

WINNING FORMULA

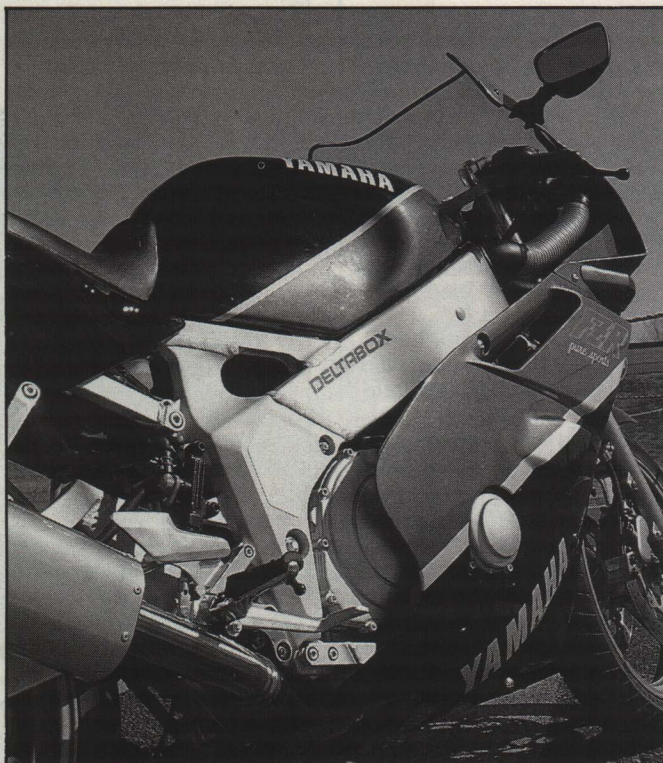
YAMAHA FZR400

There was no other solution: to compete with the awesome VFR 400R, ZX4 and CBR 400RR, Yamaha have unveiled a new FZR 400. With 1318 sales in 1986, the FZR 400 was the King of the category until the VFR 400R 'Pro-Arm' arrived. Like all the manufacturers, Yamaha had to concentrate its technical and financial efforts on the leading category in Japan, Formula Three. So the latest Yamaha is the first new-generation FZR, uniting all the technological know-how of the firm with the triple tuning-forks trademark.

From the 250 to the 1000, all the FZR's have a 'product identity' that Yamaha can be proud of. They can be identified at a glance. As well as being very commercial, a solid product image consolidates the marque. Just as a new Mercedes or Jaguar hardly differs from its predecessor, the latest FZR does not make the '86 model look outmoded. If those who were hoping for a YZF replica are disappointed, the FZR is even better looking, especially the version in black and grey.

Personally I was expecting more imagination in the colour and graphics department from Yamaha. All the 400 class competitors are black and grey . . . the creativity of 6K (one of the biggest design houses in the world, with responsibility for 80% of Yamaha's products) are not to blame. Their exhibition, currently taking place in Tokyo, shows some beautiful experiments with graphic design. The sales department on the other hand has understandably conservative motivations.

Close up you realise that this FZR400 represents the new generation. Let's start with the most noticeable thing; the exhaust. Oval in section, like the YZF's, it also has the 'EXUP' system which first appeared in 1987 on the limited edition FZR400R. The EXhaust Ultimate Power Valve' consists of a rotary valve regulated by a micro-chip at the junction of the downpipes. Induction and



Tried and tested Deltabox frame let down somewhat by rear suspension unit. EXUP transforms engine output however

exhaust phases superimpose themselves on one another at high revs; the return wave of the exhaust (whose length is designed to give maximum power at high revs) 'shuts it off' to give the best filling. Gradually

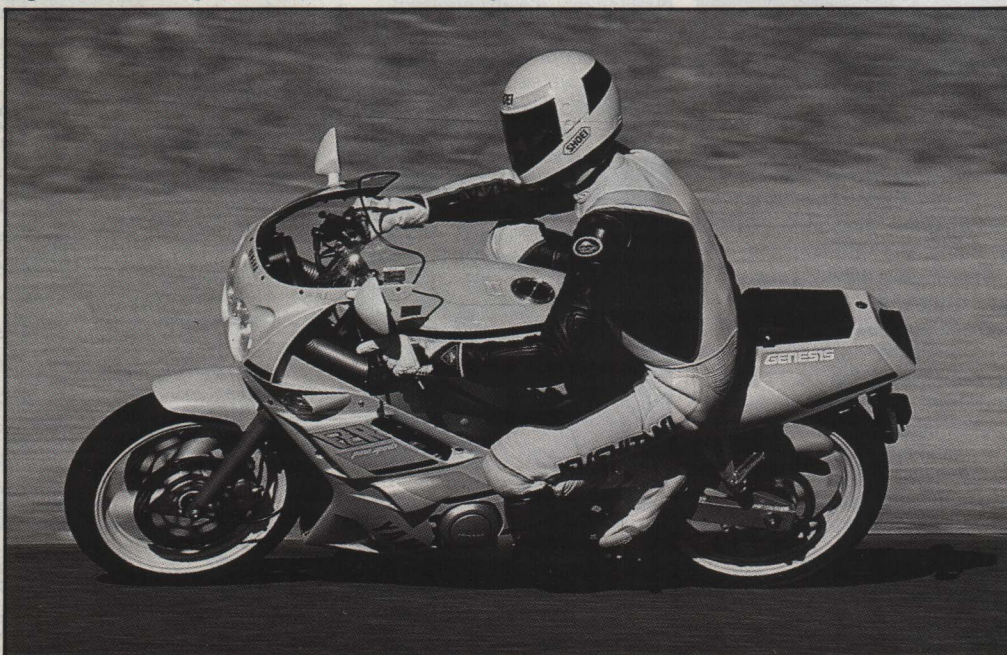
closing off the exhaust pipes according to the revs, the EXUP 'shortens' the exhaust pipe and therefore the length of the return wave. This increases torque at low and medium revs by 30 to 40%, according to Yamaha. It

also reduces exhaust temperature, fuel consumption at high revs, pollution by 20 to 30% and improves the steadiness of tickover.

On the induction side there are new carbs and square section air filter intakes. Cooling is improved thanks to oil injection to the piston skirts. The Deltabox frame is still one of the best frames around and is retained with very few changes.

The new 'Delta' swinging arm, directly inspired by the YZR consists of a classic swinging arm reinforced by a solid cradle on its upper part making it 70% more rigid, Yamaha claim. The linkages from the 'monocross' are mounted on needle roller bearings and the forks are increased to 38mm. The FZR has low-profile radials and a 17in front wheel like all the super-sport '88 models. The calipers are similar to the 1000's, operate on 282mm discs and should suffice to stop the beast's 165kgs. With 13kgs more than the ZX4 and three more than the CBR-RR, the FZR isn't particularly light.

Fukuroi, near Iwata is the site of Yamaha's factory test track and is also the company's private sport and leisure facilities. Genichi Kawakami, the founder, demands that his



FZR400 has the looks and performance of its bigger FZR relatives

'The latest Yamaha is the first new generation FZR uniting all the technological know-how of the firm with the triple tuning-forks trademark.'

company maintain an image of sport, leisure, nature and Japanese traditions. For example, there is 'Kitanomai', a wonderful complex of temple and Japanese dwellings to greet Yamaha's executives after their golf. Every car that enters Fukuroi has to pass through a water bath to clean its tyres, echoing the tradition of removing one's shoes before entering a Japanese house. Fukuroi's test track includes some of the worst conditions imaginable within its four kilometres. In addition to the hairpin at the end of a banked curve and other testing sections, there was also a very strong wind blowing on the launch day which emphasized Yamaha's efforts to improve aerodynamics on their range.

All bikes under development pass from road to test bench, thence to the circuit and finally to the windtunnel, before returning to the road for more testing.

The big 'racing style' EXUP exhaust is deceptive as the FZR is very quiet at low revs. Torque and power at low and medium revs are surprising for a 400. Due to the EXUP as much as other mods, it feels nearly as strong as a 600. However, the FZR makes no complaint about being revved. Despite the three-quarters headwind the FZR went to 14,800 in sixth with ease which worked out to be about 220km/h. It's only the rev-limiter at 15,500 which stops this demonic mill. It does a standing quarter in 11.8secs. On the track, the FZR preferred fast bends, where its stability and precision excelled.

Roadholding is helped by the astonishing Bridgestones and braking is superb. The FZR's only imperfection seems to be its suspension. Clearly lacking damping, it rebounds softly on the bumps and weaves when leant over. The fork is rather soft for my 75kgs but still functions correctly. It's the ineffectual rear damper which sets the whole marvellous 'Deltabox-Delta arm' edifice wobbling. This is all the more regrettable because the FZR 400R limited edition had superlative suspension. I was expecting the same perfection. It is true that the 400R was aimed mainly at racers and that the FZR 400 is a road bike.

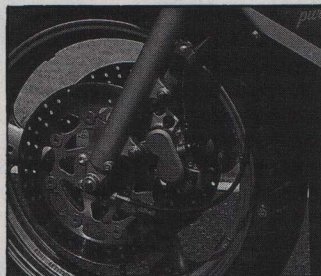
In road use this suspension would no doubt offer an excellent compromise between comfort and stability and it didn't



Dials are from modern superbike practice, large and legible

stop this '88 FZR from caning the four kilometres of Fukuroi two seconds quicker than the old model. . . . The Japanese 400s offer similar performance to 600s which reflects above all, the Japanese desire for efficiency. Those who want torque should buy an SRX.

Although a little disappointment remains about the suspension, this 'new generation' FZR is still the super FZR that we were expecting. The EXUP (which will spread throughout the FZR 'family') is so effective that we can expect near replicas from the opposition.



Drilled 280mm discs and four-pot calipers give mammoth stoppie potential

One day, Europeans really will have to appreciate the 400 and 250 two-strokes and get excited about Formula Three because the Japanese manufacturers are tired of building 600s specially for them. For the time being, to Yamaha's great displeasure, the 400s remain spurned by European bikers. For them, a 'new generation' FZR 600 can be seen on the horizon. The twin sister has already been born . . .

Franck Le Boucher

YAMAHA FZR400

Bore x stroke	56.0mm x 40.5mm
Capacity	399cc
Comp. ratio	11.5:1
Power	60hp @ 12,000 rpm
Torque	3.9kgm (28.2ft lb) @ 9500rpm
Front tyre	110/70 V17
Rear tyre	140/70 V18
Weight	364lb (165kg) dry

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