

Story by DEREK MORRISON Photos by SIMON MAKKER

# LIGHTWEIGHT REVOLUTION

Mountain bike meets motocrosser in a radical 40kg, 17hp titanium trail blaster, built in New Zealand.

TEAM FX 88cc

TEAM FX 125cc

POWER-TO-WEIGHT RATIO TABLE			
VEHICLE	WEIGHT (kg)	HORSEPOWER	POWER-TO-WEIGHT
Donkey	350	0.5	0.002
Lada Samara	1275	60	0.047
Ford Escort	1120	110	0.098
Ferrari 355 F1	1349	375	0.278
Suzuki RM-Z250	98.5	31	0.315
<b>Team FX 124cc</b>	<b>40</b>	<b>17</b>	<b>0.425</b>
Honda CR500	108	52	0.481
Top Fuel Dragster	1080	7000	6.481



“This bike is a weapon! It feels just like a motocross bike, but with all the fun of it being lightweight and easy to ride like a mountain bike.” – Shayne King, 1996 World 500cc Motocross Champion



Shayne King puts the 125 through its paces during development.

FX BIKES

New Zealand-based designer and manufacturer FX Bikes may well have changed the face of dirt bikes forever with these chromoly and titanium-framed special-edition 88cc and 124cc Team FX hybrid specials.

Okay, let's not get too far ahead of ourselves – if there is one thing that's evident in the dirt bike world then it's the irritating reality of one advance in technology having an associated trade-off somewhere else. In making a super-light dirt bike, the natural assumption is that it's going to be at a trade-off to durability.

With that in mind we headed to New Zealand's Lake Taupo at the start of April to take up the exclusive offer to test-ride these innovative prototype machines that threaten to start a revolution in dirt biking.

### THE TEST

We tested them at several locations around Lake Taupo, including some open firetrails, tight singletrack, classic downhill and, just to really mix it up a bit, we also held a session at Taupo's revered skatepark. We then enlisted pro motocrosser Nick Saunders and pro downhill mountain biker John Kirkcaldie to punch out some time on these lightweight machines. Here's what we discovered:

### ENGINE

We tested the 88cc and 124cc versions, which are hybrids based on the CRF50 engine, but tweaked significantly with special kits built by the Kitaco Corporation of Japan. The difference between the two is significant.

The 88cc model doesn't have a lot of power, but it has enough to have fun with. It has a very low first gear, which lets the rider climb

steep hills at a slow, steady pace, while on flat ground, tight terrain and downhill runs, the 88cc's power is ample to keep a good fun pace. It was especially fun in the skatepark, although it tends to fall short in the legs department in the more open going.

The 125 feels like a rocket and the power is surprisingly punchy. For some riders that makes it a bit more temperamental and the power is not as usable as the 88cc's delivery. Once you come to grips with it, the 125 begins to reward its rider, although it breaks traction easily – something experienced riders won't have too much of a problem with. As a result of its snappy power delivery the 17hp 125 suits the high-speed terrain much better.

We also noticed a tendency for the 125 to stall at low speeds, which we reckon was a combination of the Kitaco Corporation's engine modification lengthening the stroke, but not increasing the flywheel weight to correspond. Plus the jetting may have been a tad on the rich side.

### HANDLING

The first thing we noticed on the Team FX bikes is the vibration that comes through the bars and pegs – a characteristic of the mountain bike components in the front-end – and its light weight makes it more susceptible to terrain irregularities. The bars feel quite twitchy compared with a normal dirt bike and the steering is very light, but you get used to it pretty quickly and it becomes an easy bike to throw around. You really can just point it where you want and it will go there.

They don't have as much power as a conventional dirt bike, but make up for it in lightness. You can actually bunny-hop

obstacles and pull up the front wheel with your own strength. We could even leap from one ridge to the next up an erosion-rutted trail like we were on a mountain bike.

The bike excels on downhills – the Fox DHX shock performing really well to give you plenty of confidence. Even on kickers and when you're hard on the brakes it maintains good handling characteristics. We also encountered a few uphill with lots of square-edged bumps that we thought would cause grief, but the 200mm of travel is ample to keep the bike hooked up and driving without kicking the rider.

We get the impression that these bikes will find a place on tight singletrack and technical uphill – basically places where normal motocross bikes will struggle to go.

The 125 is definitely going to be a lot of fun on a tight motocross track, but the 88 will be a little too under-powered in that environment. In the bush, they'll both be a lot of fun as they're just so nimble and light. The 88cc bike will be great on a hardpack mini track, or even in a skatepark – it has enough power and predictable handling to be able to jump and it's so light in the air.

With both bikes we found that these bikes will effortlessly two-wheel-drift through turns. You can just lean them over, roll the throttle on and you feel like you can really ride a sweeping corner fast.

Depending on your weight you may want to try stiffer springs on the Fox DHX shock and in the Marzocchi Monster T fork. The bike isn't really built for doing a lot of jumping to flat-landings – it only has 200mm of travel, but if you have transitions to land on then the suspension works well.

“Once there are two or three out there word will get around, more people will notice it and see all of its qualities and potential. They’ll see how much fun it can be and then I’m sure it will take off.” – Nick Saunders, pro motocrosser



As you'd expect from a mountain bike-inspired hybrid, the FX Bike is awesome down hills.

## ERGOS

The Team FX bikes' ergos are interesting because the bikes are built for riding in terrain that hasn't really been explored that much before on an engine-powered lightweight machine. For downhills, the ergos are well designed, with the titanium frame's headstem giving it a fairly raked-out head angle. This wasn't as great on the uphills, but it's still usable. Because the bikes are so light you can literally manhandle them around, which just feels better and better as you get used to the possibilities that this presents.

The seat is a touch low and this makes it uncomfortable to sit on, but we understand that FX Bikes is already addressing that. The bike's ergos are better suited to standing up, although they still seem more matched for someone under six foot tall. The bars are quite narrow as well.

The mountain bike wheels are 24-inch on the back and 26-inch on the front (equivalent to an MX 19 and 20-inch), and sport 3-inch soft-compound downhill mountain bike tyres that provide excellent grip. The lightweight hub, spoke and rim assembly reduces rolling weight, but won't stand up to rocky terrain and big impacts.

The bikes slimness can be perceived to be a good thing if you like a bit of space around your legs or a bad thing if you're looking for something to grip with your knees. In fact, once we got used to its narrowness, we liked the space as it allows you enough room to bunny hop the bikes.

## BEST THINGS ABOUT THE TEAM FX BIKES:

- **Weight, or lack thereof:** These things are ridiculously light and you feel like you can ride them anywhere.
- **Slim ergos:** The narrowness enhanced their light and nimble feel – it makes you want to throw them around in the tight stuff and try technical things with them.
- **Handling:** The balance of these bikes is surprisingly good – they almost feel like a trials bike, especially the 88cc. If you want to get up a steep bank from a standstill it'll climb without hesitation. And they're easy to pitch and drift through a sweeping turn!

## WORST THINGS ABOUT THE TEAM FX BIKES:

- **Power delivery and gearing:** Both bikes could do with a fourth gear for the longer straights and the 125 could do with its power delivery being broadened out a bit to make it more usable.
- **Brakes:** The bikes use mountain bike Avid Juicy 7s front and rear. Even though they use brake fluid (as opposed to mineral oil like many mountain bike brake systems) they faded quickly. FX Bikes is set to test some Italian mini-motocross brake sets to remedy this.
- **Spokes:** The 125 test bike had a 19-inch RM80 front wheel on its rear with a KX80 sprocket. This seems to be the way to go, as the mountain bike wheels just aren't durable enough for the speeds that hardcore riders will hit obstacles or for repetitive landing impacts.

## DESIGN INNOVATIONS



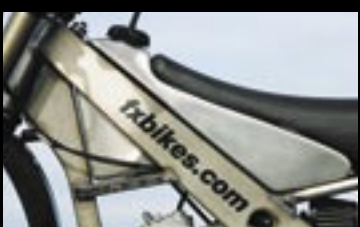
### STRENGTH AND WEIGHT SAVINGS:

FX Bikes has kept the frame strong while reducing weight, using GP-inspired sheetmetal construction bolstered by some clever circular holes to increase frame rigidity throughout its design. Even the top shock mount cops some attention. Notice how the air filter fits nicely in the rib spars of the titanium frame.



### BIG ENGINE, CLEVER MOUNTING:

The three-speed auto-clutch gearbox, Kitaco Corporation-tweaked hybrid CRF50 engines reaches 88cc and 124cc capacities with enough grunt to allow a 90kg Shayne King to throw some roost. The front engine mount is a wishbone design to manage flex.



**HIDDEN FUEL TANK:** The bikes look smart and space-age, thanks partly to their titanium construction and partly due to the clever design principles. The 3.3 litre aluminium fuel tank is so well built that you hardly even notice it's there.

## WHAT BROKE?

The models we tested were advance prototypes, and the owner used our test to squeeze out a few gremlins from the machines. We exposed weaknesses in the following areas:

- **Gear Selector Spline** – This wasn't strong enough to hold the gear pedal. It has since been beefed up to handle the required load.
- **Footpegs** – We cracked the footpeg mount on a downhill and then broke the footpeg right off. FX Bikes has now used a 5mm mounting plate instead of the original 2mm-thick one.
- **Broken wheel** – The spokes on the mountain bike rear wheel collapsed under load. They have now been rebuilt with all the nipples Loctited.
- **Stretched chain** – The chain (off an 85cc machine) stretched over the day. A higher quality chain is now used to eliminate this.



#### THE DESIGNER: MIKE HODGKINSON

The bikes we tested are only produced in small numbers, in fact there will only be 10 titanium-framed models built in honour of the total number of Britten Motorcycles (New Zealand's most famous motorcycle product) ever built. These are advanced prototypes and the production units are expected to come with a price tag starting at \$NZ9995 (\$A9333). The production bikes will be made of aircraft-grade chromoly and hand-numbered to the production limit of 100, ensuring the bikes' exclusivity.

#### So, Mike, where the hell did this idea come from?

To be honest, it was an obvious evolution. If you look at the rapid development of mountain bikes and the technology that has been poured into them over the past 10 years you can see that they've been getting closer and closer to motocross. I saw that and thought why not put an engine in one. I was quite surprised that no one else had done that before.

#### What experience did you have to give you the confidence to follow this radical idea through?

I had spent several years as a business development and technology commercialisation adviser for offshore investors. I saw this opportunity and knew it had potential, so I invested three big years and over half a million dollars into making the project happen.

#### What do you see as being the future for FX Bikes?

Competition, recreation and commuting. I can see them developing their own class at endurance and race-type events and being used for adventure bikes in the forest and bushland. I also think they have the potential to become the world's coolest scooter!

**WANT TO SEE THESE BIKES IN ACTION?** Log on to [www.adbmag.com](http://www.adbmag.com) and follow the Team FX links to see video footage of ADB tester John Kirkcaldie sessioning Taupo's skatepark on this revolutionary dirt bike. Log on to [www.fxbikes.com](http://www.fxbikes.com) to read more on this bike's development.

**“You can basically do the same sort of stuff that guys are doing on 50s but instead of having your knees up around your ears you can actually ride a bike that feels like fun.” – John Kirkcaldie, Two-time US Downhill Champion**



Light and nimble – John Kirkcaldie calls it a dream in tight single trail.

#### VERDICT

We think the FX bikes are here to stay. We don't think they'll steal significant marketshare from any pre-existing segment, but will most likely create their own segment in the fun category. They could also fit into the learner category. Rather than someone going out and buying an XR200, they could buy one of these and put it on the back of the car and not have to change vehicles to accommodate their new passion. The 88cc, especially, is a very easy bike to ride. Even the 125 would be a great learner's bike because

there is not a lot of weight there – you can't drop it on yourself and get hurt.

If they caught on and were accessible to a lot of people the FX bikes could even begin a new sport that falls somewhere between enduro special tests and trials competition. And then there's freestyle – they'd need the suspension beefed up a fair bit, but they have a lot of potential in this arena too.

If the bikes were a bit quieter, people who live in cities and have small riding areas that aren't quite big enough for a full-size dirt bike would get a lot out of owning one. ■

## RIDER FEEDBACK

#### PRO MOTOCROSSER



**NICK SAUNDERS, 20 – 80kg, 175cm**  
**VERDICT:** “It looks pretty unique and it's definitely a lot of fun to ride and easy. You can put the

wheel where you want it to go and it goes there just like a mountain bike. The 88cc is probably easier to ride – it doesn't have as much power so you can hold it wide, point it in the right direction and off you go. The 125 is probably better for someone who does a bit of motocross and can use the power – it's set up more like a motocross bike. Whether I would buy one or not, I'm not sure – that would depend on how much they cost. I think that if a few of your mates were on them as well you could have a lot of fun play-riding in the bush and around the place.”

#### MOUNTAIN BIKE CHAMP



**JOHN KIRKCALDIE, 28 – 88kg, 189cm**  
**VERDICT:** “The 88cc is easy for a mountain bike rider to jump on, ride fast and enjoy on

all sorts of tracks. The 125cc is definitely a lot faster and better suited for someone who comes from a motocross background. I'd love to own one – especially living in a place where there's a lot of singletrack. I could see myself sneaking onto tracks I shouldn't be on. I'd maybe even put a light on it and go riding at night with a few mates, find a little mini moto track and just have fun. You can basically do the same sort of stuff that guys are doing on 50s but instead of having your knees up around your ears you can actually ride a bike that feels like fun.”

#### TRAILRIDER



**SIMON MAKKER, 24 – 85kg, 182cm**  
**VERDICT:** “No doubt about it, these bikes are a heap of fun and have created a rather large grey area between

trailriding, motocross, mountain biking, pit bikes and even trials. You can go places you never thought possible. Hell, if you found some kicking terrain while hauling your FX on the car, you could stop on the roadside, throw it over the fence, rip it up, then get out of there! It would've been great to test the bikes – particularly the 88cc – in a BMX dirt compound. If the skatepark is any indication, they may well revolutionise not only dirt bikes, but also BMX and mountain bikes. The Team FX bike could easily become the most fun toy you could get your hands on.”