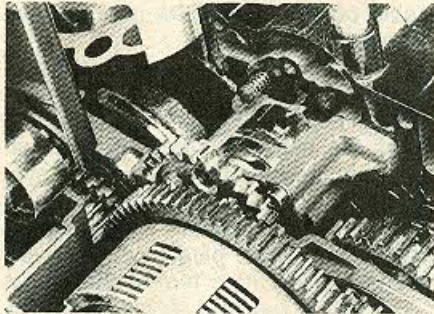
small rubber bands hold the cover in place, and one of them disappeared before we had used the first two gallons of gas.

The twin head-pipe exhaust system winds its way from the right side of the motorcycle to the left between the cylinder and the rear shock, then exits into a Super Trapp silencer/spark arrester. The head pipe skirts the shock reservoir, which straps to the frame on the right side. The reservoir heated up even while we cruised on a smooth road, which is why most manufacturers position shock reservoirs as far as possible from engine heat.

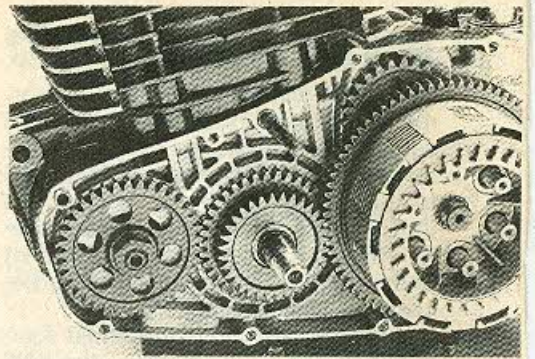
The 504 MXC chassis follows modern, up-to-date design guidelines. The chrome-moly frame produces a 58.6-inch wheelbase, almost identical to the Can-Am Sonic's and 2.7 inches longer than Honda's XR500. Of these three big-bore singles, the KTM has the steepest fork angle (27.5 degrees). The '82 XR has 28.0 degrees and the Sonic a stretched-out 29.4 degrees. Trail figures for the three are within 0.4 inch.

The frame's front downtube and backbone sections double as the oil

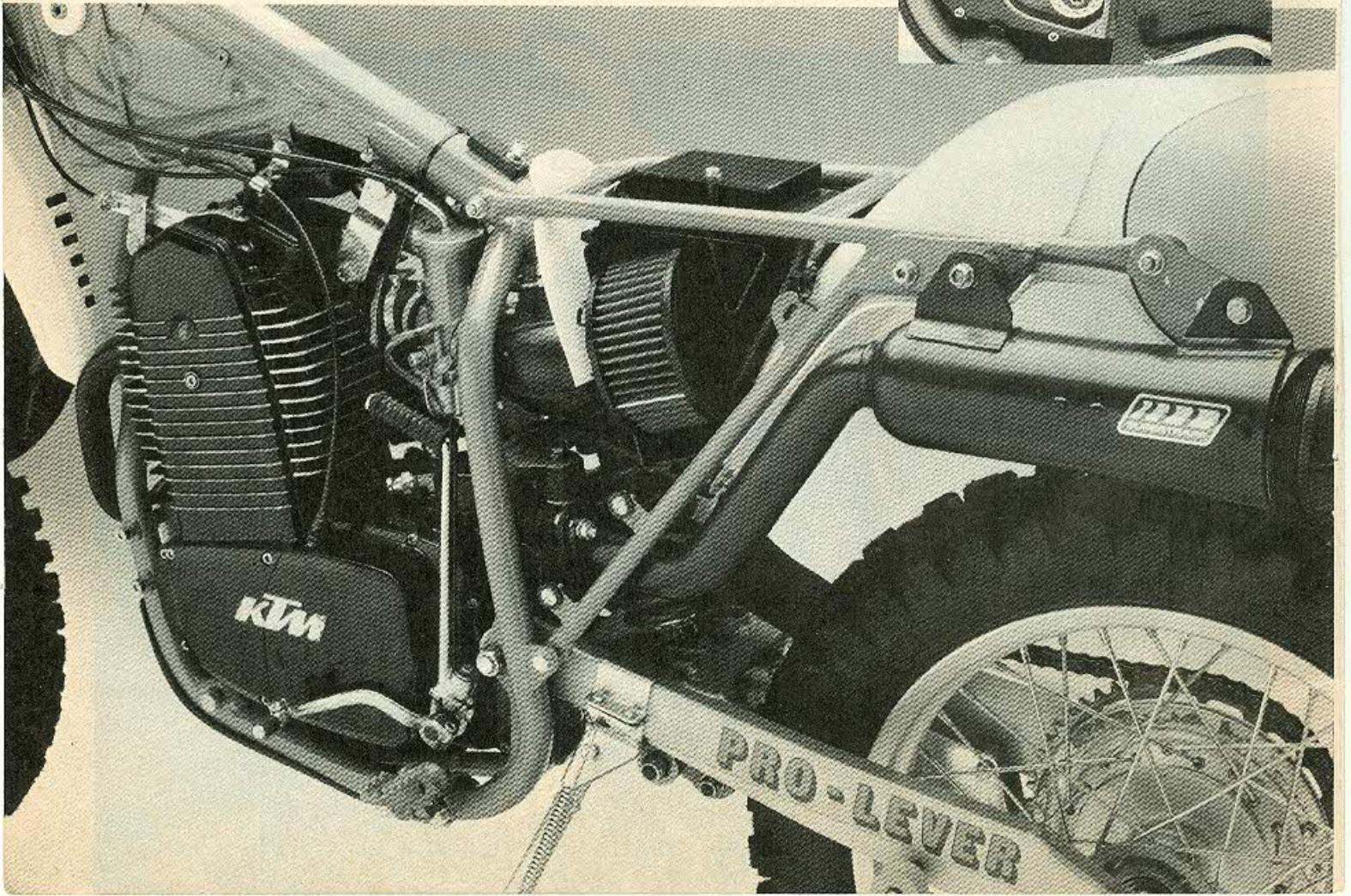
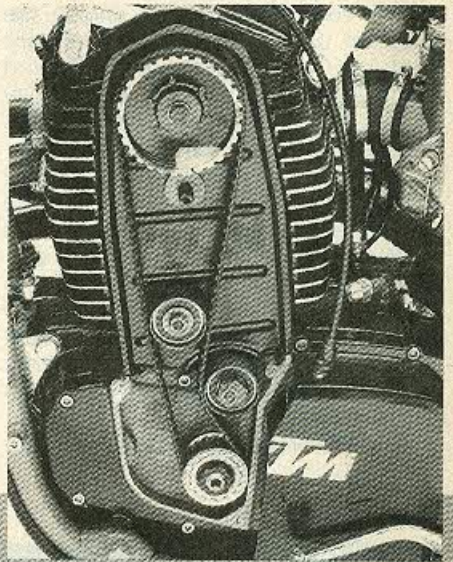
reservoir for the dry-sump engine. The single front downtube splits at the top of the engine case where it forms a full-cradle back to the swing-arm pivot. At this point, the engine cases act as a stressed member; the swing-arm pivot bolt runs through the rear of the engine. The rear subframe bolts on at two points: behind the swing-arm pivot and where the backbone meets the lower frame section at the tank-seat junction. This setup gives two benefits. Removing the rear frame section exposes the shock completely; without the break-away section, access to the shock



The twin trochoidal oil pumps (above) are visible just behind the clutch and oil-pump drive gears. Timing-belt tension (right) is maintained by an eccentric-mounted roller, which also acts as a guide.



Both the balancer and primary drive are taken from the left. Extensive ribbing adds to crankcase strength.



would be very restricted. Second, if you crunch the rear subframe, you can buy only the part you need.

We can find little fault with the KTM's handling. It tracks along any line the rider chooses, regardless of terrain, and still retains excellent steering characteristics. Very often, Something Stable becomes Something Unable when the going gets tight and you're still trying to maintain a high-speed average.

KTM's Pro-Lever rear-suspension system resembles Honda's Pro-Link setup. The top of the shock bolts to the

frame beneath the rear of the fuel tank. The bottom of the shock mounts on a steel link which bolts to the frame at its front, and to the swing arm via two alloy links (one left, one right). This arrangement allows for a floating lower shock mount, enabling the shock shaft to accelerate at a ratio other than one-to-one with the swing arm. Both the swing arm and the bottom steel link pivot on caged needle bearings; the two alloy links pivot on bushings. Field maintenance is limited to two external zerk fittings—one on each of the two alloy links.

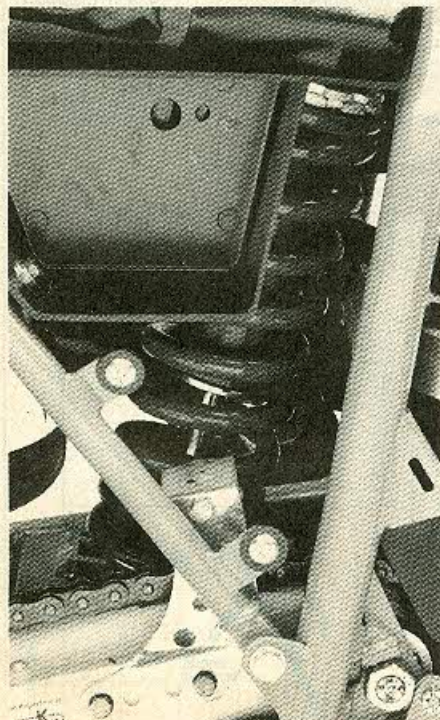
The Pro-Lever shock, a remote reservoir Fox Shox unit, has independently adjustable compression and rebound damping. Rotating a knob at the base of the shock selects rebound adjustments. Compression damping adjusts via a small knob on the top of the frame-mounted shock reservoir. A damage-resistant braided stainless steel line connects the reservoir to the shock body, and a threaded collar sets spring preload.

Tuning the widely adjustable shock makes the KTM plush for leisurely trail rides or firm for high-speed trips across desert whoops. You can even tune it

for light duty as a playtime half-miler. In fact, the 504 is happy playing in the left-turn-only mode. The front end sticks well when you jam the bike into a hard left at high speed—something almost unheard of with a knobby-equipped, long-travel-suspension motorcycle. Just snap it into the turn and bring in some throttle.

KTM uses Marzocchi forks on all its big-bore bikes. The 42mm tubes and four-bolt triple clamps form a rigid fork assembly. The triple clamps are supported by tapered caged roller bearings in the steering head. The leading-axle fork offers air caps on each fork leg for adjusting front-end air pressure. In especially rough terrain, the fork works best with four psi in each leg. With zero pressure, the fork bottoms over medium jumps. The rear shock also requires additional compression damping in these conditions.

All bodywork, fuel tank included, is made of durable plastic. The tank holds 3.4 gallons. Both right and left sidecovers shroud a large area, helping improve airbox waterproofing. Additionally, they prevent the bike from collecting as much mud as it might when conditions get really messy. Both front



The Fox shock is tightly nestled between the airbox, frame and exhaust pipe. Rebound damping is adjusted at the bottom of the shock; compression damping is adjusted by the knob on the reservoir.



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and rear fenders protect against tire-deflected objects, and they proved to be durable (having survived our typical crash program).

With the exception of the front brake assembly, all hand controls are the top-quality European Standard—Magura. The handlebar, made from chrome-moly tubing, is finished in non-glare matte-black. Although the bend is good, the bar is excessively wide. If you plan to ride the 504 in tight woods, and hope to have fingers that work at the end of the day, trim at least an inch off each end of the bar.

Front disc brakes are rare on off-road bikes. Though the total disc-brake system (disc, caliper, brake line and master cylinder) weighs more than a drum brake setup, the extra few pounds are worth the gain in brake feel, response and consistency in poor weather conditions. The KTM's Brembo system does indeed provide excellent feel and power at all times. However, the KTM's disc setup has one possible drawback—the aluminum



master cylinder/plastic reservoir stands a fair-to-middlin' chance of being damaged in the first good right-side crash. We'd prefer to see an all-metal master cylinder/reservoir with a

braided stainless steel hydraulic brake line, à la Kawasaki's.

Without a doubt, the 504 has one of the firmest seats ever found on a modern off-road motorcycle. If you want to



The old maxim says you get what you pay for. True enough: the KTM is the most expensive and best thumper you can buy.

TEST SPECIFICATIONS

Make and model KTM 504 MXC Pro-Lever
Price, suggested retail (as of 10/20/82) . . . \$3080

Engine

Type Four-stroke, single-cylinder; air-cooled, with one belt-driven overhead camshaft; four valves per cylinder
Bore and stroke 89.0 x 81.0mm (3.50 x 3.19 in.)
Piston displacement 504cc (30.8 cu. in.)
Compression ratio 9.5:1
Carburetion (1) Bing 36mm round-slide
Exhaust system Upswept pipe with dual headers and Super Trapp Muffler/USFS-approved spark arrester
Ignition CDI; external rotor magneto with lighting coils
Air filtration K&N oiled paper element
Oil filtration Washable screen and disposable paper element
Oil capacity 3.2 qts. (3.0 l)
Bhp @ rpm 31.54 @ 6500
Torque @ rpm 28.57 @ 4000

Transmission

Type Five-speed, constant-mesh, wet clutch
Primary drive Straight-cut gear; 76/32; 2.38
Final drive . . . #520 chain; 15/52 sprockets; 3.47
Gear ratios (transmission) (1) 2.91 (2) 2.00
 (3) 1.40 (4) 1.12
 (5) 0.91

Chassis

Type . . . Single-downtube, full-cradle chrome-moly steel frame; box-section aluminum swing arm
Suspension, front Leading axle, air-assisted fork with 42mm tubes and 11.9 in. (302mm) of travel
 rear (1) gas-charged, remote-reservoir Fox shock absorber; adjustable for spring preload, compression and rebound damping, producing 11.7 in. (297mm) of rear-wheel travel
Wheelbase 58.6 in. (1488mm)
Rake/trail 27.5°/5.0 in. (127mm)
Brake, front Hydraulic, single-disc with dual-piston caliper

rear . . . Rod-actuated, single-leading-shoe drum

Wheel, front 1.60 x 21 aluminum alloy rim
 rear 2.50 x 18 aluminum alloy rim
Tire, front 3.00 x 21 Metzeler Motocross
 rear 4.50 x 18 Metzeler Motocross
Seat height 38.2 in. (970mm)
Ground clearance 12.8 in. (325mm)
Footpeg ground clearance 15.2 in. (386mm)
Fuel capacity 3.4 gal. (12.9 l)
Curb weight, with one gallon of gas . . . 299.0 lbs. (135.6 kg)
Test weight 449.0 lbs. (203.7 kg)

Customer Service Contact

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