WORDS **KEL BUCKLEY** + PHOTOGRAPHY **SUPPLIED**



The devil is in the detail... having an amazingly stock model side-by-side with what is considered to be a factory prototype started a journey of discovery for this motorcycle detective





BLUEPRINT!

Development prototypes aren't usually allowed to survive, especially when they helped create a motorcycle as significant as Suzuki's GSX-R750. Yet Johan Rocha appears to have found one that slipped through the cracks


Certificate of Construction

Thursday, 13 August 2020

To whom it may concern

We hereby certify that the following motor vehicle was manufactured by Suzuki Motor Corporation.

Manufacturer	Suzuki Motor Corporation
Original Country of Origin	Belgium
Model	GSXR-750
VIN / Frame No	GR75A-100022
Engine No.	R705-100008
Production date	22nd November 1984

For and on behalf of SUZUKI GB PLC

D.Faulks
Technical Manager

There can't be many sights more horrifying than a factory prototype disappearing into a crusher. Years of engineering, countless hours of testing and one-off parts that will never be made again, all reduced to an unrecognisable block of scrap metal. You see, under Japanese tax rules, obsolete prototype machinery retained by a manufacturer continues to be deemed an asset on which taxes continue to accrue. So to rid themselves of the ongoing financial burden, which in many cases increases with the passing of time, Japanese manufacturers have become very good at sending potentially historically significant models to the crusher to be destroyed.

Perhaps the most famous and wince-inducing example came at the end of 2022 when Suzuki withdrew from the MotoGP World Championship. Aside from a couple of examples, including a 2016 model gifted to Aleix Espargaro as a thank you for his role in the prototype's development, and a survivor sitting in Suzuki's Plaza Museum in Hamamatsu, its gorgeous GSX-RRs were marked for destruction. Not even title-winning Joan Mir was able to get his hands on one. The rest were plucked up with mechanical indifference, dropped into the crusher and reduced to scrap amid the terrifying shriek of metal deforming under pressure.

So when an email arrived at Gassit HQ from a fellow in Portugal claiming to be in possession of a pre-production development prototype of what would eventually become the enormously influential 1985 Suzuki GSX-R750, I had my doubts. They intensified when the back and forth that followed came from various names and email addresses. By the time we finally met on a video call, I wasn't entirely sure what to call him.

"I've been online since 1997 and I learned very early on that you do not want to give out your real name," explains Johan Rocha – an alias he's used for decades and the name he asked us to use here. "And it's served me well."



Adopted at six months and raised in northern Germany, Johan left for the US at 18, eventually spending three decades in San Francisco.

"I had a motorcycle shop in San Francisco for 25 years, specialised in all kinds of vintage bikes that back then were not vintage, but nowadays are. I always bought and sold."

He returned to Europe around 15 years ago and it was in Switzerland that he found a motorcycle that would prove particularly useful years later.

"I found the very first Suzuki GSX-R1100 built with VIN No.1 and engine No.1. It was sitting at a dismantler's place and it was a ridiculously high price for that time, but I just bought it because when you find number one…" he says. "I kept that bike for a few years, cleaned it up and sold it to an American collector for six times what I paid for it. And he ended up buying 25 motorcycles from me."

Clearly this guy knows a thing or two about collectible motorcycles, but even he conceded it was his time with that GSX-R1100 that allowed him to quickly spot an irregularity in a 2021 online ad for a 1985 GSX-R750. What caught Johan's eye was the rear engine-mount section of the frame. This bike carried five cast-in holes through the mounting area, rather than the two found on production GSX-R750s and 1100s – suggesting Suzuki was still experimenting with the arrangement before the frame design was finalised.

"Those holes are not drilled, they're literally cast… you cannot fake casting," he said. "I immediately called the guy. I mean, literally, he said the advert had been posted for an hour. And I said, 'I'm paying your price, please take the thing off the site.' And I wired the money blind – it was a whopping €7000 ($A11,000, at the time) for the prototype, can you imagine?! – and I put it into my collection, which at the time was about 60 bikes."

"THOSE HOLES ARE NOT DRILLED, THEY'RE CAST… YOU CANNOT FAKE CASTING. I IMMEDIATELY CALLED THE GUY"

By then, the bike had already covered more than 54,000km in the hands of two previous owners who, as far as Johan can establish, had no idea what they were riding. But to understand why Johan's GSX-R750 is so significant, the well-documented history of hindsight allows us to understand what Suzuki was trying to do when it created the model in the first place.

WEIGHT FOR IT

The man at the centre of the project was Etsuo Yokouchi, widely regarded as the father of the GSX-R. His thinking was fairly radical for the early 1980s, because rather than simply trying to extract more horsepower from the same basic formula, Yokouchi's determined approach was to make the motorcycle dramatically lighter.

In the early 1980s, Yokouchi had his engineers strip a GS750E and mark the parts according to their service history: blue if they had never failed, red if they had. And when they were finished, almost everything was blue, so for Yokouchi's engineering brain, that meant Suzuki had been building its motorcycles far too conservatively. Too much material, too much strength in places where it wasn't needed and, as a result, too much performance-debilitating weight.

So the targets for the new 750 were deliberately ambitious: 100PS (73.5kW) and 176kg, roughly 20 per cent lighter than comparable sportsbikes of the time. That philosophy reached into every corner of the motorcycle as frame, engine components, suspension, bodywork, brackets and fasteners all became opportunities to save weight.

In Hamamatsu in the early 80s, Suzuki engineers were pulling motorcycles apart and scrutinising every component in search of unnecessary grams. Forty-something years later, Johan was doing much the same thing in Portugal, only in reverse – examining one of their earliest GSX-R750s piece by piece to work out what those engineers had changed before the production bike was finalised.

Although it didn't happen immediately. A couple of years after buying the mystery GSX-R, Johan found an exceptionally low-mileage, untouched 1985 production bike for €4500 ($A6300) and parked it alongside his oddball example. And there the pair sat for another 12 months.

"I thought it had just prototype features, that it wasn't anything special," he admits. Then a friend mentioned an original first-edition parts catalogue for the 1985 GSX-R750. Johan bought it for €50, largely because he wanted the correct factory documentation to go with the bikes. But there on the opening page, in black and white, the catalogue separated parts used up to a specific frame number from those fitted thereafter, showing that Suzuki had documented changes among the very earliest GSX-R750s.

"I'm like, what does that mean? That's weird the way it's written," Johan recalls. "And so I started looking at the two bikes next to each other. And I think the first time, I sat there for four hours straight, and I saw these differences. I had never noticed this difference and that difference."

The more he looked, the longer the list became. What he had assumed was an early bike with a few unusual prototype features began to reveal differences in areas he'd never thought to compare.

"Every single time I sat in front of it for the next two years, I found another part that's different."

Eventually, he understood that sitting and staring at two assembled motorcycles was no longer enough. "At a certain point, I said, 'We have to take this bike apart.'"

PIECE BY PIECE

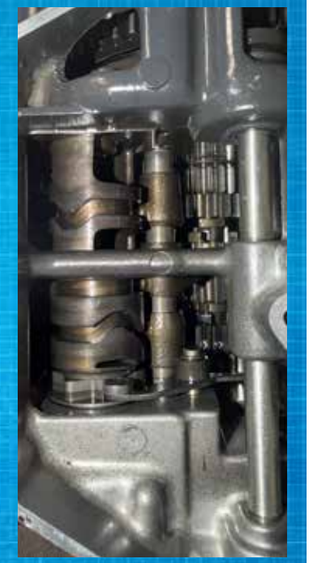
That decision would turn a curious early GSX-R into a component-by-component investigation of just how far Suzuki's development machine differed from the motorcycle that reached showrooms in 1985.

Once the bike was dismantled, the differences became impossible to dismiss as a handful of odd early-production parts. The frame alone was a rabbit hole; beyond the five cast-in holes, his bike uses a different overall casting design, different steering-head structure and internal webbing, different wall thicknesses and weld construction, two large cast-in openings around the front steering-head centre section and different rear













1. At first glance, the prototype's engine looks much like the production version… but subtle differences in the crankcase castings and covers tell a very different story

2. Prototype panels were made using different moulds, and are thicker and heavier than their production counterparts

3. The numbers don't lie. Suzuki's ID plates provide another vital piece of the puzzle

4. Even the rear footpeg and exhaust mounting arrangements were subject to revision before the GSX-R750 reached production

5. 40 years and over 54,000km later, this remarkable survivor looks every inch the sportsbike that changed motorcycling forever





85-90 PER CENT OF THE MOTORCYCLE DIFFERS FROM REGULAR PRODUCTION GSX-R750 HARDWARE



engine-mount geometry. Cross-bracing found on the production frame is missing too, including the beam ahead of the airbox that early GSXR-750 owners will know prevents you from removing the airbox without first removing the engine.

Speaking of the engine, his bike's upper crankcase has a different casting, different internal bracing and support fins appear on the production engine but not on his and the lower crankcase is different again, including the oil-pick-up area and internal oil passages.

Even the transmission mainshaft differs; the prototype shaft has no threaded end, forcing Suzuki to use a more complicated arrangement of parts to retain the drive sprocket.

Then there's the oil system. The strainer housing and gasket arrangement changed for production, as did the pick-up housing, pick-up channel and internal layout. The front oil lines follow a different route and use different fittings, while the rear lines have what Johan describes as a hand-finished appearance. Even the oil-pump housing carries a rough-cast finish absent from the production version.

The connecting rods and pistons differ. So do the shift drum and selector forks. The prototype crankshaft uses undrilled counterweights, while the cylinder head has different casting details and wall thicknesses. Johan reckons there are likely further differences inside the engine he has yet to document because, with the engine in such good condition after 54,000km, he has resisted pulling it completely apart simply to satisfy his curiosity.

The carburettors look familiar until you put them beside production items, then differences appear in the castings, machining, internal bore profile and even provisions for springs. The front brake calipers use a slightly different casting and rougher finish. Even the tacho has its own housing and internal bulb arrangement.

"The clutch cover doesn't have an engraved amount of oil going in it," he says. "And the filler cap that sits on the top where you fill the oil doesn't have the writing on it – I only noticed that just the other day after all these years."

The tally of fastidiously documented differences has climbed to 131 spread across 51 major assemblies. In fact, Johan estimates 85-90 per cent of the motorcycle, judged by its major assemblies rather than individual fasteners and finishes, differs from regular production GSX-R750 hardware.

And while most of the evidence was sitting there in front of him in aluminium, steel and plastic, Johan eventually added something more tangible than comparison and deduction. After a lengthy process, he secured a Certificate of Construction from Suzuki GB confirming frame GR75A-100022, engine R705-100056 and a production date of 22 November 1984 – with Belgium listed as the bike's country of origin. It doesn't call the bike a prototype as such, but it does put those numbers and that motorcycle right at the beginning of the GSX-R750 story, well before the 1985 model reached customers.

AND NOW WHAT...

Despite more than 54,000km, Johan says the engine remains remarkably tight. "The camshafts look like maybe five or 10,000km. I think all the





tolerances in this engine and on the bike itself were much tighter than they would have been on a regular production bike."

And the reassembly only reinforced his impression; Johan and the mate helping him had both fitted GSX-R engines before, but the prototype fought them all the way.

"This engine has zero tolerance," he rang to tell me a few days after we spoke when he was putting the bike back together. "Have you ever heard of that? There is a spacer at the rear of the engine, on the lower engine bolt, that if it is not absolutely spaced perfectly, meaning perfectly perpendicular to the instalment direction, it will not go in. Those tolerances are unheard of on a production bike, unheard of!"

With the bike back together, Johan could finally answer another question that had been nagging at him: after all those prototype castings, different wall thicknesses and experimental components, how much did the thing actually weigh?

So he put the two GSX-Rs on the scales in identical states of completion, both free of fluids and with the bodywork removed. The standard 1985 bike came in at 174kg. The prototype stopped the scales at 166kg.

Eight kilos is a substantial difference on a bike conceived around Yokouchi's demand to remove every unnecessary gram. Interestingly, though, none of that advantage came from the bodywork. "You wouldn't believe it, it's heavier," Johan says.And, in some ways, that makes perfect sense. The prototype panels are at least 1mm thicker in many areas and Johan believes they were produced from handmade moulds, consistent with bodywork that was still being developed before the production tooling and final material thicknesses were locked in.

Piece by piece, the prototype's front guard, fairings, side covers, tail panels, seats, cowl, tank, fuel cap and grab rail totalled 17.573kg. The equivalent production parts weighed 16.023kg. Both sets wear fresh paint applied by the same painter in Germany, yet the prototype bodywork is 1.55kg heavier.

The bodywork also sits around 10mm closer to the engine on each side than the production version. Johan suspects that tighter fit may have contributed to heat problems during development and prompted Suzuki to give the production bike more room around the engine. That remains his interpretation rather than something we can confirm from Suzuki records, but the physical differences are obvious.

The lower fairings make the point neatly. The prototype pair weighs 2.52kg, compared with 1.81kg for the production pieces, while the prototype fuel tank adds another 163g and the upper fairing assembly another 70g. So the bodywork was adding mass, which means the real saving lay in the frame, engine and hardware beneath it.

Which brings us back to Yokouchi. His brief had been to strip weight from the motorcycle wherever possible, and Johan's bike appears to preserve that thinking in an unusually early form. The production GSX-R750 that followed would take those ideas and turn them into one of the defining sportsbikes of the 1980s. Light, purposeful and dripping with endurance-racing influence, it reset expectations for what a 750cc sportsbike could be.

And it's that significance, combined with the rarity of the machine Johan has discovered he owns, that he's now trying to put a value on before offering it for sale. His benchmark is another landmark Japanese prototype; in January this year, the one-off 1968 Honda CB750 prototype sold at Mecum's Las Vegas auction for $US313,500 ($A450k). Built by hand before the production CB750 appeared, it differed substantially from the motorcycle Honda eventually put into showrooms.

"I think the Mecum auction was under-represented. And many people commented that that bike should have gotten much more money," he says. "I would also think that this bike should be around at least the same value as that Honda."

Johan says he'd like the bike to end up with someone who understands its significance, ideally Suzuki itself. Yokouchi and his engineers once scrutinised every gram in pursuit of a lighter GSX-R750; four decades later, Johan scrutinised the same motorcycle in reverse to work out how it had come together.

"I think it's fortunate that the bike met me," he says.

For a factory prototype that somehow survived four decades when so many others were destroyed, it's hard to argue with that.

1. Familiar clocks, unfamiliar details. Even the prototype's instrumentation differs from the production GSX-R750, including the tacho housing and warning-light arrangement

2. Beneath the seat, another clue: Suzuki revised the rear subframe bracing and inner guard arrangement before production

3. The prototype looks remarkably close to the finished article, but Johan's painstaking investigation uncovered 131 differences across 51 major assemblies

4. Even the front brake calipers escaped the final cut, with tweaks in castings and surface finish

5. Spot the difference? Beneath their matching blue-and-white paintwork lie two very different machines



See more of Johan's research and the bike's prototype-specific details at 1984suzukigsxr750prototype.com