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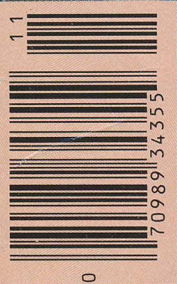
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ON THE COVER: Why didn't Jeff Ward win the 250 championship? He tells all on page 56, while Yamaha's new enduro surprises are on page 30. Wardy photo by Chris Hultner. Cover design by DeWest; separations by Valley Film.



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KEEPING IT SIMPLE

Refining the meaning of low maintenance

By The DIRT BIKE Staff

Fred eyed the battered Ford pickup pulling into the pits and watched the ATK owner proudly unload his new 1990 406MX. Needing some money for his entry for tomorrow's Grand Prix, Freddy's mind hit the rev limiter. Turning to Mikey, his riding partner, Fred challenged, "See that brand-new ATK over there? I'll bet \$10 that he's back in the pits in five laps or less with brake problems."

Mike, knowing that ATKs are built from the ground up to be low-maintenance sleds, figured that bet was a quick ten-spot in his pocket. "You're on," he said, trying not to sound too enthusiastic. The two wandered over to the bleachers as the ATK rider made his way onto the track.

The rider did a slow lap then started to pick up the pace a bit. Halfway into the second lap, he stalled the motor with too much rear brake. Fred chuckled, "Might as well give me that tenner right now."

"No way. The guy's just ham-fisted. He's just warming up to the new bike."

A half-lap later, Mr. ATK stalled again, then restarted. He picked up the pace another notch and put together two decent laps then blew through a berm and barely saved it from crashing. He looked at the countershaft-mounted brake a minute, slowly cruised back towards his truck and started spinning wrenches on the rear brakes.

"Ha—four laps! Cough up those ten clams, Mike, my man!"

"Hey—you must have ESPN or sump-thin', Freddy. Here."

Fred figured it was time for the *coup de grace*. "Don't take it so hard, Mikey. How about this? Bet ya that, by the end of his next practice session, his chain will be so loose it'll take all of the available adjustment to get it right. Double-or-nothing."

"That's a sucker bet, but I'll take it. That was my beer money you just took, and I want it back."

Sure enough, after nine laps, the chain was looser than a 7-1/4-inch helmet on a Pee-Wee. Fred and Mike sauntered over for a closer look as Mr. ATK prepared to tighten the chain. After he'd maxed out both A-Trak cam adjusters, the ATK rider started fishing through his toolbox for the set of offset axle spacers the ATK dealer had given him. Fred flashed a smile and his palm, into which Mike slapped another ten bucks.

Believe it or not, we've actually had these things happen on the first day with our '90 406. The banjo bolt on the rear caliper loosened from vibration, causing our brakes to go south. After the initial chain stretch, we had to change axle plates. Then, zilch. No maintenance, other than changing pads and routine tightening of motor-mount bolts.

This is good, but the initial problems can be disheartening to the new ATK owner who expects his tools to become covered with cobwebs before ever having to lay one on the air-cooled, linkageless ATK.

HONING THE 1991 ATK 406MX

Each year the simplistic design of the Rotax-powered, American-built ATK gets honed to provide better performance with less maintenance. Last year the 406 got a new-generation flatslide Mikuni TMX carb, which lacks a pilot jet and allows total tuning with just the needle and main jet. Two mains and needles are supplied with each ATK sold. The '90 also got a new cast iron rear disc brake rotor, heat shields to eliminate fluid boiling, a new chain adjustment system within the A-Trak system and a frame with more narrow midsection. At mid-year they also introduced MX versions of their two- and four-stroke machines, with a super-slim tank, safety seat and steeper steering head angle.

For 1991, the ATK saw further motor and chassis mods:

- A new chromoly box-section swingarm features conventional axle adjustment in addition to the chain-adjustment capabilities of the A-Trak rollers. This improvement is threefold. First, it allows a greater spectrum of adjustability and gear selection. Second, and more important, it allows the ATK owner to lengthen or shorten wheelbase for wide-open or close-quarter combat. Third, for races where quick wheel changes are a must, the new system speeds removal and insertion of the axle. Keep the axle tight, though, or you'll bend the adjustment plates.

- A stronger chain guide keeps the O-ring chain in line when the ruts and rocks get brutal.

- Carbon metallic brake pads squeeze the countershaft-mounted rear brake and provide longer pad life than conventional organic or metallic pads. With time, the carbon is impregnated into the iron disc, supposedly making the disc brake system impervious

With around 10hp more than the stock Rotax 406 motor, the ATK can destroy berms like a full-on 500, but it's easier to ride and maintain. Light weight, a rock-solid chassis and short wheelbase make for a flickable Open-class sled.



1991 ATK 406MX

| | |
|-----------------------------------|---|
| Engine type | Case-reed, air-cooled 2-stroke |
| Displacement | 399cc |
| Bore and stroke | 84.0mm x 72.0mm |
| Carburetion | 38mm TMX Mikuni |
| Fuel tank capacity | 2.3 gal. (XC 4.7 gal.) |
| Gearing | 16/46 |
| Lighting coil | Yes |
| Spark arrester | Optional |
| Green sticker legal in stock form | Yes, w/SA |
| Running weight with no fuel | 221 lb |
| Wheelbase | 57 in. (1448mm) |
| Rake/trail | 26°/4.8 in. |
| Ground clearance | 13.5 in. (343mm) |
| Seat height | 37 in. (940mm) |
| Tire size and type: | |
| Front | 90/90 x 21 Pirelli Lagunacross |
| Rear | 100/100 x 18 Pirelli Lagunacross |
| Suspension: | |
| Front | Inverted WP 4054, 11.8 in. (300mm) travel |
| Rear | A-Trak, WP aluminum piggyback, adj. comp./reb./prel., 13 in. (330mm) travel |
| Country of origin | U.S.A. |
| Suggested retail price | \$4290 |
| Distributor/manufacturer: | |
| ATK Motorcycles, USA | |
| 5430 Union Pacific Ave. | |
| City of Commerce, CA 90022 | |
| (213) 722-8880 | |

to mud, water and dirt. The jury is still out on the long-term benefits of the counter-shaft-mounted rear disc (see sidebar), but the pads are a welcome improvement over last year and light-years ahead of the original ATK setup. A new disc guard is a welcome and stylish addition.

- Revised damping provides a more plush ride at both ends. In fact, the old-style, un-adjustable White Power forks are the best we have ever felt on an ATK, KTM or Husqvarna.

- Vibration is cut with a stronger head stay, which also strengthens the frame a bit.

- Porting in the over-square case-reed 399cc motor has been modified to provide a broader power spread, and new reeds boost throttle response and last longer.

- The muffler is two inches longer for less sound and more power output.

- Just like the Japanese and European offerings, the '91 ATKs get . . . Bold New Graphics! We're glad ATK resisted joining the Year of the Ugly Dirt Bike.

RIDING THE 1991 406

Handling is the ATK's main claim to fame. It stays laser-straight in the most gruesome whoops sections and carves like Zorro, but you have to adapt to it. With a tall seat height and comparatively slow-revving motor, the 406 doesn't like the cut-and-thrust, clutch-be-damned style of riding. It likes smooth arcs more than steering with the rear brake and the clutch. Despite the steep steering head angle, the bike does not swap or headshake, which is a testament to a solid chassis, the A-Trak system and a well-balanced suspension package.

Both ends of the ATK do a great job of soaking up anything thrown at it, from square-edged ripples to bottomless sand whoops to kickers on jumps. The old-style forks are the best White Power units we've ever felt, including the new-generation KTM WP units. The rear feels really good, due in part to the additional effective travel (13 inches minus 2-1/2 inches of sag) and ATK's revalved WP SuperAdjuster shock, but rebound is very light (we went to the hardest setting and still wanted more). It may be a hacked cliché, but the ATK works better as you go faster. Let off over a jump and it'll kick. Hit the same lip with the throttle pinned and it flies straight.

In fact, the whole machine is designed to work as a package at warp speed. Try a casual trail ride and you'll be somewhat put off by the tall seat height, vibration and lack

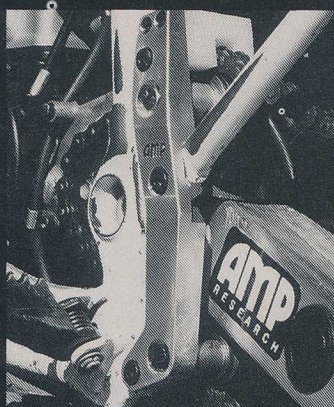
of a two-stage (power-valved) motor. The Rotax motor does have a decent spread of power, thanks to the ATK reed spacer and porting and the Mikuni carb, but it's still rooted in the late '70s, the era of disco and air-cooled motors. The bike comes on the pipe early and builds to a decent Open-class power rush on top, but it simply doesn't rev as quickly or run as smoothly in really slow turns as a '91 CR500R. On a hot day, the air-cooled 406 will start pinging on pump fuel. Until then, riding the bike is like riding a fast '85 YZ250 with a stuck power-valve.

Clutch action is fairly heavy and the Magura lever is too far from the bars for most people. ATK is planning on going to the newer adjustable perch that KTM uses, but ours didn't have one. The front brake is strong but requires a stronger pull than Japanese bikes, and the rear brake is too strong. It really takes initiation time to keep from stalling. Shifting is positive but a bit notchy. Starting is very easy and the choke is easier to find with a gloved hand than most Japanese bikes.

Maintenance, overall, is less intense than servicing power-valves or suspension linkages, but the air-cooled motor's jetting is more critical for crisp late-moto power than a liquid-cooler. You will never DNF due to a holed radiator, but inattention to jetting can give you the same push back to the pits. You also have to tighten the fasteners more frequently on the ATK, as it vibrates more than a KX or CR500. The tank-mounted airbox offers less working room for filter changes but is less prone to drown-outs in

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-Dirt Bike

ATK 406MX

really wet conditions—and yes, the '91 ATK 406 is easier to wrench on than the '90 model.

SO, WHO IS THIS BIKE FOR?

If you are of the mindset that the old ways are best, that railing the berm beats brake-sliding, that fins are more manly than flimsy radiators, that links belong only on golf courses, that the clutch is used only for shifting, then the ATK 406MX is your bridge between the old days and the present. It's a fast, great-handling, simple machine but it demands you adapt your riding style to its idiosyncrasies.

EXPERTS RATE THE COUNTERSHAFT BRAKE POINT/COUNTERPOINT

• *Horst Leitner, engineer and founder of ATK:* "The strongest advantage is that it's simple. You don't have a lot of moving parts or a long brake line with the countershaft-mounted disc brake. In the past, everyone had floating brakes so the suspension didn't have to deal with those forces but, because of the costs of anchoring the brake to the frame, they simply bolted calipers to the swingarm. Granted, full-floating brakes are costly and complicated, but mounting it on the front sprocket gives it the effect of being full-floating without any moving parts. You also eliminate the weight of the caliper and disc from the wheel, so the suspension can work that much better.

"Disadvantages are few. A lot of people say that there's more heat buildup with it on the countershaft. That's not the case; I've tested with both designs, using an infrared thermometer, and heat buildup is the same. To stop a bike, you have to turn so much kinetic energy into heat. It's the same no matter where the caliper and disc are or how fast the disc spins. With lighter weight you have less energy to dissipate, but the difference is negligible on a 220-pound dirt bike. The only disadvantages are that it's harder to change the front sprocket and your choices of calipers are limited. Let's face it—the Japanese calipers are pretty advanced, with heat shields and all, but few adapt to this system.

"I don't have any patents on the front-mounted disc because it's been done before. In the '60s Aerimacchi, the folks who made the Harley-Davidson dirt bikes, had countershaft brakes. They were bought out by Cagiva, which went on to win two 125 World Championships. The FIM then outlawed that system. Honda and KTM looked into using the design but dropped it because of the ban. ATK doesn't have to deal with the FIM, only the AMA, where it's legal."

Paul Thede, engineer and founder of Race Tech: "In the past ATK has had brake pad longevity problems, but I've heard they cured that. They also have a countershaft guard now. I've ridden ATKs without a

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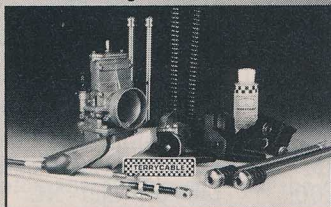
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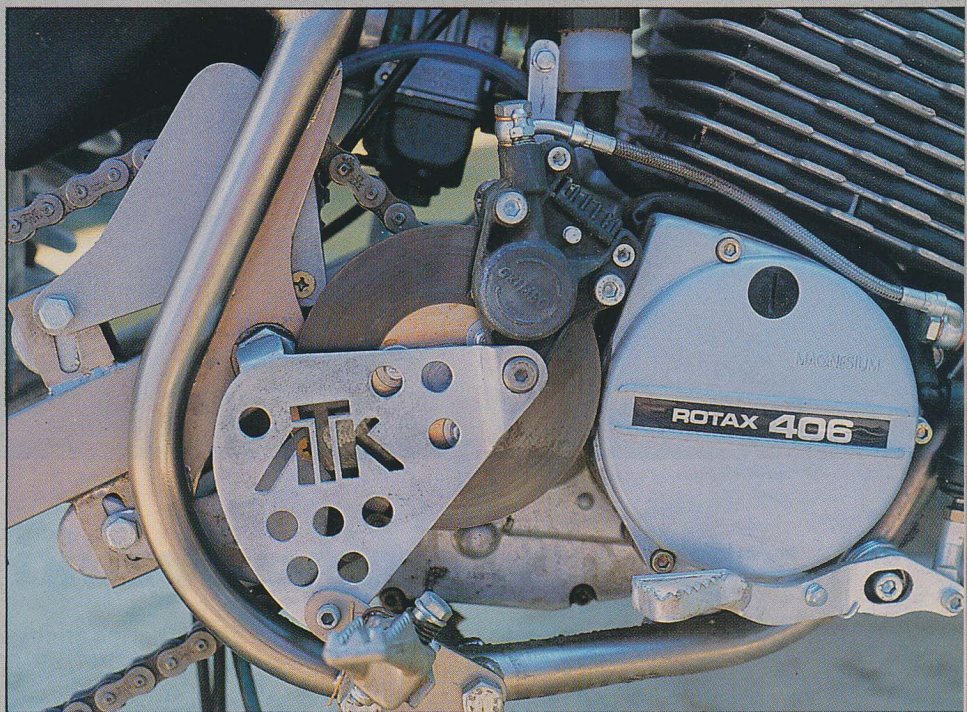
You can preload an ATK to get extra lift over jumps, to a certain extent. True, the chain doesn't load or unload the suspension, but ATK uses light rebound damping to give the bike extra "spring" effect. It'll kick if you don't hit jumps with throttle.

Countershaft-mounted disc brakes—are they as good as ATK says they are? To find the answer, we polled degreed engineers and leaders in the field of dirt bike technology. ►

guard and it really chewed on my boot. They've cured two problems, but there are still some drawbacks, as with any design. One is the possibility of getting chain lube on the disc. ATK uses O-ring chains, which do require lubrication, running right next to the disc. Two, if you do break a chain, you have no rear brake. Chain forces aren't as great with the A-Trak torque eliminator, but chain breakage is still possible, from a rock or whatever.

"Advantages are that it decreases unsprung weight and you have a full-floating brake, with the chain-torque eliminator. Other manufacturers have abandoned the full-floating brake theory in favor of simply attaching it to the swingarm, and you get brake chatter. The ATK achieves full-floating brakes without being truly full-floating, because the chain-torque eliminator isolates the suspension from chain forces.

"I'm not too keen on the trailing brake lever. It's good in that you don't have branches jamming in between the pedal and



engine case, and you don't have a two-foot-long brake hose to break, but it goes against current thinking. The optimum place to have a brake or shift lever pivot is at the leading edge of the footpeg, because that is where your foot pivots. It's not as big a deal with the brake, because you only press down. If you have someone press on the brake

while looking at it from the side, you'll see the pedal actually has to slide across your boot sole as your foot and the pedal pivot in different directions. When the boot and pedal are wet, it's no big deal, but if your boot and serrated pedal find traction, the feeling is notchy. The pedal wants to grab your boot, while you want to let off. □