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Motocross in America

Amateur racing is the backbone of motocross in America. Thousands of fun-day riders compete in hundreds of local events which reward success with trophies, not money. But at the very top, motocross racing has gone professional in the United States. The business of racing has become too competitive, too intense, too prestigious to be left to amateurs.

Three national titles draw big-league sponsors, professional riders, and factory teams—the National Motocross Championships in the 125cc, 250cc, and 500cc classes. Only native Yankees can compete in this national series staged by the American Motorcycle Association.

Two other series open events to European professionals. The first is the brief mid-summer Inter-AMA for 250cc motorcycles; 500cc motocrossers run in the longer Trans-AMA series. By the time the Trans-AMA calendar begins in late September, the FIM world championships have been settled, and many international stars hop over to America to campaign in the Yankee races. About ten events make up the Trans-AMA, thus enthusiasts from New York to California can see world-champion riders. The international stars give the spectators (and the domestic opposition) some dazzling lessons in the art of motocross racing.

Money brings the world pros to America. The entire pay-off amounts to more than the winning purses. The manufacturers—who sponsor professional riders—have a great stake in the American series: four out of five motocross bikes are sold in the Yankee marketplace.

Sunday's spectators, the manufacturers reason, are Monday's customers in a land where enthusiasts cheer with their wallets.

Masterful riders and superb machines give motocross racing a fluid grace far above the violent terrain.

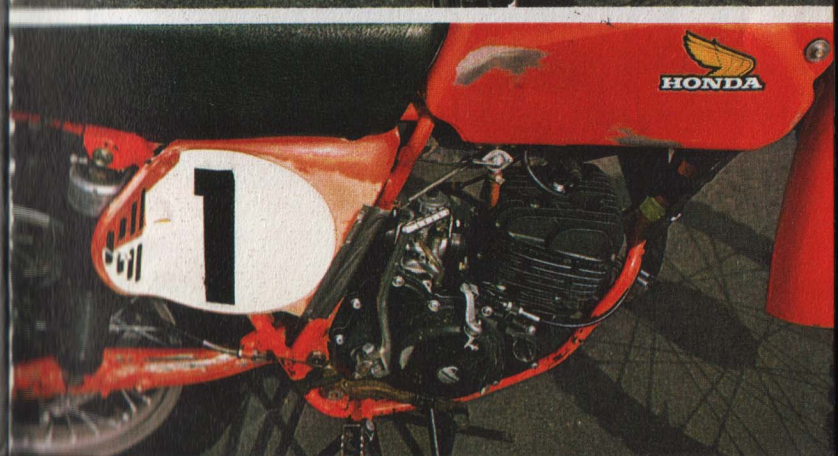
Honda RC-125

Racing is serious business for Honda. The largest motorcycle manufacturer in the world cannot go racing merely for fun. As the richest and grandest motorcycle producer, Honda must win. When small companies achieve victories, that's spectacular news. When Honda wins, it's almost expected. And Honda did win the 125cc American Motocross Championship in 1974, as Marty Smith scooped up the title with a works Honda.

The RC-125 is a factory-racing special, quite distinct from the over-the-counter CR-125. The works Honda scales in at the legal FIM minimum weight—178 pounds. That's not unusual for a factory bike, but Honda held a clear advantage in the horsepower department. Only the Can-Am 125 threatened Honda horsepower in 1974. Honda's magnesium/chrome-moly/titanium masterpiece went to the starting line with well over 20 horsepower—perhaps 25 horsepower—in its crankcase/reed induction engine.

Honda's induction system does not feed into the cylinder, the standard practice when the piston controls the intake timing. Rather, the inlet pathway leads directly into the crankcase, and crankcase pressure and the reed valve govern the timing of the intake charge. Honda claims the unique system produces the low-rpm power of a normal reed-valve engine and the high-rpm power associated with piston-port designs which have no reed valves.

Honda also spent much time working on suspension tuning. And that meant adjusting damper positioning and spring/damper action. Even with a horsepower bonus, Honda could not ignore suspension development, because superior handling in the rough often determines the winning margin. And in 1974, Honda had the right combination of reliability, handling, power—and riding talent. With that blend, Honda did the expected.



The RC-125 is a light and spindly 178 pounds. The FIM imposes minimum weight limits in the interest of safety and fair competition.

Can-Am 250 GP

By the end of 1974 some pundits thought Gary Jones had taken the AMA's 250cc National Motocross Championship out on permanent loan. The young Californian won the title for the third straight year; to date Jones has been the only rider to hold the 250 crown since its creation. Yet every year, he has claimed the title on a different machine, and in 1974 Jones was Can-Am mounted.

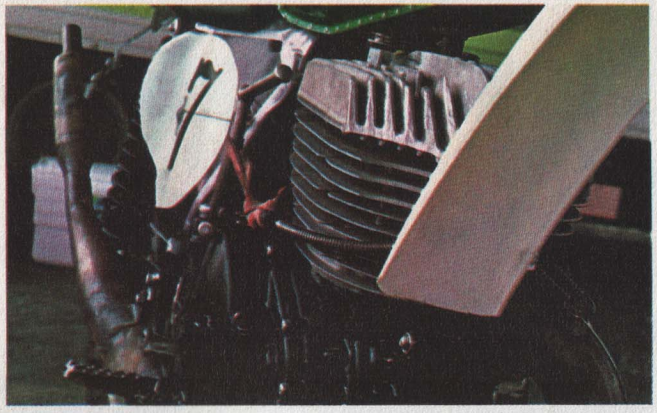
The Can-Am 250cc grand prix bike underwent constant changes throughout the season. At virtually every major round in the AMA championship, the bike was different. Seemingly, there was but one permanent equation in the Can-Am formula—the 4130 chrome-moly chassis and its geometry—and this stayed intact. Otherwise, Can-Am modified race to race, experimenting with fork-rake angles, springs, and damping. That was only the beginning.

More fundamental modifications also occurred. The shock absorber placement proceeded from a standard vertical position to a forward-mount location. In its final pattern, the rear suspension allowed 6 inches of rear-wheel travel. Can-Am swapped dampers around, starting with S&W units, moving to Koni hydraulics, and finally settling on Girling gas-oil components.

Without question, the Can-Am GP was the fastest 250 on the AMA motocross tour. Its power reflected much detailed work. Inside the engine cases, cast entirely in magnesium, each gear in the five-speed transmission was drilled and machined for lightness. Though Jones' early-season bike showed 34 horsepower on the dynamometer, new expansion chambers, modified port timing and different rotary valves pushed the output to 39 horsepower at the season's end.

And for Gary Jones, that was all he needed.

In 1974 Can-Am took a moderate approach in suspension, opting for forward-mount shocks rather than a cantilever system.



Kawasaki KX-400

Sometimes less is more. Consider the gradually decreasing displacement of some 500 motocrossers. The Kawasaki which carried Jim Weinert to the 1974 AMA 500cc Motocross Championship reflected this downward movement. The works KX-motocrosser began the season with a 450cc two-stroke engine and finished with a 401cc motor. The smaller two-stroke revved higher and made more horsepower, though it lacked the low-rpm torque and pulling power of the larger displacement engine. But top-flight motocross riders can go faster with more horsepower.

By the season's end, the 401cc engine possessed abundant power. In its latest version, the two-stroke rings in hard at 4,500 rpm; at 7,000 rpm, the engine peaks, producing 45 horsepower at the rear wheel. When the engine reaches its powerband, the bike simply rockets forward. Even an accomplished amateur rider would find the Kawasaki unmanageable. But star-professionals can govern such bikes, and for that kind of touch, factories must—and do—pay.

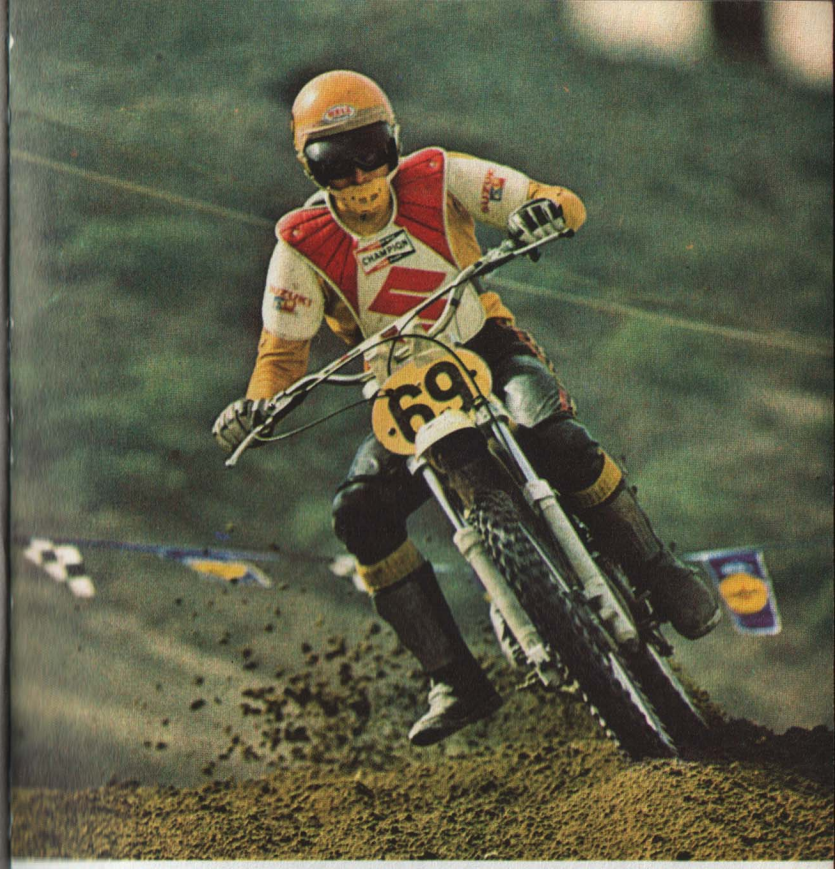
The running gear, as well as the engine, is calibrated for extraordinary riders. There's a day-and-night difference between the handling of the 217-pound works bike and the production motocrosser. The front suspension gives a full 8 inches of travel while the laydown shock absorbers permit the rear axle to move up and down more than 7.5 inches. The ordinary rider would find the suspension of the factory racer far too stiff. However, if he could go fast enough through rough terrain, he'd find out what the professional already knows: the suspension is just soft enough!

Development never stops on works motocrossers. The Trans-AMA bike was a further development of the AMA 500cc title winner.

Suzuki 400

If anyone knows how to win in world championship motocross, it's Roger DeCoster. The Belgian rider joined the Suzuki motocross team in 1971 with spectacular results. He won the 500cc FIM crown three years straight, 1971–72–73. Machine problems repeatedly slowed or stopped his Suzuki in 1974, and his 500 title slipped away.

A veteran of the fall Trans-AMA circuit, DeCoster returned to America in 1974. Both he and his Suzuki were in peak form, and the Trans-AMA title easily fell to DeCoster. His autumn-series bike was quite similar to the Suzuki grand prix machine as developed late in the European season. The troublesome 370cc GP engine was replaced with a production-based 396cc two-stroke. DeCoster and Sylvain Geobeors



designed and constructed a new one-off frame around the 396cc powerplant which came from a TM-400 Cyclone.

The cantilever rear suspension, with a heavily gusseted swing arm, operates with Japanese Kayaba gas-oil shock absorbers, which give a tremendous amount of rear-wheel travel. The front fork tubes, Kayaba units with 7.5 inches of movement, could be set in any one of three different triple-clamps. The clamp changes provide a gross adjustment; the handling characteristics of a good GP bike can be fine-tuned in a half-dozen places.

With the Trans-AMA trophy and prize money in hand, DeCoster could return to the 1975 world championship events with his reconstituted Suzuki motocrosser and renewed hope. It just could be 1971 all over again in 1975.

DeCoster rides the 396cc Suzuki with an urbane smoothness. Totally unruffled, he guides the bike, which rockets in a frenzy.

Maico 400

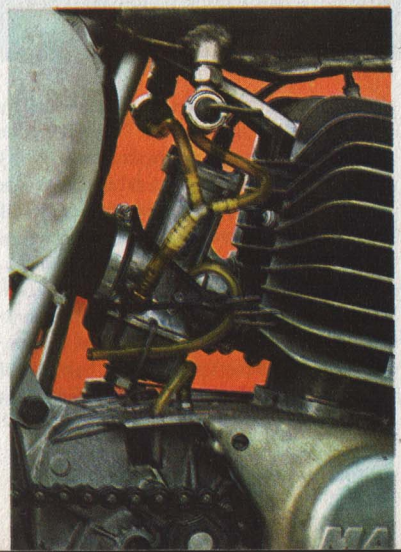
Not only does the Trans-AMA series close off one international grand prix season, but it also begins another. In the 1974 American "finale" Maico riders and technicians experimented with different modifications and set-ups, in an attempt to sort out their machinery for the 1975 grand prix season in Europe.

To discover what *won't* work is often just as important as the inverse. For European marques, losing a Trans-AMA motocross race is far less serious than dropping a World Championship event. So the United States series makes an ideal testing ground for companies like Maico: all the world-class competitors—racing hard in America—provide good yardsticks.

Maico, for example, tried new port timing specifications which produced tremendous high-rpm horsepower. Sheer horsepower wasn't the answer; that approach fit neither machine nor rider. Maico discarded the experimental porting in favor of the standard 1974 design.

The Trans-AMA Maicos were trick in other ways. Revised forks, with 8 inches of travel, attached to a new frame, which featured Maico's version of the cantilever rear suspension system. Gas-oil rear shocks allowed 8 inches of movement in the alloy swing arm. Even though good handling has long been a trademark of the conventional Maico running gear, the German manufacturer clearly intends to run up front in the motocross-suspension revolution.

At the end of the 1974 Trans-AMA series, Maico's Adolph Weil finished third. It was a good third, one which gave Maico a running start on the 1975 grand prix season.



Trans-AMA Maicos had drastic alterations in the rear suspension and more subtle changes in the engine.

Husqvarna 360 CR Mikkola Replica

While some manufacturers use the Trans-AMA series to prepare for the following year's grand prix season, other companies showcase their new models during the American tour. In 1974 Husqvarna raced new production models named after Heikki Mikkola and his world-title motocrosser.

In many ways the production-line 360cc Husqvarna, ridden in the Trans-AMA events by Heikki Mikkola, Arne Kring, and Brad Lackey, was a better machine than the grand prix motorcycle on which it was based. The production 360 CR Husky incorporates all things that worked in Europe, and nothing that didn't.

The chassis follows the same geometry as the Mikkola grand prix machine without the excessive gusseting of the world-title bike. The Swedish factory heat-treats its frames before welding and then normalizes them after fabrication; this process minimizes frame flexing and breakage. The suspension is likewise built for roughery. Up front the production bike rides on a Husqvarna fork with 7.5 inches of travel, and in the rear Girling gas-oil shocks provide bump control.

The present 360cc engine grew out of Husqvarna's old 400cc four-speed unit. The smaller displacement engine has a narrower bore and shorter connecting rod. Engine cases are cast in magnesium, and so are the clutch hub and plates. A 36mm Bing carburetor feeds into the aluminum cylinder where the Femsa ignition system fires off the fuel-air charge. The explosion is considerable because the 360cc engine produces an incredible 39 horsepower with standard-specification porting. The big-number horsepower implies a relatively tight powerband, but there's a six-speed gearbox to help cope with the power curve.

Launched in the 1974 Trans-AMA series where it finished behind Japanese and European works bikes, Husky's new 360 proved itself a winner nonetheless. In a fitting victory, Heikki Mikkola guided the 360 to its first major American win.

Husky's 360 has a look of purpose; it's as functional as a cannonball. With 39 horsepower, it's not much slower.