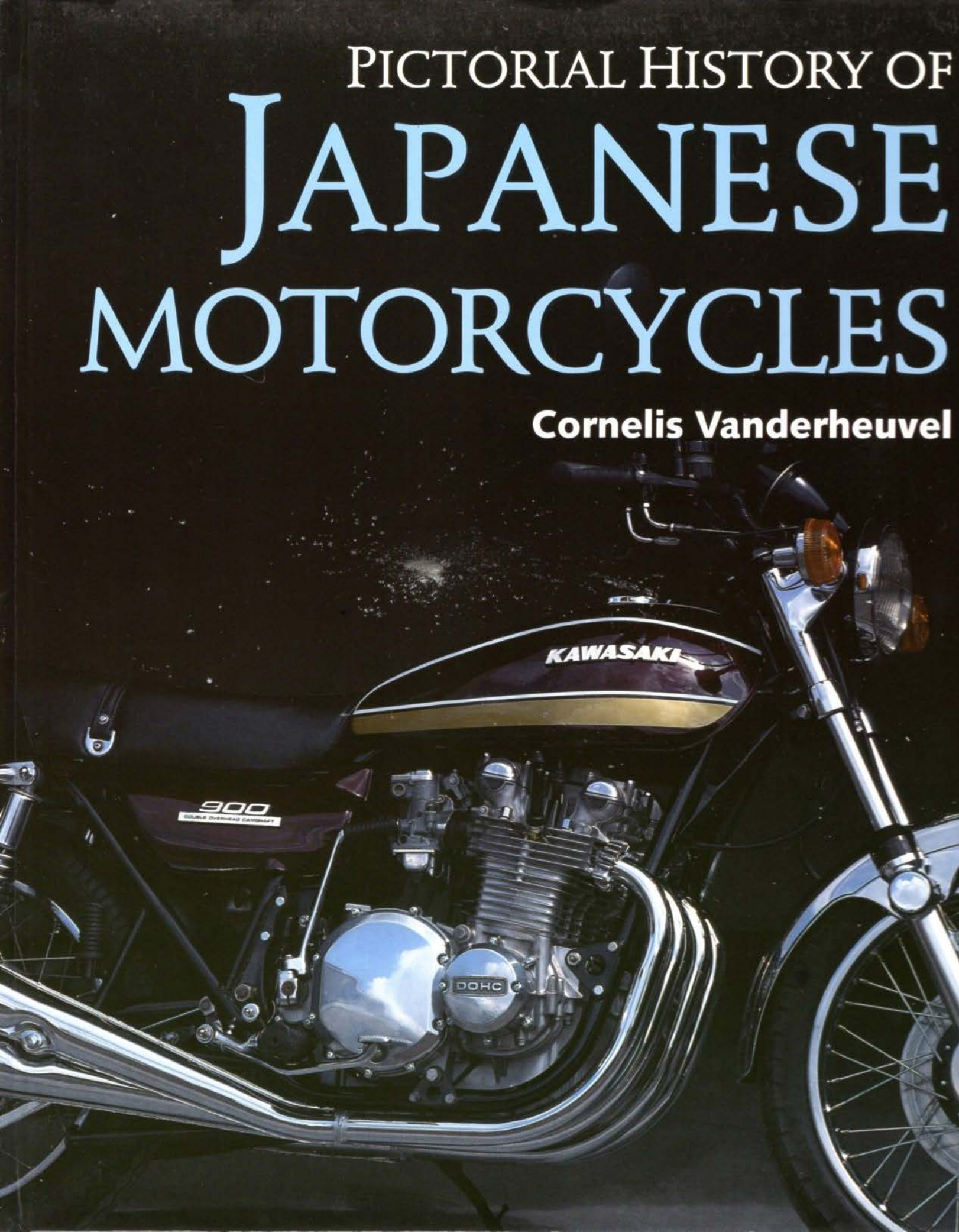
PICTORIAL HISTORY OF JAPANESE MOTORCYCLES

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YAMAHA TX 750
'FOAMBOAT'

Yamaha's successor to the XS 650 was intended to meet two requirements in 1972. It had to follow company policy of 'Two cylinders is enough'. It also had to be an answer to the Superbike invasion. The TX 750 turned out to be a loser, although it was a valuable exercise in highlighting a technical lesson the entire motorcycle industry was to find of benefit. In 1969 Yamaha had missed their chance to bring out a Superbike. The RZ 201 and the GL 750, described earlier, were going nowhere. Now the



stylists had to find a way to create a particular identify for Yamaha. Their problem was that all types of motorcycle were already on the stocks but manufactured by the 'opposition'. The Suzuki GT 750 was there, and the Honda CB 750, and the Kawasaki Mach 4 – plus BMW's R 75/5. The Triumph Bonneville was a 750 by this time, and there was the Trident too. Norton was still in the race with the Commando. Laverda and Moto Guzzi were marketing the highly regarded GT and SF and V 7 models. The first Ducati L-twins had been presented to the world. Yamaha's TX 750 was meant to combine the best of both worlds. Alloy wheel rims acknowledged an Italian influence. A double disc at

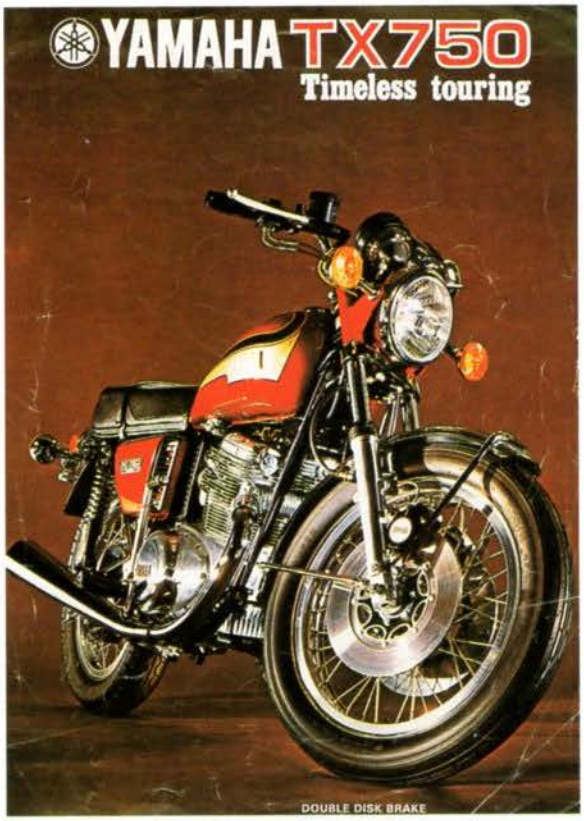
"Timeless touring" is more relevant today than Yamaha believed in 1973, when the model came out. Nowadays the machine is better suited to its task than in its early days. Motorcyclists of today take it easier.

the front and a huge drum brake at the rear were state of the art. Slim, chromed mudguards added to the modern look – as did omission of the usual fork gaiters. Typical Japanese painting and quality of finish were raised to a higher plane on the TX 750. The quality of switches, dials and fittings was unapproachable. The engine, it was decided, had to be a twin-cylinder in deference to conservative tastes. The TX was to take the place of the 650 after a while, so nil vibration was a mandatory design requirement. Performance had to be up to the standard of other modern 750s. All the 750s of the other makers were closely analysed. The appearance of the engine was considered to be crucial: it had to impress; it had to be modern but, also, sturdy and compact. Style rather took over from function, to the extent that no room was left for an oil-filter! In the end, the oil-filter had to be a very special design and was fitted near the front sprocket. The same sort of situation occurred with the contact-breakers which were, finally, hidden, BSA-like, behind a little cover on the left of the engine.

The engine was to be a twin, but was to behave like a four-cylinder. It even had to look like a four! All this constituted a radical departure from the looks and standards of the XS 650. Technically, the cylinder and head configuration was half a Honda 750, with a single camshaft carried in separate bearing blocks. Oil was supplied from underneath the camshaft carriers. However, the finish of the Yamaha was even smoother than that of the Honda. The bottom end of the engine had no ball bearings, like the XS 650, but shell bearings, like the Honda; the heavy crankshaft was carried in three of these. In order to eliminate the vibration of a parallel twin, the technicians had worked out a system of counter-rotating shafts. Eccentric weights counter compensated for the vibrations of the crankshaft and pistons. Yamaha dubbed the system the Omni Phase Balancer. All this meant that the twin engine was very heavy. The lubrication system was of the dry-sump type – again like the Honda – and was deemed necessary to avoid the enlargement that would have been called for in a wet-sump setup.

The Omni Phase Balancer system worked very well. The engine sounded like a twin but felt, to the rider, like a four. There was absolutely no vibration. That was the good news; but, still, there were major design faults. Those balance shafts were way down in the engine, and oil coming back from the cylinder head was beaten into a froth by the weights, which caused operating temperatures to rise. Froth is not a good lubricant! On top of that, the oil circulation system was very lengthy, and complicated, which meant that it took a long time before the oil had passed through the engine. All parts of the engine suffered from a shortage of oil. Another fault was that the main bearings of the crankshaft were not up to their job. There were only three of them, and for a parallel twin ball bearings are more suitable than shell bearings. The engine did not warn when it was over-stressed, apparently revving happily to the red zone of the rev-counter, at 7,000rpm. And the truth was that anything over 4,000 brought problems!

Another important aspect concerned the times: in the early seventies in many countries there were no speed limits at all. A Superbike was run at top speed then; as was the TX, because the intention was to turn the TX into a Superbike 750. But, as indicated, this was not to be. As all the problems became evident, Yamaha tried hard to solve them. One 'remedial' service bulletin followed another. Some time in 1973 an unknown mechanic realised that there were oil-cooler sets on the market that might be of use. All machines in stock were modified to take these devices, and bikes already sold were called back to the dealers. Incorporating a cooler meant



(left) **The 1974 Yamaha TX 750 tried to combine the super smoothness of a four-cylinder with the manners of a parallel twin. Styling learnt from the GL 750 and the RZ 201 was repeated in this model.**





(left) **Exhaust manifold looked good, but caused the head to overheat. Another nail in the cooling and lubrication coffin of the Yamaha TX 750...**

Extension of the cranckcase to allow more oil to be carried was the result of expérience of using balance shafts. Thanks to the TX 750, many of today's machines use balance shafts for vibration-free running.





Much effort was expended in giving the TX a smooth look. However, under the shiny engine covers things were really complicated...

that the oil system was now even more complicated. Two pipes to and from the engine passed behind the air filter and under the fuel tank to the oil-cooler. Often Chausson coolers, intended for Citroën cars, were used, positioned under the steering head. It was a neat modification. But people had lost confidence in the Yamaha, and were not happy. Then, in 1974, Yamaha brought out their own oil-cooler, but made the modification very visible. Two chromed hoses went on the right side of the cylinder block towards the oil-cooler, all in view. The modification certainly helped to make the TX more usable, although full-throttle work was still out of the question. If you stayed below 4,000rpm, the bike was perfectly serviceable; 4,000 in top gear equated to 75mph. Keeping to that sort of performance, the TX would ran to 60,000 miles without any trouble. But the bike could not live up to the 'Superbike' description; it was a good tourer. The public was not impressed, and 1975 saw the end of the TX 750. It was then the smaller two-strokes and the XS 650 that kept Yamaha afloat – not forgetting the XT 500, of course.

Riding the TX

I write in the present tense, as a present-day TX rider ... There is no decompressor, such as the XS 650 had. The 100cc-larger TX engine takes even more effort to start: the starter motor gets the job done. but moans about the hard work it has to do, and I have to say that the kickstarter is the better alternative, even if it takes all one's weight to

overcome compression. A good,'heavy' sound is heard as the engine ticks over at 800rpm. Power starts at 1,000 and you can shift up at 2,500. Let it come down to 1,000 in top gear and open the throttle, and the bike will take off without hesitation. The seat is rather high, like that of a Honda CB 750 K 2. And, also like the K 2, this Yamaha has a high centre of gravity. Operating the clutch takes a lot of effort, recalling memories of Laverda twins. Riding the Yamaha, everything is in the right place and one can ride for a long time without getting tired. Gear-shifting has not deteriorated after all these years; and the transmission works perfectly. The TX is a little heavy in the corners; you need to force it a little – like a Laverda. it never wiggles or weaves. On the straights it runs like a train. As I've indicated, fast road work is not the Yamaha's main strength. It will reach 110mph, and at that speed it is free of vibration. But low-down power is the chief virtue of the TX. Treat the TX 750 like a British twin, and you can be very happy on the Yam. Oddly, the 1990s are far more suitable for the TX than was its own era, for nowadays we can't indulge in full speed all the time. Legislation and 'social acceptance' don't allow it. If you want to go fast, take a modern motorcycle.

Modern oil stays up to 30° cooler in the TX and is also more resilient to frothing. The result is that lubrication problems are more or less a thing of the past. The brakes of a TX 750 were excellent for its time, and even today we can judge them as being adequate, or even good. And a TX most certainly is a looker!

The lessons taught by this model are still being put into practice today; many motorcycles now have balance shafts...