



A bit of a heavyweight the YZF1000 just didn't sell as well as it should have given its performance and awesome power. Many people missed out on owning a great bike



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IN THE six years before the advent of the YZF-R1, Yamaha's super-sports litre bike credentials faltered and struggled.

One minute the firm's flagship offering was happily swimming along on a crest of major sales success and serious kudos. Then Honda's FireBlade arrived in 1992, making the, by then, three-year-old FZR1000 EXUP look like a bit of an overweight joke.

So Yamaha fought back, eventually releasing the YZF1000R Thunderace in 1996. To some, though, it was to be a non-starter. The main problem was its weight.

The 1996 'Blade tipped the scales at a claimed 183 kg (402.6 lb), while Suzuki's then latest GSX-R750, the W-T model, weighed 179 kg (393.8 lb).

Sadly, the Thunderace joined the party at 198 kg (435.6 lb) dry. It was like comparing a heavyweight wrestler to a brace of ultra-toned boxers.

It was a frustrating time for Yamaha. The Thunderace's engine offered monster power, the brakes were awesome, and it could be hustled through bends with the best of them.

The latter just demanded more input than on the others, and that was something riders at the time largely decided that they could do without. It didn't capture the public's imagination like its adversaries, either, a fact reflected in its sales.

But the simple truth is it's one of the 1990's most underrated machines, with a huge top speed and amazing acceleration. ■



YAMAHA YZF1000 AT A GLANCE

- Introduced 1996
- 1002cc 20-valve in-line four
- 147.6 bhp @ 10,042 rpm
- 170.1 mph top speed
- 0-60 mph in 2.65 seconds
- Insurance group 16
- £7,299





Shorter riders (attracted by the seat height) may find their arms not long enough to comfortably reach the bars

The aluminium twin spar is yet another variant of Yamaha's successful Deltabox chassis. It's stiff, stylish and remarkably resilient in a crash



Fuel tank
Takes 20 litres (4.4 galls) from empty to full

Seat
The seat height of just 31.3in (795mm) attracts some shorter riders

Mudguard
Acc gets an extended, wheel-enclosing front mudguard just like its baby brother, the 600cc Thunderace. It helps protect fork stanchions from grime, salt and chippings



Wheelbase
With a whopping wheelbase of 1,435mm (56.5in), the Thunderace is never going to excel at changing direction in a hurry



Twin four-piston Sumitomo calipers up front have tremendous bite and massive stopping power



Real heroes can just about touch the end can down!

Mirrors

The decent mirrors offer a good view of the road behind. Vibration can be a problem at some revs though.

Fairing

It looks big, feels big and is... big. Slabby and awkward-looking though it may be, there's no denying it offers superb weather protection, even at high speeds.

Headlamp

Powerful beam meets stylish enclosed looks.

Engine

1002cc in-line four-cylinder engine churns out huge goods of power, kicking out stonking stomp through the rev range. The bike's large feel, hefty weight and wallowy suspension prevent you making the most of it though. Bulbous torque at low revs means surging power wheelies are only a throttle-blip away.

Suspension

Rear monoshock and 43mm forks are both underdamped in comparison to cutting-edge sports bikes, instantly relegating the powerful Thunderace to the sports/tourer league. Replace, or professionally re-calibrate both and you'll transform the bike. Plenty of modified ones were raced at the punishing Isle of Man TT for years, until the Ace's successor, the YZF-R1, came along in 1998.

Silencers

Many owners replace their standard silencers with aftermarket units which are generally not only lighter and better-looking, but often truer-sounding too.



YZF1000 THUNDERACE

Since its introduction in 1996 Yamaha's Thunderace has undergone very few changes - why fix it if it ain't broke? Its aluminium twin spar frame is stylish while its engine is full of power and pull. Many may now go for the YZF-R1 instead of the Thunderace as the R1's lighter and smaller, but once again it's all down to what you're looking for in a bike



“The Yamaha is making it so easy for me”

AN ACE UP MY SLEEVE

The Thunderace may play second fiddle to Yamaha's newer R1, but SUSIE GRANIC still had excellent fun riding it in the twisties

SOD the weight, sod the seat height, I'm going for a blast on the Thunderace. It's a sunny day, every other poor bugger is at work and the road is calling me. I'm heading for the lonely back roads where I can let the Yamaha have its head. Me and the Thunderace don't get along in slow, heavy traffic.

But out on those country roads...

Goddamn it's good!

Even a little twerp like me can throw it around without fear of sliding down the road. So I head for a really twisty road I know and go for it.

I hold back a bit on the first corner and the Ace doesn't like it, so next corner it's knee down and an almighty grin spread all over my face.

From then on there's no holding back.

In and out, up and down, flat out... It doesn't matter what I want to do, the Thunderace is right there for me every time.

I'm lovin' it - I feel as though I'm on a track.

Leading of course, with every other sad bastard trying to keep up with me. (Okay, somebody had better pop that bubble.)

Now I wish there was more traffic on the road. I want people to see me. I'm not vain... no, really, I'm not... you see it's only recently I've been able to get my knee down comfortably. So it's going down - time and time again.

The Yamaha is making it so easy for me.

Why isn't anyone watching?

And why are there not more of these beauties on the roads?

Well, of course the answer lies in the R1.

But don't write off the Thunderace - not just yet.

The Thunderace has impeccable manners for such a big bike

ESSENTIAL
SUPERBIKE



YFZ1000 THUNDERACE

YAMAHA
File 13
Section 3



Chuckling it through the corners you can't stop yourself from getting 'Cheshire cat syndrome'

Still on sale, but largely forgotten, the Thunderace is one of those bikes which never set the world alight. KEITH FARR and BRUCE DUNN ask why and offer their humble verdicts

INTRODUCTION

SO MANY BIKES...

Bruce Dunn is looking just a little frazzled as he checks the performance figures of the Ace and three other bikes while fellow tester **Keith Farr** practices his sitting-on-the-handlebar whoopies. Alright for some eh?

LISTENING to all the talk about Yamaha's R1, you'd be forgiven for thinking the company has always been on the top of the litre-capacity sports bike pile. But there was a time not so long ago when Yamaha struggled to sell huge numbers of its best offering in the face of stiff competition from Honda's FireBlade.

The bike in question was the YZF1000R Thunderace, known the world over as the Ace, and the date was any month you cared to choose in 1996 and 1997.

The 'Blade's mystique and awesome on-paper specifications were the vital ingredients the Ace was lacking – even though it had a blisteringly stronger engine, better brakes and a chassis which held the road as good as any.

Today, the bike is sold as a sports-tourer despite a road racing-proven pedigree.

It was awesome at the Isle of Man TT in 1996 and set lap times which compare favourably even now. How times have changed. Amazing.

ENGINE/TRANSMISSION

HELMET. Check. Gloves. Check. G-suit. Eh, what's going on? Thunderace, you're cleared for take-off. If you think that's a joke, think again. The Ace is actually well quick enough to take to the sky. Hitting 120 mph from a standing start in 7.95 seconds is anything but a joke – it's only five hundredths of a second slower than the all-conquering new R1 (and we've seen a few of those go into orbit). Or how about 150 mph in 15.35 seconds – a full 1.7 seconds faster than the FireBlade.

If the Thunderace's friendly exterior fools you into believing it's a pussycat, prepare to be scratched. Used properly, it's a devastating tool.

We blasted one through France in 1998, already testing for *Essential Superbike*. And so amazed the local coppers that they forgot all about booking us and asked for a go instead.

"Eet goes like it has a, how do you say, rocket up its ass."

Oui, monsieur.

"Ees eet tuned?"

Non, monsieur.

"Can I have a ride?"

If it'll get me off a roadside fine, and jail when you discover I don't have any dough, of course you can. Lovely blokes, French coppers.

Not so, the British contingent in sunny (???) Kent. Same old one-liners.

"Who d'you think you are, sonny? Barry Sheene?"

No, but I met him once.

Three points on the licence and a talk about

rattling down deserted motorways at 7pm on a Sunday. Didn't even replay the video-footage of my 'misdemeanour'. Cheers.

Of course, I didn't have to ride the Thunderace to licence-damaging speeds. It trickles along quite happily too.

But having so much power and not using even a little bit of it is like sleeping in the same bed as Pamela Anderson and leaving her tits alone. You couldn't do it, or you'd go insane trying.

The restraining order on my throttle arm was served. No more antics. Yeah, right. That lasted about 15 hours and by 10am the next day, it was business as usual. Only this time with an eye on the mirror every 30 seconds or so.



ACCELERATION THROUGH THE GEARS

Speed (mph)	5th	4th	3rd	2nd	1st
10-30	—	—	—	2.1	1.0
20-40	4.6	3.5	2.7	2.4	1.2
30-50	3.6	3.0	2.2	1.5	1.3
40-60	3.2	2.7	1.9	1.4	1.3
50-70	3.2	2.4	1.9	1.4	1.3
60-80	2.9	2.3	1.9	1.5	—
70-90	2.9	2.5	2.0	1.6	—
80-100	3.3	2.6	2.0	1.6	—

ACCELERATION FROM REST

0-10 mph	0.45 sec
0-20 mph	0.95 sec
0-30 mph	1.35 sec
0-40 mph	1.85 sec
0-50 mph	2.15 sec
0-60 mph	2.65 sec
0-70 mph	3.25 sec
0-80 mph	4.05 sec
0-90 mph	4.75 sec
0-100 mph	5.65 sec
0-110 mph	6.75 sec
0-120 mph	7.95 sec
0-130 mph	9.05 sec
0-140 mph	12.35 sec
0-150 mph	15.35 sec
0-160 mph	27.35 sec
0-170.1 mph (top speed)	37.35 sec

Standing quarter mile

10.43 sec/132.3 mph

Trying to explain how silky-smooth the power delivery was, how easy it was to cruise at a ton and not even know you're doing it would have been a waste of breath. Ride flat out in first and you're already breaking every speeding law in the UK. Take it to the edge in second and you're in line for a lengthy ban. Bust the redline in third and a jail sentence is pretty mandatory. Best throw fourth and fifth in the bin.

Even just 5,000 rpm in top is enough to get you nicked on a motorway, and the bike revs to 11,700 rpm!

To say the Ace is fast is an understatement. It tops 170 mph in standard trim. But it's relaxed too. No buzzing, intrusive vibrations, or massive flat-spots. No hiccups, burps, or farts. Just serious, easy power. I love it.

Unfortunately, the same can't be said about the clutch. From average to grabby in two minutes of town riding or three fast starts, whichever comes sooner. It moans and sounds like it's about to burst, but it never actually happens. Doesn't help gear-changing though – a pity considering the gearbox is actually one of Yamaha's best. Still, they've got it more sorted on the R1.

BRUCE SAYS: *The next step on from the FZR1000 EXUP, with serious power and a hefty kick up the arse. Useability is only limited by the ultimate responsiveness of the chassis. The gearbox's ratios suit the engine well and changing is smooth but the clutch is piss-poor and gets too grabby when hot.*



ERGONOMICS & STYLE



Works well come rain or shine.
Everything well laid out with good styling



THE styling of the Thunderace is not everyone's cup of tea thanks to a slabby front end which looks like it's hewn from a solid block of race-bred plastic.

But there's no denying it's aerodynamically efficient and offers decent weather protection too.

The riding position is a bit of a stretch, particularly if you're short, but combines with just the right amount of wind blast at moderate speeds to take much of the load off your wrists.

The clocks are well laid out, the seat is comfortable and everything's made to last, although the paintwork could be better. The graphics are half-decent, though.

BRUCE SAYS: *Not a bad looker, decent style, but feels big when you're on it which isn't necessarily a good thing. That's down to the size of the fairing which was taken from the Titanic's bulkhead just before it went down.*

The weight can make it a bit tiring when throwing it about all day

FUEL CONSUMPTION

Urban	37.0 mpg
Motorway	40.4 mpg
Average	40.5 mpg
Tank range	189 miles

BRAKING POWER



BRAKING DISTANCES

Speed (mph)	Distance in metres in dry
100-0	100.3 metres
90-0	80.1 metres
80-0	67.3 metres
70-0	54.7 metres
60-0	41.3 metres
50-0	28.4 metres
40-0	16.9 metres
30-0	7.1 metres
20-0	3.3 metres

IN A word, phenomenal, given the bike's size and weight. The amount of feedback through the lever is amazing and you always know what the front tyre's up to too.

Actually, stopping performance is a fraction better than the 1998 FireBlade's but nowhere near the R1.

They're the kind of brakes you feel utterly safe pulling hard in an emergency. Almost foolproof.

Even repeated runs fail to introduce excessive fade. Top stoppers as you'd expect from Yamaha.

BRUCE SAYS: *Stops much better than I thought it would and tells you what's going on too. Very safe, very progressive. Effective disc, caliper, pad and suspension interaction.*

Safe, good feedback and very effective. You just can't ask for more





CHASSIS



I STILL remember the ride. My mate Kev had come to visit on his 'Blade. Well-versed in the art of twisty roads (he lives in Wales), he was busy going mental on the few decent curves in Northamptonshire, where I live.

Trouble was, they were well separated so stringing them all together in a day meant riding at 10 tenths. Wildly illegal speeds (okay, okay, I'm making this up, officer) made the prospect just possible, avoiding the Gatso-infested outer rims of Cambridgeshire on the way.

Anything over 150 mph felt fast; it was fast. But anything around the ton felt dog slow. Recalibrated minds, serious attention, and all that. Not big and not clever in retrospect but fun at the time.

Anyway, we approached an area known as Elton bends just outside Peterborough and threw the bikes on their sides. Not much in it as the off-camber uphill right-hander threatened to tear the tyres away from beneath us.

Flick left, knees down, head behind screen, left again. Out of the way ya bast, I'm on a roll.

Short-lived as he promptly showed a front wheel again, as another corner loomed.

I will beat you. Head down, head down. Neck and neck, and then the bumpy stuff began.

Well-mannered

Not bumpy as in off-road or badly surfaced, just bumpy as in ripples and undulations. His 'Blade tied itself in a granny knot. The Thunderace stayed true. A 50 centimetre advantage became a 50 metre one. Then 100 metres. Then 200.

Looking back, I saw him fighting the biggest tankslapper of his life. Everything was going from lock to lock. What was going on? Was it puncture time? Was it something in the road?

Nope, just the difference between a totally race-focused chassis and a 16-inch front wheel, and the placid manners of the Ace. Huge difference. Scarily so.

As the day wore on, he got the better of me. The 'Blade was lighter, easier to chuck, and less fatiguing.

But I didn't care. The underdog Ace had shown its true ability on the kind of roads so many of us inhabit in search of two-wheeled Sunday fun. Take billiard-smooth surfaces out of the equation and it's a better-handling machine.

By the time we hit the Bonfield road on the way home the 'Blade was showing a considerable advantage. Slow, tight turns, one after the other, showed the other side of the coin.

Too much effort was needed to throw the Ace from side to side.

Fair cop guy. You win.

MAXIMUM SPEEDS IN GEARS

Gear	Speed	mph/1,000 rpm
5th	170.1 mph	16.5
4th	160.5 mph	13.6
3rd	136.6 mph	11.6
2nd	106.0 mph	9.0
1st	73.3 mph	6.1

BRUCE SAYS: Grabbing hold of the handlebars is a long reach for short-stuffs, but that's a small price to pay. It's soooooo stable, one of its biggest pluses, and utterly ideal for B-road blitzing. In this scenario, it makes other litre sportsters look sad. The only downside is the marginally excessive weight. Throwing it around gets tiring after a while and it doesn't turn as quickly as its rivals, even if you're Superman.

You can easily play with other bikes when on the Ace. Its power takes them completely by surprise

VERDICT

THE Thunderace is now in something of a wilderness. It no longer cuts the mustard as an out-and-out race replica because it's just not chuckable enough, and the huge range of sports-tourers on the market means it only gets a small sales share.

If a combination of top speed, gutsy acceleration and rock solid stability on all kinds of roads is what's important, it's a corker though. And at £7,299, it's great value for money, too.

But wait, Suzuki's Hayabusa isn't a hell of a lot dearer and offers loads more to brag about. And Honda's Super Blackbird is ultimately quicker too. Then there's Triumph's super-able Sprint ST, and even Ducati's ST4. Crowded market. Your choice.

BRUCE SAYS: *I don't necessarily agree. The Ace appeals to horsepower freaks and handles better than other ballistic blisters too. I'm big on them. They out-handle and out-brake the Super Blackbird, are more manoeuvrable than a ZZ-R1100, blitz ST4s and offer more fun, for me, than a Sprint ST. Can't really see anything wrong with them for day-to-day flat-out fun. Add to that the fact they're not exactly racing out of showrooms because they've been superceded and you may just get a bargain for less than the recommended price. Oh, and you can tour on them too.*

RATINGS

Engine	✓✓✓✓✓
Transmission/Clutch	✓✓✓
Ergonomics	✓✓✓
Chassis	✓✓✓
Braking power	✓✓✓✓
Desirability	✓✓✓
Overall	✓✓✓

**“ Appeals to
horsepower freaks ”**





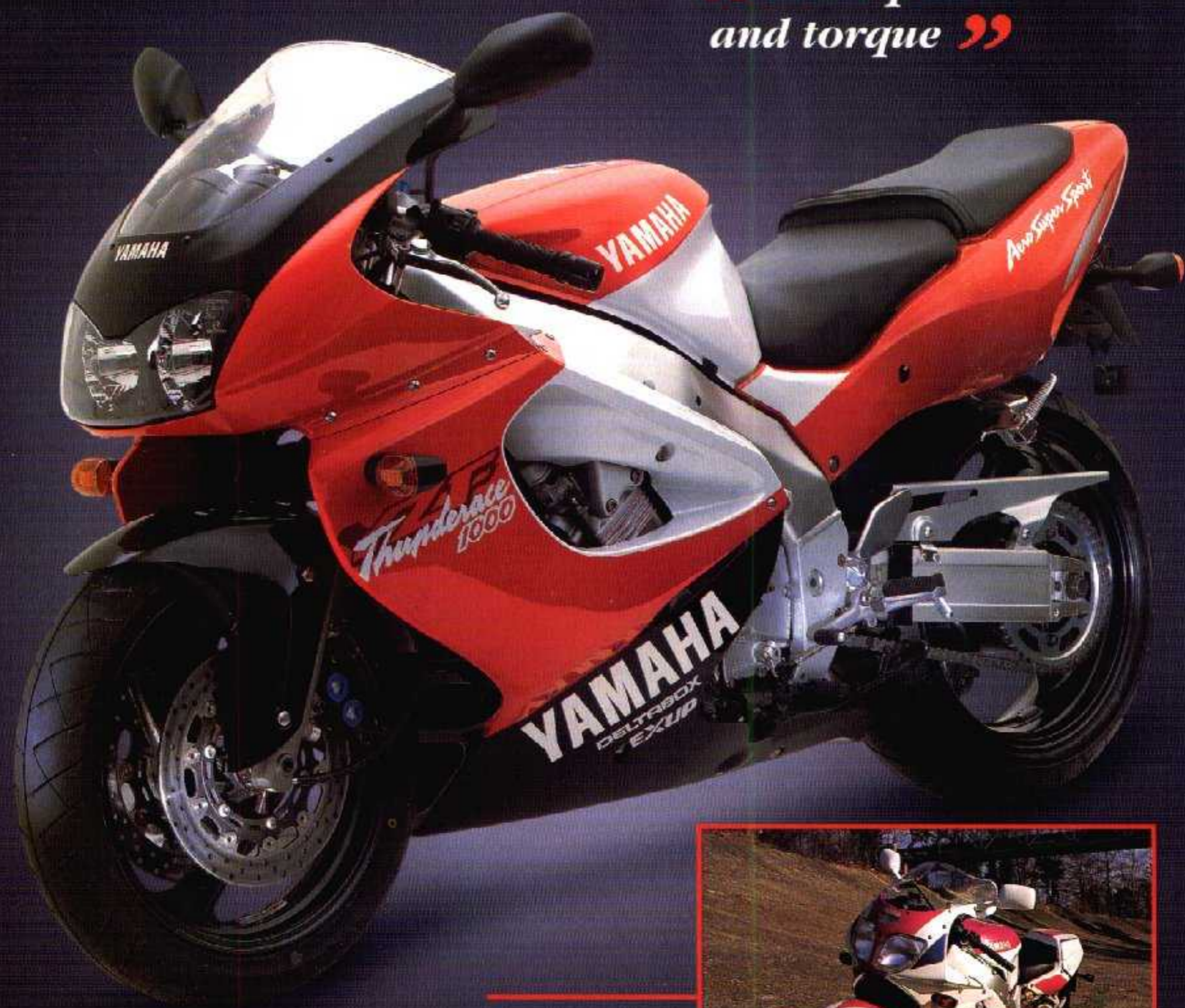
It was in 1989, with the FZR, that Yamaha introduced the aluminium Deltabox frame, using the motor as a stressed member

THE Thunderace is a direct development of Yamaha's first five valve per cylinder four stroke machine, the FZ750, introduced in 1984.

No components are carried over of course, but the engineering principles behind much of the engine and chassis design are the same, albeit considerably more sophisticated in the later bike.

The five valve design has been continually refined for more power and torque on all Yamahas featuring it since the FZ750 through improvements in valve design and materials which have permitted thinner stems relative to the valve head, which reduces reciprocating mass (allowing steeper cam ramps for faster valve acceleration) as well as resistance to gas flow.

**“ More power
and torque ”**



Before the Thunderace was the YZF750, introduced in 1993. It was discontinued in 1996





OTHER MODELS



Shown off in 1995 before its world debut in 1996 is the first of the YZF1000s – the now familiar Thunderace



And here it is again – only this time stripped of plastic to reveal the all-new EXUP-based inclined parallel engine



There had been barely any changes other than colours between the original in 1996 and this YZF1000 in late 1997. It was a year later that Yamaha brought out the R1 to do what the Thunderace had been unable to do – outshine the FireBlade

It wasn't until the homologation special OWO1 though that the EXUP exhaust valve appeared, a device in the exhaust system which opens an additional chamber according to the revs – so the engine effectively 'sees' two different exhaust systems, one which matches it well at low revs and another which suits it best at high revs.

Development of EXUP has focused on positioning a single valve further along the exhaust, or also moving individual valves nearer the engine (OWO1).

For cost reasons the first option is favoured on the Thunderace.

Deltabox

The engine's forward inclined cylinders have remained a Yamaha feature since the FZ750, a move designed to lower the centre of gravity and place more weight over the front wheel.

This is found on the Thunderace, as is the twin spar aluminium frame design Yamaha calls the Deltabox, which was first seen on the FZR1000 of 1987.

That bike developed into the FZR1000EXUP – the Thunderace's immediate predecessor, although the focus of the Ace moved away from the out and out sports machine which was the EXUP as Yamaha tried to attract a broader spread of customers.

The hope was that riders would find the Honda FireBlade too radical and turn to Yamaha's more comfortable, less flighty alternative, but it proved wrong, and development of the R1 began when sales of the Thunderace were disappointing.

Chris Moss takes the Thunderace around the TT course at the Isle of Man in 1996





IT WASN'T so long ago that the Thunderace was Yamaha's contender for what was then the Honda FireBlade's hypersports crown. It was fairly late in coming – the 'Blade appeared in '92 but the Thunderace took four years more – and when it did arrive, it didn't, quite frankly, capture hearts anything like the Honda had managed to do so well.

But that didn't stop marque-loyal fans from flogging their aged FZR1000 EXUPs and joining the mid-'90s warp factor gang.

Nor did it stop others who quite simply didn't want to follow the pack from doing exactly the same thing.

And then there was the sports-touring brigade which

wasn't overly concerned with ultimate top speed and the last degree of cornering, but which wanted something supremely comfortable, reliable and enough of an all-round package to get them to destinations hundreds if not thousands of miles away.

The Thunderace can be all things to all men and it's for this reason that the owner's profiles are so varied.

About the only thing they have in common is their age – almost certainly over 25 thanks to the cost of insurance. Otherwise, the choice extends all the way from BOFs (boring old farts) who ride at 50 mph two-up everywhere, to have-a-go

young guns who, although they can just scrape together the cash for 1000cc insurance, still can't afford the 'real' Yamaha litre-class sportster, the YZF-R1, and must therefore make do with what is definitely second best instead.

So, are Thunderace owners quick then? Not really in general we'd have to say, although, like everything, there are exceptions. The ones who get a real hard-on buzzing other owners on the road have pretty much moved onto the R1. And those that haven't soon will. Which is increasingly leaving the tourer pack to get on with the Ace.

And even if a quick rider does still possess the keys, so what? The ZX-9R and R1 will destroy it without breaking a sweat while the 'Blade will see it off with a bit of perspiration and perseverance (even taking into account the Thunderace's achievements at Isle of Man TTs gone by).

Nice bike at the time, now looking rather out of date.

Like our testers, most owners give the Thunderace top marks for its handling and responsive brakes



+ POINTS

- + Cheap secondhand
- + Robust
- + Engine
- + Comfort
- + Brakes
- + Low maintenance
- + Wind protection

- POINTS

- Styling
- Security
- Image



GRAHAM CARR MANAGING DIRECTOR

'Wheelies are easy to do but scare the life out of me'

Graham says it's also very easy to get your knee down on the Thunderace – something he's much happier to do

“I'M glad I bought the Thunderace because it has been a wonderful bike,” says 49-year-old Graham Carr from London. “I've covered almost 12,000 miles in two-and-a-half years and only had a few problems.”

His biggest has been a faulty EXUP valve in the exhaust. “It kept going wrong,” he says about a problem that's not unheard of on this machine.

“Apart from that, the engine has proved to be very strong and powerful.

“In fact, it's great.”

He says the handling is “first class” and the chassis is light enough to make the Thunderace very responsive in bends.

It's a similar story with the brakes.

“They're very sharp and responsive,” he insists, “and very confidence-inspiring too.”

But the real reason he bought the bike was for its looks.

“It's fantastic,” he says. “It looks like it's doing 100 mph when it's standing still.

“And I don't think it looks dated, even now. It's as attractive as ever.”

He has fitted a carbon fibre rear hugger to keep road crap away from the underside, bolted on a carbon Scorpion race can, and has also fitted an alarm on board.

The Thunderace shares its garage, as Graham also owns a BMW R1100S.

“That got great write-ups and looked completely different to everything else on the market,” he says.

His ideal bike though, is Norton's Nemesis which is still under development.

Like so many other Thunderace owners (why?), he has owned a Kawasaki ZZ-R1100, and reckons that was “the best at everything, the most comfortable and the most economical too”.

Although he paid the high standard price in 1996 of £8,350 for his Yamaha, he says it has been worth it.

“They've had a huge price drop, but I've had a huge amount of fun as well, so I'm quite happy,” he says.

His Thunderace has pulled a few wheelies.

“I've done them once or twice but, to be honest, they scared the life out of me,” he says. “Even though they're pretty easy to do.”

He has also had his knee down and says that too is “very easy” on the Thunderace.

Graham has seen 140 mph on the speedo and reckons the console layout is good, apart from one niggling omission.

“The clock,” he says. “There isn't one.”

He says the lack of grabrail is also a fault as most pillion he has carried have “rocked around on the back”.

He finds low speed work hard thanks to the seating position which puts most of his weight onto his wrists.

“And the steering lock is a little tight for manoeuvring in heavy traffic,” he says.

But at speed, it's “perfectly comfortable”.

The bike manages 55 mpg on open roads and 40-45 in traffic.

“All told, it's a much underrated bike,” he says.

“The huge drop in value means it will become one of the classics of the nineties as it's now so cheap and has always been so good at what it's designed to do.

“But it lives in the shadow of the R1.”





MIKE SOAMES IT MANAGER

'The Ace's engine is so unstressed and willing to rev'

Mike regularly sees his bike reach 120 mph. Naughty, naughty Mike – unless it's on the track, then you're forgiven

“ I CAN'T believe this bike has been relegated to the sports touring division,” says 38-year-old Mike Soames from Kettering, Northants.

“It's so quick and nimble; nothing else stays with it on the open road.

“It's only a fraction down on the YZF-R1 and Hayabusa in a straight line race, but I reckon the suspension is more planted than either when it comes to riding quick on real roads.”

He concedes the R1 is a better bike on the track but says that doesn't matter.

“I do about 6,000 miles a year, of which 150 are on a circuit – if I'm lucky.

“I can put up with R1s lapping Brands Hatch a second quicker than the Ace because I know, on narrow A roads, they don't have a chance.

“The R1 is too flappy and lively, and yes, I did ride one before I bought the Thunderace.”

He has seen over 180 mph on the speedo and regularly pushes the bike to 120 mph or more.

“The engine is so unstressed and willing to rev I don't notice the speed creeping up. Not that it's a problem – the chassis and amazing brakes are more than good enough for most road conditions. “If anything the brakes are even better than the engine.”

He has covered 9,000 trouble-free miles so far.

“I get it serviced every 3,000 miles just to play it safe,” he says. “There are no reliability worries to contend with, but I prefer a bike that's always in top condition.

“The bill is usually around £120, which I consider fair. It works out to four pence per mile.”

Everything on the Ace is standard.

“I'm not into flashy fairing screens or headlamp covers. And noisy cans only attract attention,” he says. “I bought it to ride hard and I don't want to get pulled over every time I go out.”

He has never been stopped and retains a completely clean bike licence.

“If you're sensible with the throttle, pay attention to the road and keep an eye on your mirrors, you should never get into trouble,” he says. “And I never speed in built-up areas. That's just for idiots.”

Due to his hard style of riding, Mike has been through three rear tyres and one front so far and says further replacements at both ends are now due.

“I go for sticky tyres, but not stupidly so.

“A D207GP Dunlop would be wasted on me. There are more straights than corners where I live.

“I use the less sticky compound Bridgestone BT56s.”

He also favours Regina chains, although he hasn't had to change the standard one yet.

“It still has another 3,000 miles left in it,” he says.

Mike goes for weekend blasts with FireBlade-owning mates and says the Ace holds it own.

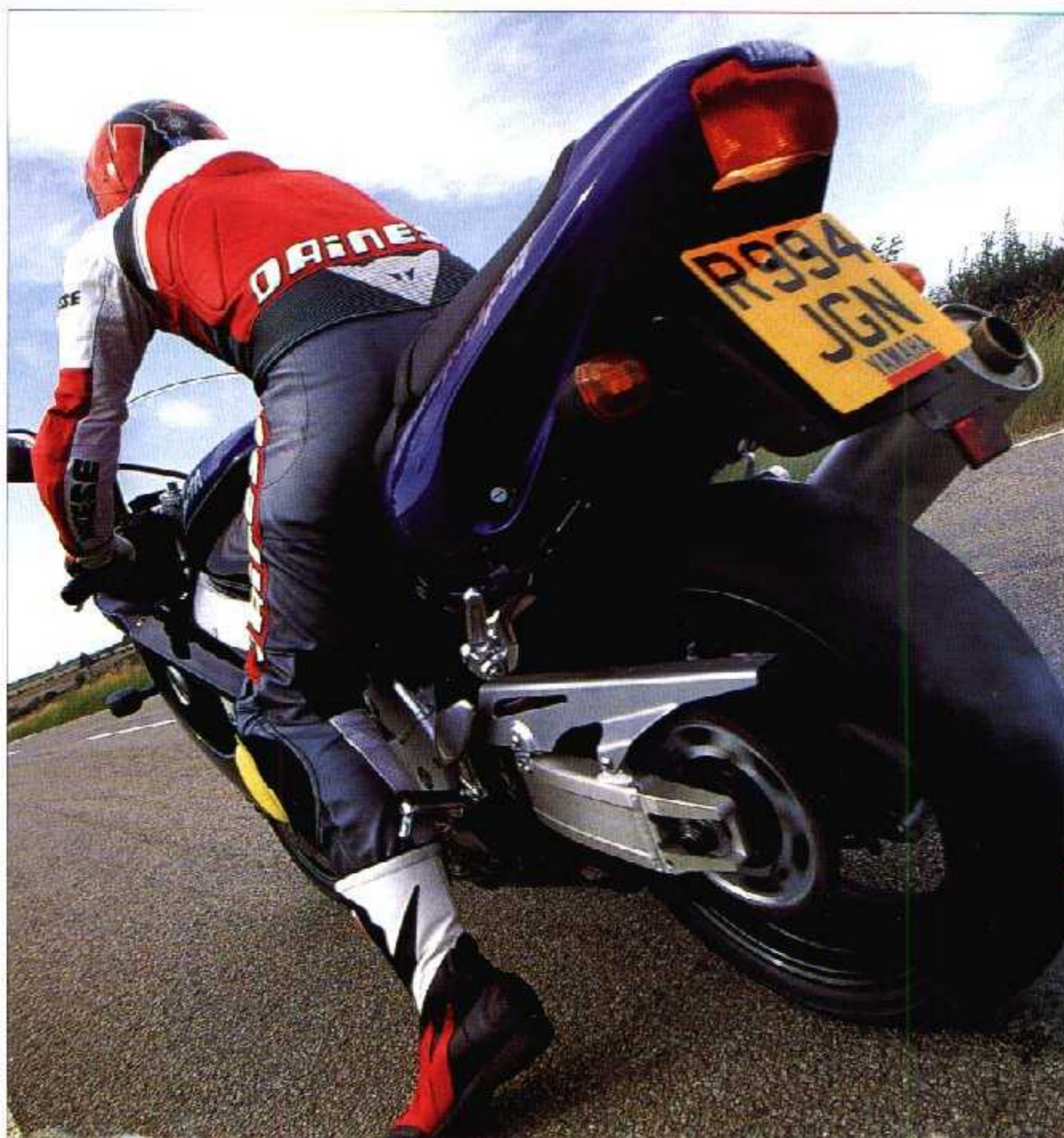
“It's all down to who's riding hardest on the day, but I honestly don't think they've ever overtaken me.”

He uses the bike year round – or did until he sold it last week.

“Although I have a company car, it doesn't exactly excite me. I still need my riding fix, even during the winter.

“But I've actually sold the Ace now in preparation for buying Kawasaki's new ZX-12R. It's a lot smaller than I thought it would be – more like a ZX-9R with a bigger engine.

“I'm still convinced it'll run rings around the Hayabusa though.”



Our roadtesters all agree the Ace is a much underrated bike. Unfortunately, it's a bike from its own stable which has outshone it – the YZF-R1 of course

DARREN CONNELL CORPORATE ORGANISER

'It gives me the confidence to lean hard into bends'

According to Darren the Thunderace is better than his old CBR600 and he reckons the engine takes his breath away

“I'm more into dual purpose bikes than focused machines,” says 48-year-old Darren from Shropshire.

“The CBR was a splendid example but, as it was getting on for six years old, it needed replacing.

“I fancied something a bit more powerful, so the Thunderace seemed like the perfect alternative.”

He paid £4,600 for a pristine 5,000-mile-old secondhand example and reckons it's worth every penny.

“It's so much bike for the money,” he says. “The entire package is race-proven at events like the Isle of Man TT, but it's happy to be ridden gently too.

“I honestly reckon it's one of the most underrated bikes ever built or sold.”

A self-confessed 'slowcoach' through the corners, Darren says the Ace is improving his confidence.

“The Thunderace feels even more planted than the CBR600 I had and is so forgiving.

“It's one of the few bikes I've ever ridden that gives me confidence to lean hard into bends, although I'm still adjusting to the engine which is nothing short of breathtaking.

“In fact, it's truly amazing.”

He plans to tour Germany next year with his wife, Nat, and reckons his annual mileage will top 10,000.

“We do a lot of two-up riding and Nat says the Ace's pillion comfort is as good as the CBR's.

“To be honest, pillion comfort was one of the main reasons behind buying the Thunderace. That and the way you only need about 5,000 rpm to be doing 80 mph.

“It won't get us to where we're going any quicker because we don't ride all that fast, but its relaxed, comfortable progress will mean we'll be less fatigued when we get there.

“And the big fairing is a bonus for bad weather too.”

Darren is also toying with the idea of riding the bike all the way to Russia.

“It's somewhere we've both always wanted to visit,” he says.

“And since we can both get three weeks off at the start of next summer, I reckon it might just happen.

“We'll spend one week getting there and one week coming back, leaving another week in situ, so to speak.

“I reckon it gives you real independence and it beats airport delays and other hassles associated with transport once you arrive.”



Anyone who gets on the Ace (Ed: even me and I'm super small) will find it easy to chuck around



PRICE GUIDE

Both sets of figures are for a bike in good overall condition. Expect an average bike to have covered about 4,000 miles per year. Pay less for higher-mileage and parallel import examples.

Year	Private	Dealer
1998 (S)	£5,000	£5,500
1998 (R)	£4,750	£5,000
1997 (R)	£4,750	£4,900
1997 (P)	£4,400	£4,700
1996 (P)	£4,200	£4,400
1996 (N)	£3,800	£4,400

INSURANCE GUIDE

Town		
Age	Comp	TPFT
21	DECLINE	DECLINE
25	£1,264	£685
35	£578	£163
50	£308	£134

City		
Age	Comp	TPFT
21	DECLINE	DECLINE
25	£1,955	£1,006
35	£901	£343
50	£511	£211

Quoted supplied by Norwich Union, based on one riding 10,000 miles/year for 10 years. Three years' no-claims bonus, pending the bike. Excludes quoted for town, Kettering, city, London.

If it's serious power for little cash you're after, the Thunderace is currently an attractive buy. It's now completely overshadowed by Yamaha's own YZF-R1 which means prices have been tumbling over recent months.

Once touted as the factory's big bore sportster, it's now firmly viewed as a sports tourer. And because it has only been on sale since January 1996 the chances of getting a worn-out one are slim indeed. The build quality is very good in most departments and the 1002cc in-line four engine is far from being taxed in its standard form. Huge mileages, as long as the infrequent valve check operations are carried out, should be the norm.

Yamaha has never needed to recall it for factory modifications either, so there are no inherently failing components or faults to be aware of.

But some parts do wear out, or stick.

A small percentage of owners complain that the EXUP (exhaust ultimate power valve) system can jam. This is easily rectified, but not without some cost - the job has been quoted at £150 by some dealers.

Corrosion on the caliper pistons is also reported on occasion. This leads to impaired braking function and, sometimes, heavy dragging against the discs. In general, they work without any problem though.

“ It is now firmly viewed as a sports tourer ”

Big wheelies eventually take their toll on steering head bearings, while brake discs sometimes crack and warp as well.

Many Thunderaces sport race exhausts, some of which add virtually no extra power over stock but will technically be cause for failing MOT tests. And a small number have been raced, although these tend to exchange hands in paddock deals and through specialist race advertising services. It's worth looking for the usual signs such as

drilled sump plug and brake disc bolts, although canny vendors will almost certainly spend £20 or £30 changing these in order to boost potential resale value by up to £1,500.

Fork legs seem prone to stone chip damage - possibly a combination of soft lacquer and high speed riding in groups. And exhaust header pipes can look unsightly early on in their life if the bike is regularly ridden on salted or greasy roads.

Most buyers will find they need to alter the headlight position if they intend to take passengers at night.



BRAKE DISCS It's not unknown for these to sometimes crack and warp



FORKS Be aware that fork legs are prone to stone chip damage

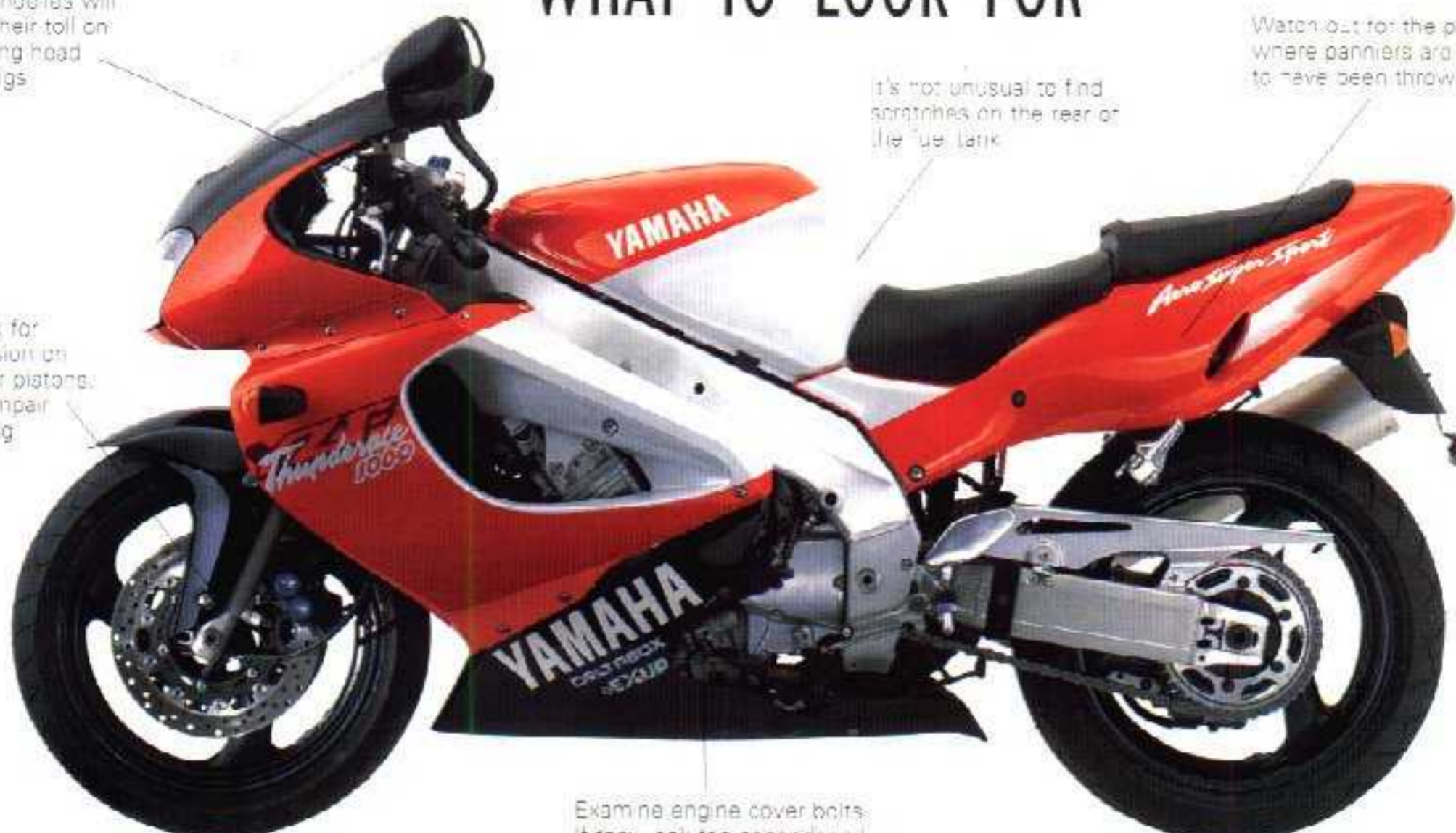


EXUP The 'exhaust ultimate power valve' has been known to jam

WHAT TO LOOK FOR

Big wheelies will take their toll on steering head bearings

Check for corrosion on caliper pistons. Can impair braking



It's not unusual to find scratches on the rear of the fuel tank

Watch out for the paint where panniers are likely to have been thrown over

Examine engine cover bolts. If they look too secondhand, find out why

ADWATCHER

YZF1000R Thunderace, 1997. mint, low miles, £4,500 ono. Tel: 01223 434343

MORE DETAILS: Ask all the right questions. Is it standard? Is it an early or late model for the year? What colour is it? Like what you hear? Then make an offer.

THUNDERACE, 1997, red/white/black, 7,000 miles, immaculate, alarm, £4,800. Tel: 01223 434343

TOO HIGH: A fair price six months ago, used values have tumbled of late. £4,400 is closer to the mark but you never know. This one might be truly exceptional. Probably worth a look.

YZF1000R, 1996, 8,000 miles, standard, red/white colours. Datatool alarm, immobiliser, Datatagged, perfect condition, official import, £4,000. Tel: 01223 434343

SPOT ON: The right money for a good example and the security parts are worth £400 too. Sounds ideal to us but do try haggling.

THUNDERACE, low miles, good condition, ex-race bike with all road parts, £1,000s spent, all receipts. First £3,500 secure. Tel: 01223 434343

ON GUARD: This could be a pig as easily as a good buy. What year is it? How many times has it been dropped? Who's been at the engine? Could be worth an offer of £1,200 cash though.

The combination of the extra weight's effect on the suspension, and a slightly high beam in the first place, is the reason.

Paint is thin on some wheels. This shows up on affected examples which are regularly polished and cosseted.

Scratches on the rear of the fuel tank are another problem, particularly if the owner has an exposed zip. Expect a tank pad to be fitted on whatever bike you view, and expect it to be hiding some wear and tear when you eventually remove it.

Could be illegal

Aftermarket fairing screens and headlight covers are a popular addition in the UK. Usually they will follow original lines, but come in a myriad of translucent dayglo colours. Anything which obstructs a clear headlamp beam is technically illegal in the UK.

Beware of soft paint towards the rear of the Thunderace. This is more likely to manifest itself on bikes which have had soft panniers thrown over.

If you're serious about buying, ask the owner to pop the lower fairing bodywork off. Although a time-consuming nightmare of a job, it can hide important clues (you wouldn't buy a car without looking under the bonnet).

Knackered clutches are about the only engine-oriented fault apart from the sticking EXUP valve, and are rare. Although noisy and grabby in places, the Thunderace's clutch is actually strong.

YAMAHA YZF1000

ENGINE

Type	4-stroke
Layout	in-line four
Capacity	1002cc
Bore/Stroke	75.5mm/56mm
Valves	5 per cylinder
Fuel System	4 x 38mm Mikuni carburettors
Cooling	liquid
Power	147.6 bhp @ 10,047 rpm
Torque	83.9 lb.ft @ 8,403 rpm

TRANSMISSION

Gearbox	5-speed
Final Drive	O-ring chain

CYCLE PARTS

Frame	alloy twin-spar Deltabox
Front Suspension	48mm telescopic forks
Adjustments	preload, plus compression and rebound damping
Rear Suspension	monoshock
Adjustments	preload, plus compression and rebound damping

TYRES

Front	120/60 x ZR17 Bridgestone BT50
Rear	180/55 x ZR17 Bridgestone BT50

BRAKES

Front	twin 298mm (11.7in) discs, opposed 4-piston caliper
Rear	single 245mm (9.7in) disc, opposed 2-piston caliper

RATINGS	KEITH	SUSIE
Engine	●●●●●	●●●●●
Handling	●●●●●	●●●●●
Braking	●●●●●	●●●●●
Rider Comfort	●●●●●	●●●●●
Pillion Comfort	●●●●●	●●●●●
Overall	●●●●●	●●●●●



KAWASAKI ZZ-R1100

ENGINE

Type	4-stroke
Layout	in-line four
Capacity	1052cc
Bore/Stroke	76mm/58mm
Valves	4 per cylinder
Fuel System	4 x 40mm carburettors
Cooling	liquid
Power	125.9 bhp @ 10,200 rpm
Torque	72.5 lb.ft @ 8,500 rpm

TRANSMISSION

Gearbox	6-speed
Final Drive	chain

CYCLE PARTS

Frame	aluminium perimeter
Front Suspension	43mm telescopic forks
Adjustments	preload, plus rebound damping
Rear Suspension	Uni-Trak
Adjustments	preload, plus rebound damping

TYRES

Front	120/70 x ZR17
Rear	180/55 x ZR17

BRAKES

Front	dual 320mm (12.6in) discs, opposed 4-piston calipers
Rear	250mm (9.8in) disc, single caliper

RATINGS	KEITH	SUSIE
Engine	●●●●●	●●●●●
Handling	●●●●●	●●●●●
Braking	●●●●●	●●●●●
Rider Comfort	●●●●●	●●●●●
Pillion Comfort	●●●●●	●●●●●
Overall	●●●●●	●●●●●



HONDA CBR1100XX

ENGINE

Type	4-stroke
Layout	in-line four
Capacity	1137cc
Bore/Stroke	79mm/58mm
Valves	4 per cylinder
Fuel System	electronic fuel injection
Cooling	liquid
Power	160 bhp @ 9,500 rpm
Torque	92 lb.ft @ 7,250 rpm

TRANSMISSION

Gearbox	6-speed
Final Drive	chain

CYCLE PARTS

Frame	aluminium twin-spar
Front Suspension	43mm telescopic forks
Adjustments	none
Rear Suspension	Pro-Link monoshock
Adjustments	preload, plus rebound damping

TYRES

Front	120/70 x ZR17
Rear	180/55 x ZR17

BRAKES

Front	2 x 310mm (12.2in) discs, opposed 3-piston 'Dual Combined' calipers
Rear	256mm (10.1in) disc, opposed 3-piston 'Dual Combined' caliper

RATINGS	KEITH	SUSIE
Engine	●●●●●	●●●●●
Handling	●●●●●	●●●●●
Braking	●●●●●	●●●●●
Rider Comfort	●●●●●	●●●●●
Pillion Comfort	●●●●●	●●●●●
Overall	●●●●●	●●●●●





One of the great mysteries of the nineties is why Yamaha's Thunderace failed to catch on. KEITH FARR and SUSIE GRANIC think that even today it deserves respect

YAMAHA YZF1000

KEITH FARR: The best handling of the trio here and so it should be – it's basically a derestricted 1000cc EXUP lump in a YZF750 chassis. Still cuts it today despite its lardy looks. Respect it.

SUSIE GRANIC: This is undoubtedly the one for me. Great handling, plenty of power and will see most sports bikes off. Has got to be the most underrated bike of the nineties. May not look the business, but it does it and that's what counts.

PERFORMANCE	
Top Speed	170.1 mph
FUEL CONSUMPTION	
Average	40.6 mpg
Best	44.0 mpg
Range	189 miles
PRICE	
Price	£7,299
Insurance Group	16
WEIGHTS AND CAPACITIES	
Wheelbase	1,430mm (56.3in)
Dry Weight	196 kg (435.6 lb)
Seat Height	780mm (30.7in)
Rake/Trail	24°/97mm (3.82in)
Fuel Tank	20 litres (4.4 galls)

KAWASAKI ZZ-R1100

KEITH FARR: Silky smooth power delivery, effortless cruising potential, but the least aggressive in this company. Gets round bends, but not with any great haste. Good if you're more touring than sports-oriented.

SUSIE GRANIC: Handles well, stops very well, is easy to live with on a day-to-day basis and has immense power which is on tap when you need it. Been around a long time now, but is still good. The clutch and gearbox are both very, very good.

PERFORMANCE	
Top Speed	170.5 mph
FUEL CONSUMPTION	
Average	36 mpg
Best	41 mpg
Range	213 miles
PRICE	
Price	£7,295
Insurance Group	16
WEIGHTS AND CAPACITIES	
Wheelbase	1,500mm (59in)
Dry Weight	233 kg (512.6 lb)
Seat Height	780mm (30.7in)
Rake/Trail	26.5°/107mm (4.2in)
Fuel Tank	24 litres (5.28 galls)

HONDA CBR1100XX

KEITH FARR: A mix between the Ace and ZZ-R, the Blackie's neither an ultra-sharp handler nor the definitive tourer. A brilliant compromise as ever from Honda, and good fun to ride. Pulls huge second-gear wheelies too.

SUSIE GRANIC: Reliable and handles well. Good engine too. It'll tour well in my opinion and do it in comfort as well as style. Was once the fastest bike around but has been eclipsed by Suzuki's Hayabusa and now Kawasaki's new one. Still okay though.

PERFORMANCE	
Top Speed	178.7 mph
FUEL CONSUMPTION	
Average	31 mpg
Best	34 mpg
Range	179 miles
PRICE	
Price	£7,695
Insurance Group	17
WEIGHTS AND CAPACITIES	
Wheelbase	1,490mm (58.7in)
Dry Weight	223 kg (490.6 lb)
Seat Height	810mm (31.9in)
Rake/Trail	25°/99mm (3.9in)
Fuel Tank	24 litres (5.28 galls)





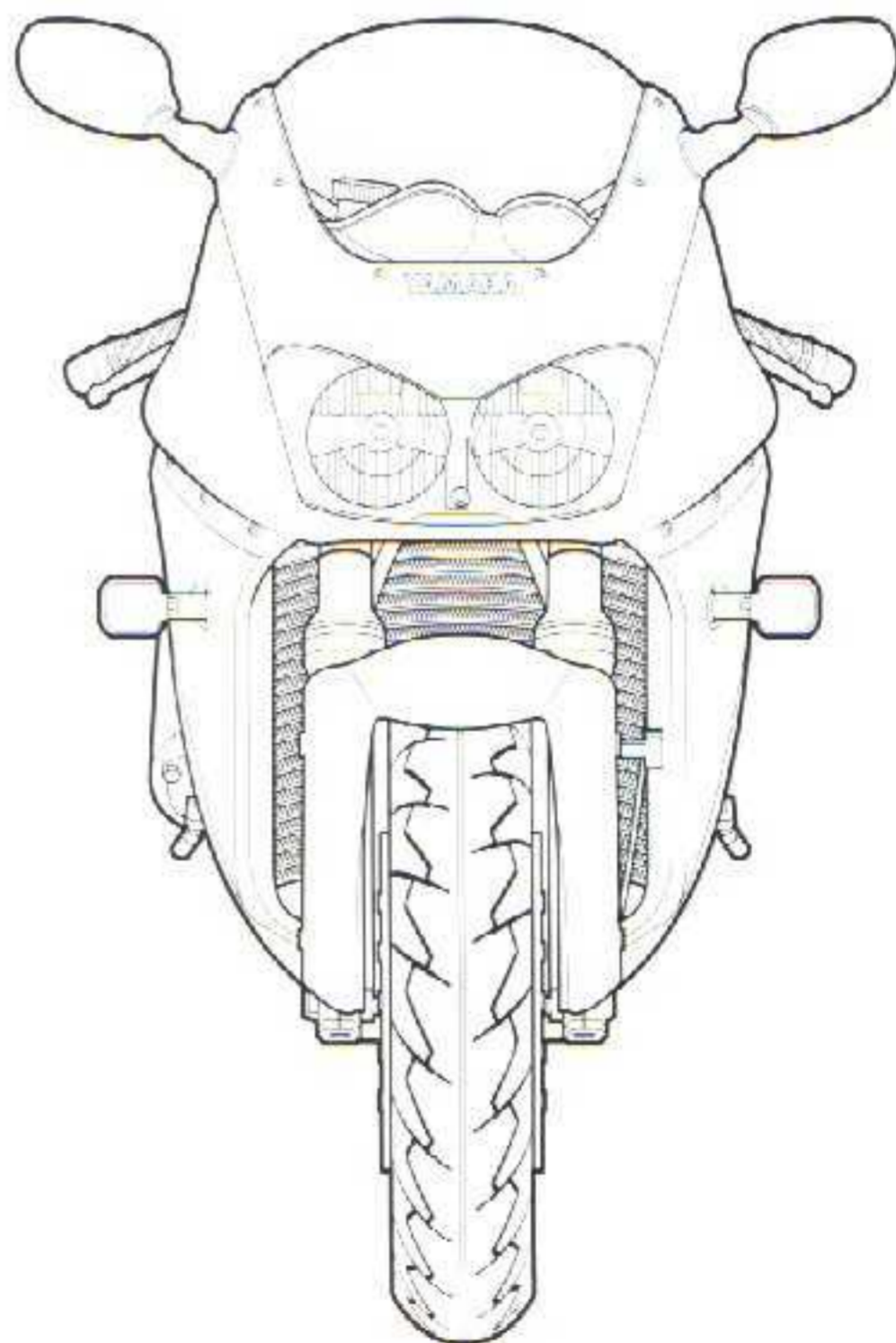
YAMAHA'S 1002cc Thunderace hit the ground at maximum revs when it was launched in 1996 and has since proved a very real challenge to Honda's closest rival, the CBR1100XX Super Blackbird. The slant block layout of the Thunderace's 5-valve liquid-cooled engine optimises front/rear weight distribution and keeps the YZF1000R's centre of gravity low, whilst Yamaha's famous EXUP valve helps control back-pressure in the exhaust to maximise performance right across the rev range.

ENGINE

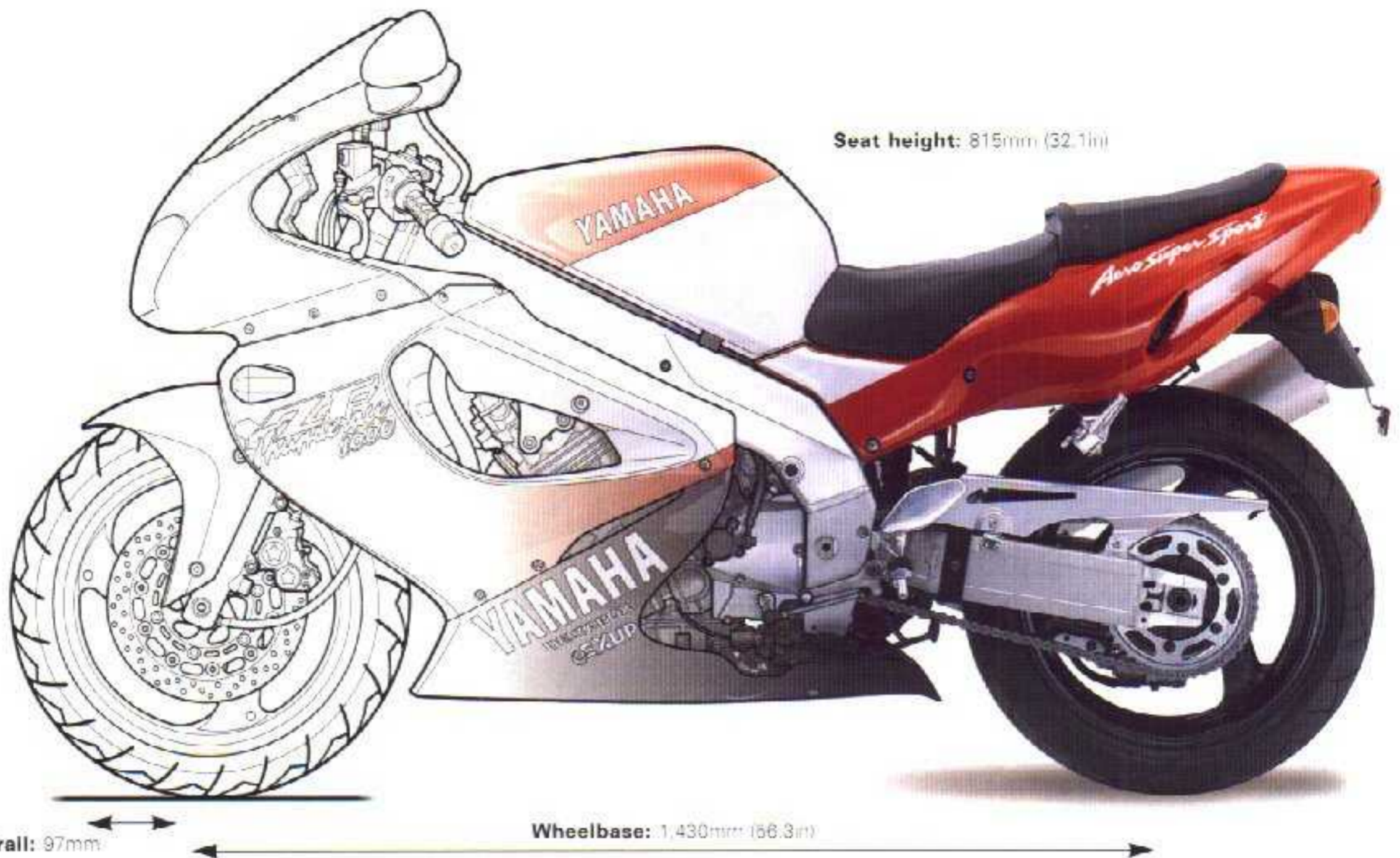
Type	4-stroke
Layout	DOHC in line four
Total displacement	1002cc
Bore	75.5mm
Stroke	56mm
Compression ratio	11.5:1
Valves	5 per cylinder
Fuel system	4 x 38mm Mikuni CV-type carburetors
Ignition	digital transistorised with Throttle Position Sensors
Cooling	liquid
Maximum power	147.6 bhp @ 10,040 rpm
Maximum torque	83.9 lb ft @ 8,400 rpm

TRANSMISSION

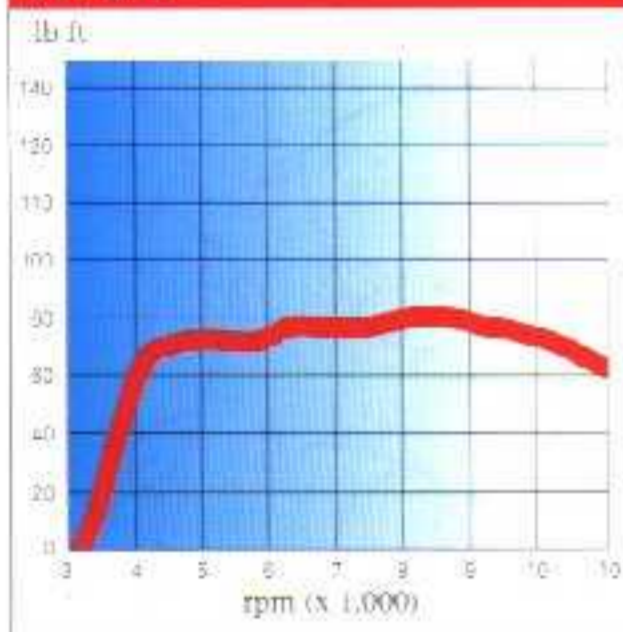
Primary drive	straight-cut gears
Clutch	wet, multiplate
Gearbox	5-speed
Final drive	chain



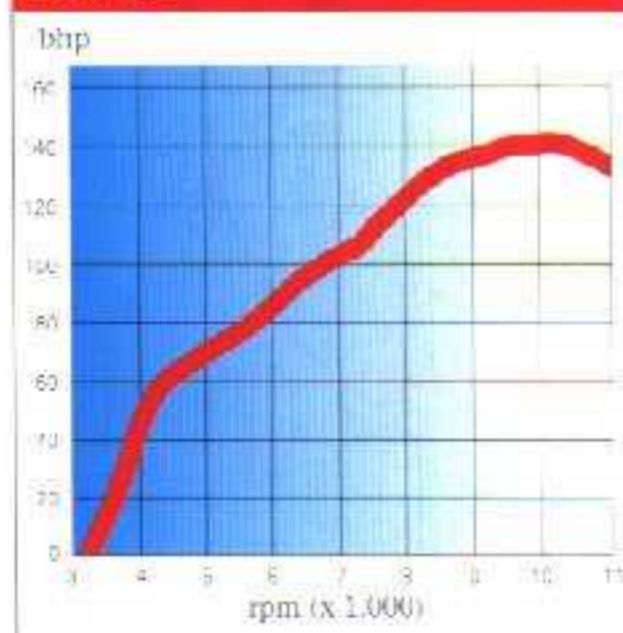
Width: 740mm (29.1in)



TORQUE



POWER



Our own rear wheel dyno test measurements (above) differ from the manufacturer's claimed maximum power and maximum torque figures.

Dyno figures obtained from Towern Motorsports.

CYCLE PARTS

Frame	aluminum Deltabox
Rake/trail	24 degrees, 97mm
Front suspension	46mm telescopic forks
Travel	120mm (4.7in)
Adjustment	spring preload, rebound and compression damping
Rear suspension	Bjirstein-type monoshock
Travel	120mm
Adjustment	spring preload and rebound damping
Tyres	
— make	Bridgestone BT50, Dunlop D204
— front	120/70 ZR17
— rear	180/55 ZR17
Brakes	
— make	Yamaha
— front	298mm twin discs with four pot one-piece calipers
— rear	245mm single disc with two pistons, opposed

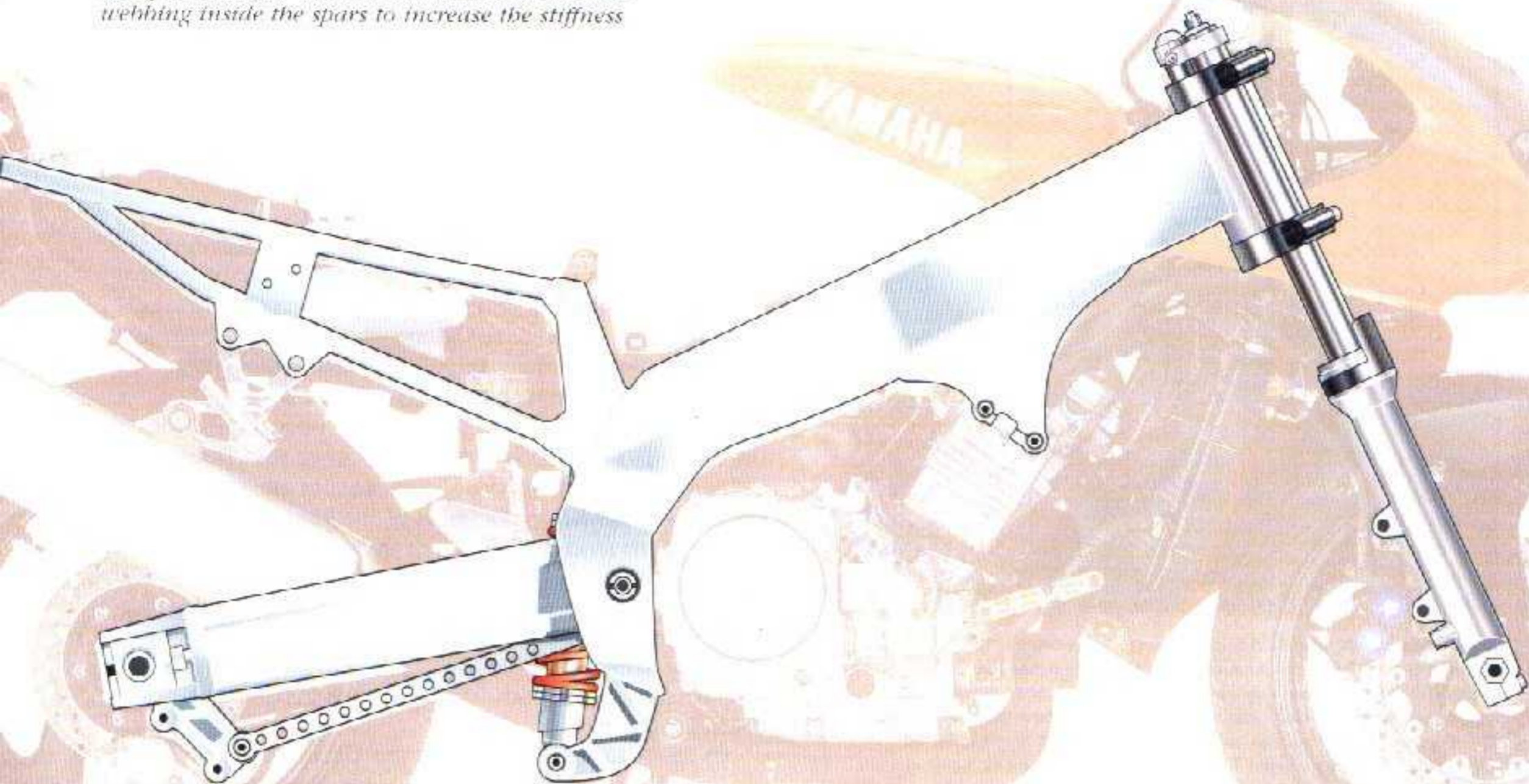
WEIGHTS & CAPACITIES

Tank capacity	20 litres (4.4 galls)
Dry weight	224 kg (494 lb)
Weight distribution	
— front	N/A
— rear	N/A
Wheelbase	1430mm (56.3in)
Overall length	2085mm (82.1in)
Overall width	740mm (29.1in)
Overall height	1,175mm (46.3in)
Seat height	815mm (32.1in)





The frame is typical of Yamaha's 1990s machinery, being a twin spar aluminium item with internal webbing inside the spars to increase the stiffness



ALTHOUGH the Thunderace's chassis was all new at its introduction in 1996, it was closely based on that of the existing YZF750R, which in turn was a spin-off from the factory's World Superbike racers.

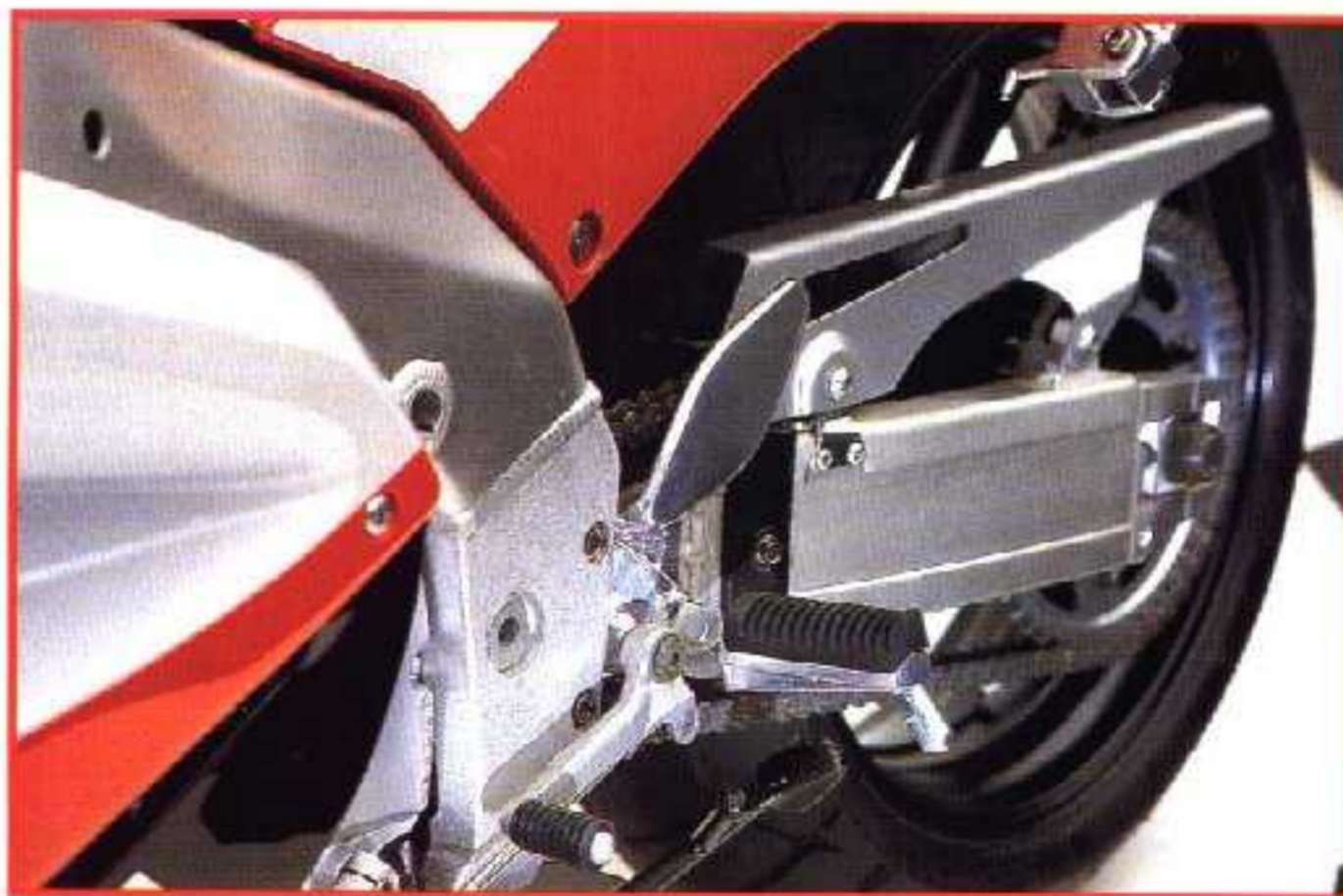
The frame is typical of Yamaha's 1990s machinery, being a twin spar aluminium item with internal webbing inside the spars to increase the stiffness, although the geometry gives away the fact that Yamaha was pitching the Thunderace at a more all-round type of rider rather than going for the supersport class (something the company corrected in 1998 with the introduction of the R1).

Fully stressed

The wheelbase for example is 1435mm, 40mm longer than the R1's and aimed at improving the Thunderace's high speed stability at the expense of some agility. The 97mm trail and 24 degree castor angle are still sporty, but not so radical that the bike has become flighty.

As you would expect, the engine is incorporated into the chassis design as a fully stressed component, allowing the frame itself to be lighter. The one problem with this is that it is much more difficult to control the amount of vibration which reaches the rider, as the option of rubber mounting is removed.

DELTABOX FRAME



Saving weight is of primary importance in competition and for its sports bikes of the 1990s Yamaha applied racing technology to the road. The Thunderace continues this practice with the twin spar aluminium Delatobox frame (with internal crossbracing) and employs the engine as a fully stressed member for maximum stiffness and weight reduction

BODYWORK



It may appear slightly odd today, but upon its launch the Thunderace's bodywork was considered quite futuristic and innovative. The forward projected and slanting nose piece plus extended centre section was definitely looking towards the future. The styling was, of course, driven by the need for aerodynamic efficiency - Yamaha claims the eventual CdA figure is 0.290, a definite improvement on the FZR1000EXUP's figure of 0.304



The Bilstein-type shock absorber is operated by a rising rate linkage system. No surprises here

As an aside to this, a major factor in the general, much increased use of engine balance shafts is so the motors can be used to strengthen frames, and although a balance shaft increases the weight of an engine, the weight of the frame can be reduced by a greater amount, so overall there is a mass gain rather than the loss you might expect.

The front suspension comprises a pair of big 48mm diameter 'right way up' high specification telescopic forks with adjustment for spring preload, rebound and compression damping.

Wheel travel is a conventional 120mm.

At the back, the rear suspension holds no great surprises, where a Bilstein-type shock absorber is operated by a rising rate linkage system to control the aluminium box-section swingarm. Again, there is 120mm of wheel movement and full spring preload and damping adjustment facilities.

Improved feedback

The brakes are substantially updated versions of those fitted to the 1995 FZR1000EXUP, the front four-piston callipers being made from a single piece of aluminium rather than the two-piece items of the EXUP, a move which reduces their tendency to flex or distort under severe loads (which brake calipers are subjected to). In turn, this improves feedback to the rider. The discs are semi-floating 298mm items.

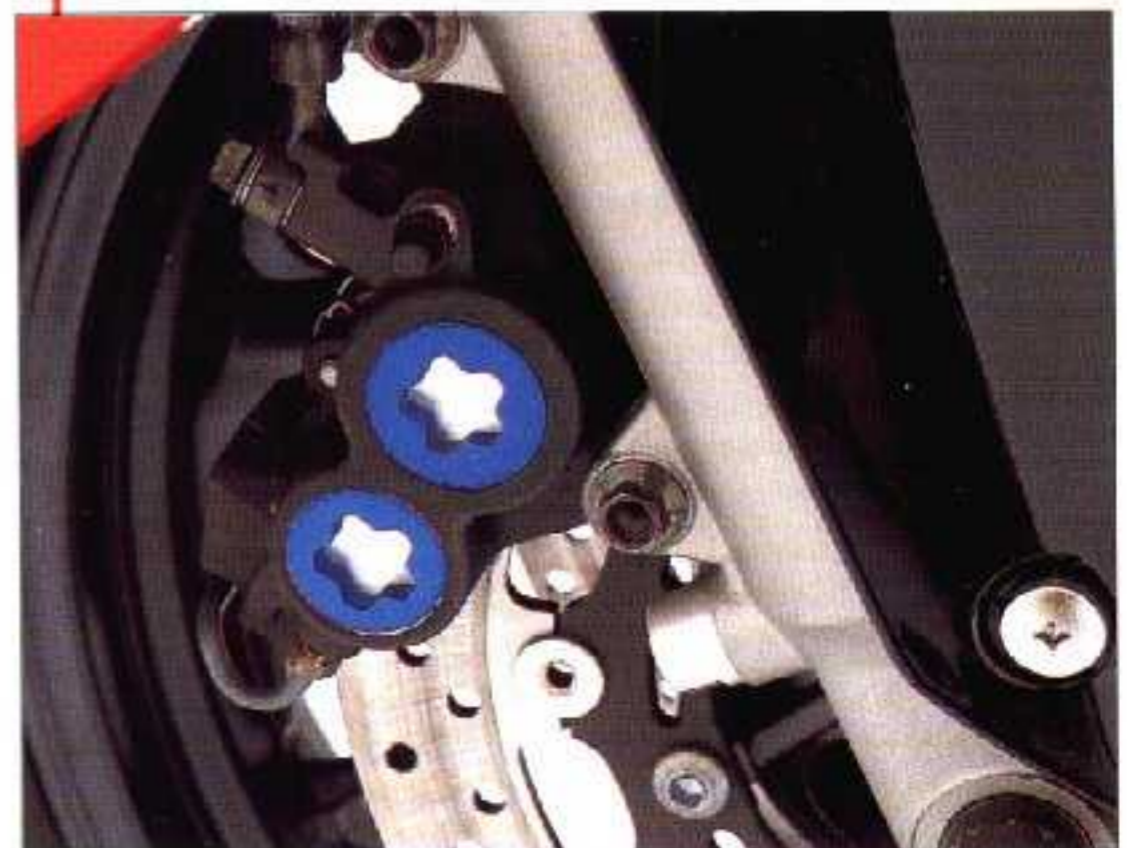
At the back, a two-piston caliper is fitted to the 245mm disc, underslung beneath the swingarm to lower the bike's centre of gravity.

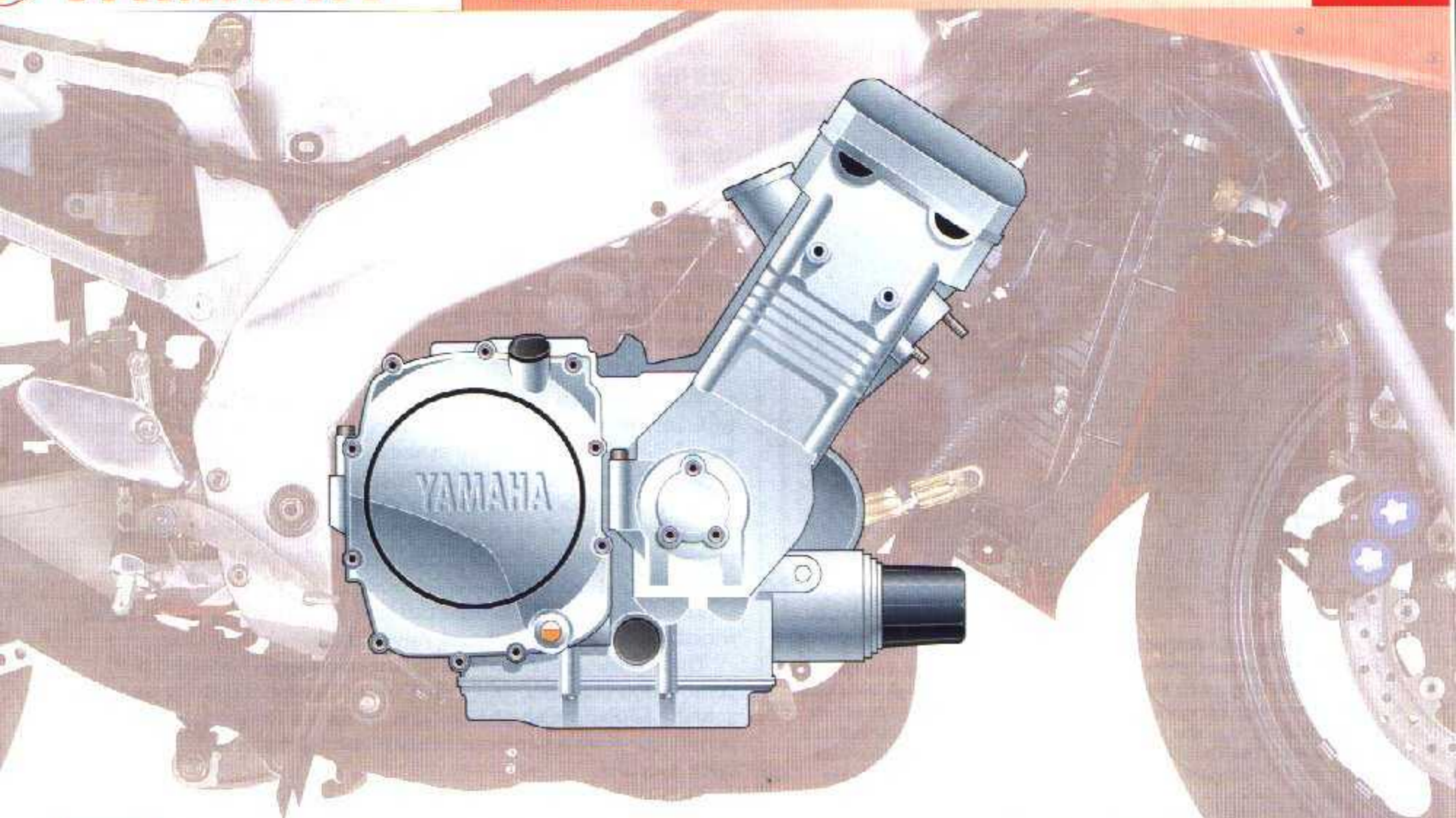
It's easily forgotten now, but the Thunderace's bodywork was considered quite innovative at the time of its introduction, with its very forward projected and slanting nose piece plus extended centre section.

The style was driven by aerodynamic efficiency, and Yamaha claims the eventual CdA figure is 0.290. This doesn't mean a great deal as it's not stated if a rider is included, although Yamaha does say it is comparable to its factory racers, and is the most efficient shape ever on a big capacity Yamaha sports bike.

The factory has released a CdA figure for the FZR1000EXUP of 0.304, so clearly the Thunderace is an improvement in this respect.

Yamaha paid considerable attention to the brakes on the Thunderace. At the front single piece (to reduce distortion) four-pot calipers work in conjunction with massive 298mm diameter semi-floating discs





WHEN Yamaha was designing the Thunderace it decided that big sports bikes were heading in a 'softer' direction, that as the riders were becoming older (which statistics showed) so they were placing increasing emphasis on comfort and all round ability, although they still wanted high performance.

It all made sense, and it proved to be quite wrong. The Thunderace was meant to be the thinking man's alternative to the hugely successful FireBlade. Instead, it was simply overshadowed by it.

As far as the engine is concerned, it was for these reasons Yamaha felt it could produce a bike which was good enough purely by uprating the power unit of its previous supersports bike, the highly successful FZR1000R EXUP.

Genesis

Which is why the Thunderace engine shares a great deal with the engine of its predecessor.

Aside from the almost identical external appearance, most obviously the bore and stroke dimensions remain the same at 75.5mm x 56.0mm, giving a total capacity of 1002cc.

Features such as the slanted forward cylinder block which Yamaha calls its 'Genesis' design, are therefore retained, and have indeed remained since in the R1.

The idea is to move the centre of gravity of the engine and hence the bike as a whole as far forward as possible, for improved handling and front end grip in corners.

Most of the internals, says Yamaha, were new compared with the LXUP, but in practice these often amounted only to detail changes. So the pistons, crankshaft, clutch and gears are indeed all new, but still recognisably from the same family of engines.

Those changes were important though, as by lightening the components – especially the crankshaft – the throttle response was improved as well as acceleration, and changes to the cam timing enhanced mid-range power in particular. Peak power too increased, up to a claimed 145 bhp at 10,000 rpm.



Basically the same as the FZR, the 1002cc motor got a lightened and revised reciprocating assembly and tweaks to the EXUP system for Thunderace duty

EXHAUST VALVE



Like the older FZR1000, the Thunderace employs Yamaha's EXUP (Exhaust Ultimate Power) valve technology. The function of this is to partly block the exhaust at low rpm, which in turn forces high pressure pulses back to the combustion chamber, resulting in longer valve overlap and conserving both fuel and power. The Thunderace's EXUP is a little more complex than the FZR in that it uses Throttle Positioning Sensor feedback.

Some of the added throttle sharpness was due to the addition of a throttle position sensor (TPS) to the bank of four Mikuni BDSR 38mm carburetors (new for the Thunderace).

Information from this is fed back to the ignition mapping in the ignition computer which adjusts the timing to best suit where the throttle is as well as the engine's revs.

The opening of the EXUP valve in the exhaust is also controlled by this computer.

Yamaha debuted these exhaust valves initially in the 750cc OWO1 race bike, then more famously in the FZR1000R in 1989, and the bike became known universally as the EXUP after the Exhaust Ultimate Power valve system.

Similar

Much the same EXUP valve is fitted to the Thunderace. It's a little lighter and more compact than the FZR's, but does the same job of partially blocking the exhaust system at very low rpm.

The Thunderace version is a little more sophisticated because of the TPS feedback.

But the principle is unchanged: at low rpm the valve rotates to partially block the exhaust system (at a point just after the four separate pipes converge).

This blockage reflects high pressure pulses back up the exhaust, timed to arrive at the exhaust valves just before they close.

These pulses force some of the escaping gases back into the combustion chamber, and if that seems like an odd thing to do, it actually allows the engine designer to have a longer valve overlap period, the time when both exhaust and inlet valves are open together.

At medium and high revs this boosts efficiency, but at lower revs it can allow some of the unburnt fuel/air mixture to pass into the combustion chamber then straight past the exhaust valves, wasting fuel and power. The high pressure pulses keep it where it does more good.

Varied strength

The strength of the pressure pulses is varied by how far the valve moves to restrict the exhaust, so there's some control in this respect, but the main benefit of the valve happens when it's doing nothing at all – on the Thunderace in the 5,500-7,000 rpm range.

This is because both the exhaust system and the valve timing can be fine-tuned to work best in this range without having to worry about the fact the engine would normally not run well from tickover to 3,000 rpm.

The EXUP valve compensates by letting the engine 'see' a special, low-rev friendly exhaust up to 3,000 rpm, then a second system beyond that.

Unlike on the later R1, where the gear position sensor in the transmission (five-speed on the

'Ace, 6-speed on the R1) is also linked to the EXUP valve, on the Thunderace it only feeds information to the ignition control computer, which retards the spark slightly in the lower two gears to soften the power delivery slightly.

All familiar stuff to Yamaha enthusiasts brought up with the FZR1000 – the Thunderace's motor is refinement of that.

It was when sales proved disappointing and the realisation came that light weight was central to the needs of the new generation of sports bikes, Yamaha went on to make amends with the all-new, all-conquering R1.



The gear position sensor feeds information directly to the ignition control computer, which retards the spark slightly when the transmission is in first and second gear.





IT WAS a sports bike when it was introduced, according to Yamaha, but this super-quick flagship machine was soon seen by most others as more of a sports tourer (with the emphasis on sports, admittedly), prompting Yamaha to come up with the R1 shortly after (no doubt about that bike's category...).

So, while the country's tuning shops have queues of R1 and R6 owners lined up outside begging for even more horsepower, Thunderace riders are more than content with what they already have and few spend as much effort or money on serious engine and chassis work.

Their motivation isn't helped by several tuners reporting that the Thunderace doesn't respond particularly well to the most popular modification, the combination of a slip-on end can for the exhaust, K&N air filter and Dynojet kit – why pay out for these if the gains are very small?

An alternative offered by TTS is to increase the capacity of the engine, which along with cylinder head work results in some very useful gains.

IMPROVEMENTS



Scottolier

Increasing chain life by up to 300 percent, the Scottolier, at £59.99 from M&B, is money well spent. It comes with complete instructions and all the required fittings.



Dynojet kit

These have a reputation for boosting power and it's not to be underrated. But for the Thunderace it's not really necessary (see above). Some owners, however, will insist on having one. MPS stocks them at £89.99.



SPECIALIST VIEW NO.1

Paul Bembridge

Paul Bembridge of TTS says the Thunderace does improve with the addition of a K&N filter, end can and Dynojet kit, although it does need to be set up properly on a dynamometer for this to be effective. The gain is about five bhp at the top end, which will be hard to notice even on a race track, let alone the road, but the larger boost to the midrange is a little more obvious as well as being of more use to the road rider anyway. Throttle response is crisper too, as is usually the case with this set up.

The costs are typical of most Japanese sports bikes, with the filter being £30, the Dynojet kit £88 and the end can anything from £200 to £500. There's not a great difference in power gains but the more expensive cans tend to last much better than cheaper ones, as well as making less noise.

This is as far as most Thunderace riders go, but if more is needed, or wanted, TTS also offers two big bore kit options, taking the bike out to either 1040cc or 1070cc. Bembridge says the 1040cc kit is more popular and probably the better for many road riders. The cost for this alone is £1,060 for a ride in, ride out job (ie, all labour costs included) and the result is an increase in power right across the rev range, especially in the mid range which gets a massive boost.

Even more is gained when the cylinder head is gas flowed, something which works especially well with the big bore as the larger pistons are trying to pump more gas anyway. TTS does this for £390 if it's done at the same time as the big bore conversion, although obviously it will cost considerably more if done alone as the engine has to be taken out and refitted.

TTS: 01327-858212



YAMAHA

YZF1000 THUNDERACE

TUNING GUIDE

PERFORMANCE AND COSMETIC MODIFICATIONS



Yoke cover

One way to prevent the unsightly appearance of a badly scratched yoke is to fit a carbon cover. Available for around £13.50

Grab rail

For fast sports riding two-up, a grab rail is an essential piece of hardware. These ones retail for £39.95 and come with brackets and bolts for easy installation.



Tank shield

Having forked out a substantial amount for your machine, you'll want to keep it looking pristine. For £16.99 you can have a carbon tank shield. It will protect the paint from scratching and rubbing from your leathers and won't damage the paintwork if you tire of it and want it removed.



Steering damper

The M Toby brand is one of the best you can buy. It features 25 clicks of adjustment enabling it to cope with all types of road conditions and is hewn from alloy with an anodised black finish. Supplied with all the necessary bolts and brackets, at £180 it's a worthwhile addition.

Exhaust end can

Although not many Thunderace owners upgrade their bikes, for those who do an exhaust can is often one of the first items to go for. Quill offer its stainless steel slip-on can for £195 and if you fancy spending more, a carbon fibre version is available at £264. None are certified for road use and, bucking the trend, both Quill and Micron's are both claimed to increase your power output fractionally.



SPECIALIST VIEW NO.2

Extreme Performance

Hag Hughes of Extreme says he's found the Thunderace particularly unresponsive to basic tuning work, and doesn't do many as a result. "I'm too honest to tell people their bike will be a lot better with a new can and Dynojet kit, so I tend not to get much Thunderace work!" he says. "Still, they very often come back when they've got another bike because they like the honest approach, so maybe I'm not losing out," he adds.

Even so, he does have a few tips for Thunderace riders: There are good gains to be had for example if 39mm or 41mm flat slide Keihin SVR carburettors are fitted. The 39mm ones are better for road riders as the lower rev range is cleaner running, more responsive and

torquier, where the 41mm carbs give you more top end power. These cost about £800 for four, plus dyno time to set them up correctly.

A useful addition to these is to jack up the fuel tank (using spacers at the front) and remove the airbox, according to Hughes, while sealing off the base area, as this gives the engine a larger still volume to breathe from and it helps the carbs to work better.

But Hughes' other option is far more radical: "If you really want a supersports bike out of the Thunderace, fit the motor to a YZF750 or OW rolling chassis!" he says. One litre power in a 750 frame – makes life a lot more exciting...

Extreme Performance 01532-88871