

Unlike a conventional telescopic fork, the Ribi design's geometry produces a rising rate. As the suspension compresses, the mechanical leverage ratio acting on the shocks and springs varies, just as rear suspension linkages have done for the past 20 years or so. The advantage is that the initial part of the stroke feels softer and then becomes progressively stiffer to resist bottoming as compression increases. Currently this effect can be achieved in conventional forks only with progressively wound springs and complex high- and low-speed damping circuits.

One of the characteristics of a conventional fork is that it produces a change in steering geometry as it compresses or extends. Around the turn of the '80s, this was often cited as a problem to be solved, though since then the tendency is better understood as part of a motorcycle's natural steering behaviour. The Ribi design, at any rate, permits control over how the steering geometry changes during compression. On this Honda RC125M, for example, pushing on the front end produces a very plush initial feel, and a visible difference in how the wheel and axle shift during compression. The wheel follows an arc, almost like a scooping motion.

DeCoster remembers the feel of a Ribi setup as being quite similar to a conventional bike. Overall weight was comparable and the fork compressed in a familiar fashion under braking, unlike traditional leading-link forks. The most striking difference was how well the front wheel would stay on the ground over small irregularities while also handling the larger hits, particularly square-edged ledges. So why aren't we all riding with Ribi-type suspensions? According to DeCoster, a key factor was a change in the motocross environment from natural terrain circuits to more spectacular, spectator-pleasing supercross-style tracks. In order to keep the Ribi fork from bottoming after landing from big jumps, the spring and damping rates had to be stiffened to the point that the suppleness in the first part of the stroke was all but eliminated. Conventional fork designs have also evolved to the point that the friction that results from flexing has become a controllable part of the damping and a useful factor in bottoming resistance.

DeCoster's career path also changed, though when he left Suzuki to ride for Honda, he brought the Ribi fork design with him, the rights to which Honda purchased. Soon after DeCoster retired from riding in competition, but Honda continued to develop the design, including at least one experiment with a street bike that was caught on film during a test.

The first Honda RC125M with a Ribi front end, or double Pro-Link, as it was subsequently renamed, appeared at the



Japanese GP at Suzuka in 1980. Honda installed a twin-cylinder 125 engine in the bike for the '81 season, but rule changes forced a return to the single-cylinder design of the bike shown here. The RC125M prototype racer features an intricately machined aluminum front end, produced in the days before computer-controlled milling machines. A pair of Showa shocks with remote reservoirs control the suspension movement, and each shock has two springs, one soft for initial compliance and a stiffer rate for the big hits.

But has history consigned the Ribi design to museum status? DeCoster believes the design could still offer advantages for contemporary enduro riders. And perhaps a future age of two-wheel drive motorcycles may yet revive Ribi's vision of enhanced front suspension control.

CC

Honda RC500M

André Malherbe's world championship winner

In the early '80s, traditional European-style 500 cc motocross was near its peak both in competition and technology. A 500 motocross grand prix hosted the best riders and teams, competing in two 45-minute motos on varied and challenging tracks. One of the most successful racers of the era was three-time world champ André Malherbe of Belgium, whose 26 500 GP victories rank him fourth on the all-time win list in the class. The Honda he rode to his final championship in '84 is the bike you see here, which visited Canada's show circuit on loan from the Honda museum. Malherbe raced this bike during the Canadian GP in '84, held at Moto Park in Ontario, where he finished runner-up to Georges Jobe in both motos. (Canadian champ Ross Pederson battled with Malherbe in the first moto but crashed and remounted for fourth, then took fifth in the next moto.)

Motocrossers of the time competed in a wide range of conditions, ranging from the grassy, perhaps snow-covered slopes of Sittendorf, Austria, to the baked hardpack of Italy or deep sand whoops of Holland. Bikes had to be reliable and excel in all conditions. Steve Whitelock, an American, who now is AMA's motocross and super-

cross series manager, was part of the Honda dynasty that won the 500 title nine times in a row from '84 through '92.

Whitelock says they had to check carefully to get the RCs past technical inspection. The FIM minimum weight limit for 500s was 102 kg, and the Hondas were right on that mark when they passed through tech inspection. Built with titanium and magnesium hardware, the 500s used heavy duty inner tubes among other items to meet the limit. "They weighed about 98 kilos on a good day," says Whitelock. "We had to add weight to get them passed."

After each race the bikes were torn down for maintenance; the one-off suspension units were handed over to the Showa technicians for service and the rest of the bike was rebuilt by Malherbe's Finnish mechanic, Heikki Penttillä. The low-slung, hand-fabricated aluminum fuel tank kept the centre of gravity low and allowed the rider to move far forward on the bike. It used a simple vacuum-operated fuel pump to lift the fuel above the carburetor and drain normally into the float bowl.

Scoring points in every moto was the key to winning championships in those days. Teams could not afford a breakdown. "We focused on being reliable; things were over-engineered and we did a lot of maintenance to ensure reliability," says Whitelock.

Liquid-cooling had been introduced the year before on the single-cylinder two-stroke, which had a bore and stroke of 89.0 x 79.0 mm for a displacement of 491.5 cc. This model was the first 500 equipped with an ATAC exhaust valve, something first introduced on the RC250M of 1982. Output was rated at more than 60 hp at 7,000 rpm and 48 lb-ft of torque at 6,500 rpm, delivered through a five-speed gearbox to the 5.10 x 18 rear Pirelli. At the time, the aluminum subframe and front disc brake were still considered innovations.

Following his championship '84 season, André Malherbe went on to finish runner-up in the world championship to his teammate Dave Thorpe in 1985 and 1986. Tragically, Malherbe was paralysed in a crash while competing in the '87 Paris-Dakar rally.

—Lawrence Hacking

