

JOHN PLAYER NORTON MONOCOQUE

A time when

Even though they raced for one season, the John Player Norton Monocoque made an indelible impression that remains to this day. Now a quarter of a century later, Alan Cathcart still finds the machine as breathtaking as it was when it hit the tracks all those years ago.

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“The 1972 bike was a stopgap measure to get us out on the racetrack”



The John Player Norton story is much more than a brief footnote in the history of what is arguably Britain's oldest and most historic marque, denoting a brief revival of racetrack fortunes in the face of the burgeoning Japanese onslaught. For, 35 years ago, the British factory's tiny Thruxton-based race shop not only established the prototype of the modern fully sponsored road racing team, it also created a race-winning bike that, while essentially a two-wheeled anachronism thanks to its archaic air-cooled pushrod twin-cylinder motor and separate gearbox, was arguably the most sophisticated and avant-garde motorcycle in terms of chassis design that the world had yet seen, echoing Britain's newly-established competition supremacy on four wheels through firms like Lotus, Cooper, Brabham and Lola. That bike was the JPN Monocoque, and though only three such motorcycles were ever built (plus a fourth prototype chassis), all of which competed for just a single race season in 1973, its unlikely success against much more powerful two-stroke opposition, has accorded the JPN Monocoque legendary status as one of the benchmark racebikes of the modern era.

One moreover that represents the creative masterpiece of the man who conceived, developed and rode it to racetrack success, culminating in victory in the 1973 F750 Isle of Man TT: Peter Williams (see sidebar).

The John Player Norton story had begun in 1971 when Williams, a Norton engineer who successfully combined his day job with GP racing at the top level, and alongside his GP success with the Arter-Matchless had scored some good wins and places on race-prepared 750cc Commandos, was given a budget by Norton chairman Dennis Poore to build a one-off open-class racer using the firm's production 750 engine. That Peter Pykett-built bike performed promisingly, convincing Poore that, even with the firm's existing long stroke power unit, it would be a worthwhile project to go racing with in the new Formula 750 class where their BSA/Triumph corporate cousins were already tasting success.

PHOTO CREDIT: KYOICHI NAKAMIJURA



Photo: Bob Toomey

Accordingly, the Norton-Villiers performance shop at Thruxton circuit was given over entirely to the manufacture and development of the new machines, with freshly-crowned 250cc world champion Phil Read recruited to ride alongside Williams, and former Suzuki works GP rider Frank Perris signed up as team manager. As the final ingredient in what was to prove a fascinating cocktail of talents, former car racer Dennis Poore was able to use some of his contacts in the motor racing world to attract Imperial Tobacco, the company which had brought cigarette sponsorship to Formula One with Team Lotus four years earlier, to sponsor the Norton race effort via its John Player brand, as the first example anywhere in the world of a bike team fully supported by an outside sponsor – let alone a cigarette one.

John Player Norton had been born – a fact advertised in race paddocks by the team's sumptuous 100 mph transporter based on an American Dodge V8 van which also doubled as a mobile workshop.

A satisfying debut

Decked out in the blue and white John Player livery, the 1972 JPN 750 twins looked smaller than many 500 singles, thanks to the lessons learnt in the MIRA wind tunnel by Williams, who as well as being a team rider and development engineer, was also the designer of the bikes. By fitting pannier fuel tanks that partially enveloped the engine, carefully shaped to seat the rider low down and completely filling the otherwise 'dead' space between fairing and engine, a very low frontal area was achieved that allowed Read to qualify the new JPN at 155.17 mph (249.72 km/h) first time out at Daytona, en route to fourth place in the 200-miler after briefly leading at one stage during fuel stops – a very satisfactory debut.

The rest of the 1972 season, though, proved less so, with the main problem a recurring transmission failure that forced Williams into retirement when lying second in the F750 Isle of Man TT. However, intensive development yielded some good wins in the second half of the season, especially in shorter races where the gearbox problem was not so acute: Williams won at the Hutchinson 100 on the reverse-direction Brands Hatch circuit, then new team member Mick Grant led a JPN procession to victory on Scarborough's mini-TT course, while Read wrapped up the year in fine style with a win in the end of season Race of the South, again at Brands. For a debut season, it had proved reasonably successful but Peter Williams already had firm ideas how results could be improved in 1973 by building the monocoque bike chassis he had dreamed of constructing since his time at Ford.

"I had four parameters for designing the Monocoque," he says today. "Three of these had been the rationale for the '72 pannier-tanked bike – a small frontal area, hence aerodynamic efficiency, and for easier handling, a low centre of gravity and a reduced polar moment by placing the centre of gravity in the right place close to the centre of mass."

These factors nowadays form the basis of GP design but 35 years ago Williams and the JPN team were forging a lonely path as the first anywhere in the world to adopt this technology in building a race bike.

"The 1972 bike was a stopgap measure to get us out on the racetrack," admits Peter, "so while it incorporated some of these ideas, it was full of compromises and the

engine was too far forward for ideal handling – it was easy to make the back wheel step out under power, even with only 74 bhp (55 kW) available at the crank from what was essentially only a tuned Commando motor. 1973 was our chance to do it right, to build a really small bike that wrapped the rider round the engine, then filled in the gaps with a chassis that contained the fuel and oil. This also allowed me to obtain the fourth parameter which the '72 bike had hardly addressed: stiffness.

"Within the restrictions of the Isolastic rubber engine mountings that we had to include for commercial reasons (because they featured on Norton road bikes – AC), which were in any case desirable to cut down on vibration, we created a pretty stiff structure in the Monocoque chassis, and that's one reason it handled so well."

The Monocoque project had begun even before the end of the previous season, with chassis builders Robin Glist and John McLaren starting work on the first mild-steel prototype in October '72.

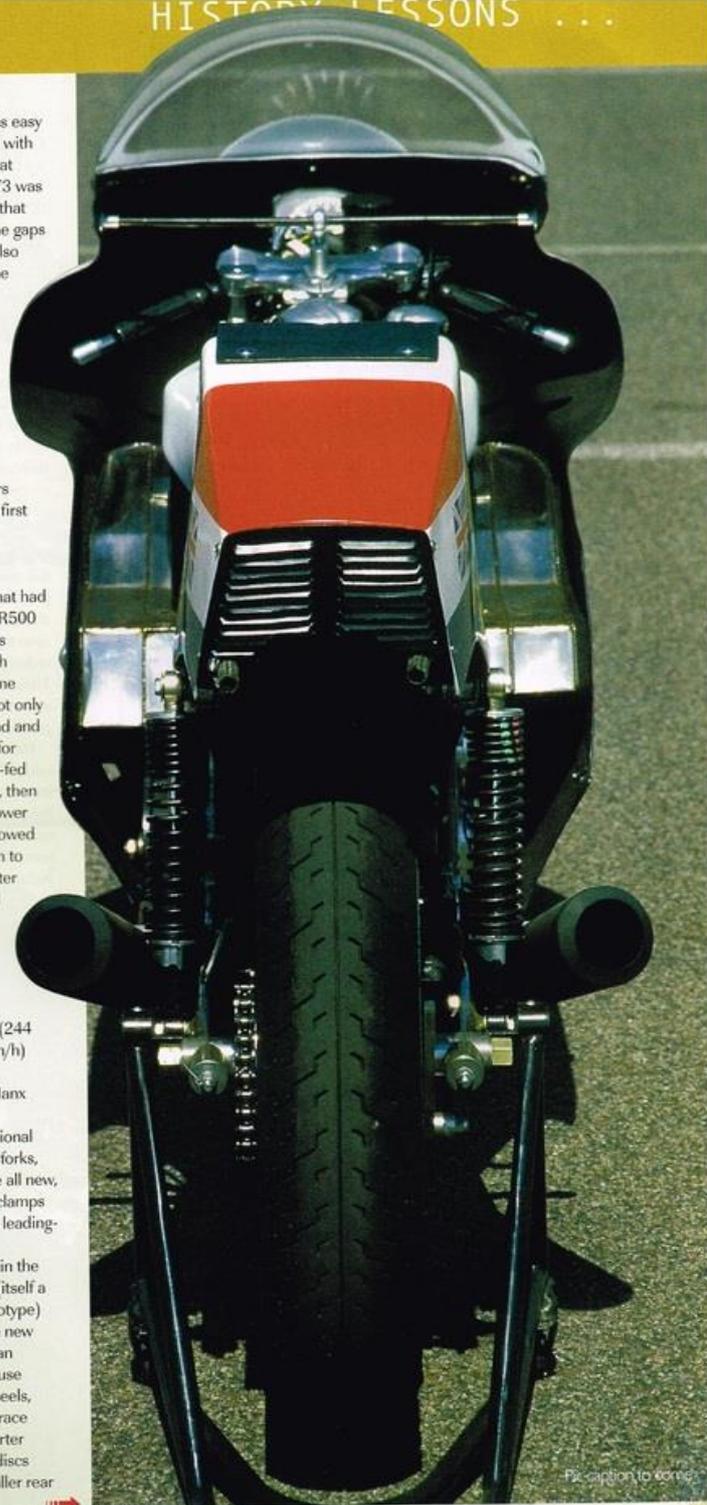
Devil in the detail

Unlike the Ossa and Offenstadt GP monocoques that had just preceded it, or the 125 Minarelli/Garelli and KR500 Kawasaki that came later, whose voluminous spines containing the fuel had the engine slung underneath them, the Norton featured two double-skinned frame sections running back alongside the engine, thus not only creating a stiff, low-slung link between steering head and swingarm pivot, but also acting as internal ducting for the sophisticated airflow system. This saw air force-fed through the letter-box slot in the nose of the fairing, then separated by a horizontal metal plate, so that the lower supply cooled the engine while the upper supply flowed over the top of the cylinder heads to the carbs, then to the oil cooler originally mounted under the seat (later moved to the front of the bike), and out via the grill in the rear of the tail section.

In a foretaste of today, the one-piece engine shroud and chassis combined to form a primitive airbox – one reason perhaps for the underpowered bike's surprising top end performance – Williams was clocked at 152 mph (244 km/h) at Silverstone, and pulled 158 mph (254 km/h) down to Hillberry in the Isle of Man.

Wheelbase was the same as the '72 bike at a Manx Norton-esque 56 inches, with twin Koni dampers fitted with Cirling springs mounted on the conventional swingarm that pivoted on the engine mounts. The forks, though – set at a head angle of 27 degrees – were all new, a cocktail of AJS motocross stanchions and triple-clamps delivering 98mm of trail, mated to the team's own leading-axe cast magnesium sliders.

Williams had also moved the engine rearwards in the wheelbase by one inch compared to the '72 bike (itself a whopping 1½ in further back than in the '71 prototype) so as to improve traction. The overall height of the new bike at the steering head was also 2½ in lower than its pannier-tank predecessor, thanks partly to the use of specially-made five-spoke 18-inch magalloy wheels, whose use was already familiar to Peter Williams race fans thanks to his exploits on the 'wheelbarrow' Arter Matchless. Smaller 10-inch cast-iron front brake discs were used to reduce unsprung weight, with a smaller rear – rather than the 19-inch wheels/11.25 in front



Picture caption to come

discs/rear drum brake cocktail of the year before.

The incredibly low build of the JPN Monocoque bears comparison with the mid '50s Moto Guzzi's of Giulio Carcano, and Williams is proud to admit that he knelt at the same altar of reduced frontal area and lower drag as a means of obviating the disadvantages of a modest power output.

"We were able to reduce the drag coefficient to a truly impressive 0.39 Cx in the MIRA wind tunnel," he says, "and one of the crucial factors in attaining this was smoothing the airflow over the rider's back when lying prone on the tank. I designed a fairing with fully enclosed handlebars and a screen that, while a whopping five inches lower than on the '72 bike, was just the correct height in relation to the rider's shoulders when flat on the tank so that the airflow ran over the screen and down along his back – our leathers contained no lettering on

“ This also allowed me to obtain the fourth parameter which the '72 bike had hardly addressed: stiffness”

the back which might disturb this. The seat design, or rear fairing, was just as important in smoothing the airflow. I was very proud of that drag figure – and to be honest, I still am!”

The Norton Monocoque featured two double-skinned frame sections running back alongside the engine

The powertrain

Modifications to the Isolastic-mounted engine were less dramatic, but equally crucial, in view of the non-arrival of the promised short-stroke motor, which only came on line in 1974 – all four JPN Monocoques built were fitted with the 73 x 89 mm long stroke Commando motor, rather than the later 77 x 80 mm version.

For 1973, this featured higher compression 10.5:1 Omega pistons, aluminium conrods fitted to a slightly lighter one-piece crank, revised porting to the cylinder head, steel pushrods operated by a 3S camshaft, and 33mm Amal Concentric carbs instead of the 32mm ones used the year before. This bumped power up to 76 bhp (56 kW) at 7,200 rpm at the crank (around 67 bhp/50 kW at the rear wheel, says Williams), but the biggest improvement came in resolving the transmission problems that had plagued the team to date – partly because of the extra power, and partly because the Norton triplex chain primary was not designed to cope with the speeds involved in 150 mph (240 km/h) racing.

For 1973, this was redesigned to include a third bearing inside the chaincase to eliminate the problem of shaft deflection as well as dished gearbox sprockets which placed the primary loads directly on the bearing itself, rather than the shaft. The gearbox was also made to run 25% faster by fitting a larger engine sprocket and smaller clutch, so that less torque on unit loads was taken up on the gear teeth themselves, which also had a redesigned profile. Finally, after experiments with a gearbox-located shock absorber the previous season, this was relocated onto the crankshaft, and a dry clutch incorporated into the redesigned primary, resulting in a narrower, stiffer casing. These improvements completely resolved the problems and Williams says the team never again suffered another gearbox failure.

He tested the prototype at Thruxton before the end of the year, suggesting several mods which were incorporated in the three race bikes then built using lighter, thinner stainless steel for the double-skinned construction, which weighed 37 lb/16.8 kg in finished form. This at first might seem heavy, until you realise it includes separate compartments for the maximum



24 litre fuel supply then permitted under FIM F750 rules, as well as the six-pint oil tank for the dry-sump engine, located in the rear section of the frame. In this way, Williams was able to incorporate the same fuel load as in the '72 bikes, but reduce the centre of gravity and frontal aspect still further, in a bike 20 lb lighter than the old one, at 350 lb/159 kg dry.

"I'd proved on my old Arter G50 what an incredible difference it makes having your fuel mounted low down," he says. "It reduces the effort needed to change direction, lessens general instability round fast, bumpy turns, and enables you to flick the bike to and fro, as well as decreases the pitch of the bike by reducing the polar moment. People often won't believe me when I say I could go into a corner on the Monocoque, lay it on its side, get both front and rear wheels sliding, then put the power on and keep it in a controlled two-wheel drift round any corner faster than Druids at Brands. It was a really wonderful little bike."

Last lap agony

Anyone who was at Silverstone in August 1973 to watch the British round of the F750 World series that year will vividly remember seeing Peter Williams demonstrate the truth of that claim, as he grabbed an improbable lead on such a fast circuit against all the factory two-strokes, including the Suzukis of Sheene and Smart, and Yvon DuHamel's Kawasaki triple, visibly attacking top-gear turns like Abbey and Woodcote in masterful two-wheel drifts aboard the underpowered Norton, as he pulled away to score what seemed set to be a fairytale victory. But, cruelly, after he'd equalled Jarno Saarinen's outright circuit lap record, a miscalculation by the JPN team left Peter coasting to a halt one lap from the flag with a dry fuel tank – a bitter disappointment in what was arguably both bike and rider's finest race.

Yet, even before that the white-liveried machines



PETER WILLIAMS: RIDER/ENGINEER

Not many men can have turned down the chance to race for the works Suzuki team, forfeited a ride with the Honda factory and declined an offer to work as a designer for Yamaha, whether for reasons of patriotism or loyalty – but Peter Williams did all of that. Instead, except for a brief link with MZ – for whom he scored the East German factory's last-ever GP victory, in 1971 – he raced exclusively aboard British bikes during his 10 year racing career, which ended with his tragic Oulton Park accident on the spaceframe John Player Norton in 1974.

Son of the legendary designer Jack Williams, creator of the G50 Matchless during his time as chief engineer for AMC, Peter was the most famous rider/engineer of the modern era, equally skilled at both after first training as a draughtsman, then working at a Ford car plant where he was exposed to the increasing sophistication of mid '60s racing car design.

He became the eternal runner-up to Agostini's works MV triple aboard Tom Arter's AJS and Matchless bikes – latterly equipped with modern-style 'wheelbarrow' mag alloy wheels he designed in 1967 while recuperating from a GP accident. Williams was always at the forefront of new technology and was an early user of disc brakes as well as a full-face helmet.

He finished second no less than six times to Agostini in an Isle of Man TT race and repeatedly also at classic GP circuits like Assen, Monza, Hockenheim and Dundrod. Mike Hallwood had lined Peter up to race as his teammate for Honda in 1968 but the Japanese factory pulled out of racing leaving Williams to reject a rival offer from Read-Weslake to race its new 500cc bike. Instead, he joined the Norton factory's new race shop at Thruxton in early 1970.

Establishing a rapport with AMC boss Dennis Poore, Williams not only forged a new career as a successful big-bike rider, winning the Thruxton 500-miler with Charlie Sanby as well as many production races on the new Commando, but in 1971 he also built a one-off 750 racer which convinced Poore of the potential of racing as a promotional instrument for the Norton marque. That led to the formation of the John Player Norton team, and to the creation in turn of first the '72 pannier-tank JPN, then a year later the Monocoque – both of them designed by Williams, as well as ridden by him to much of the deserved success the distinctive-looking bikes enjoyed in their trademark livery.

In winning the 1973 Isle of Man F750 TT on the JPN Monocoque, Williams demonstrated forever the worth of his unique combination of talents at the drawing board and on the race track, expressed at the controls of a truly avantgarde motorcycle that allowed him to achieve the high standards he set himself both as rider and as engineer.

with the trademark red-and-blue stripes – reflecting John Player's switch to promoting its No10 brand of cigarettes – had already brought both team and sponsor the success they had been looking for in the hands of its designer and his team-mate Dave Croxford. After a disappointing Daytona debut caused by fuel vaporisation problems that were eventually traced to hot engine air directed on to the swingarm-operated fuel pump, and cured by fitting an electric one, throwing cool air at it and shrouding the fuel lines in silver foil, Williams won three of the six races at the Easter Transatlantic Match Races. He ended up highest overall scorer with four fastest laps to his credit.

The finest hour

After further short-circuit success at Cadwell Park, punctuated by an unfortunate get-off in the Imola 200 that put a slight crease in the monocoque without affecting its geometry, he went to the Isle of Man and at last earned the TT victory he had so long deserved. Holding off the challenge of Jack Findlay's works Suzuki, as well as the more powerful BSA/Triumph triples, Peter and the JPN Monocoque scored a highly popular win in the F750 TT at the record speed of 105.47 mph, setting a new lap record at 107.27 mph to become the second fastest man ever round the TT Course – all on a production-based pushrod twin, with team-mate Mick Grant finishing second. The success was captured forever by a BBC documentary team, and surely remains the John Player Norton team's finest hour.

Why then was this avantgarde motorcycle of proven race-winning potential discarded after just a single season of competition, in which it had covered itself with glory – not only by winning the TT and placing fifth on foreign soil in the F750 race at Laguna Seca in July, but also coming within an ace of scooping the British Superbike Championship against all the two-strokes, when Williams and Barry Sheene tied for points at the end of the season, the Suzuki rider only scooping the title by dint of having scored one more race victory? The answer lies in the internal politics of the JPN team, a fact Peter Williams is painfully aware of today, which resulted in the Monocoque being jettisoned after just a single season of development, in favour of a more traditional spaceframe design that, while it may have been 30 lb lighter, was much taller, less aerodynamic, and in spite of being fitted with the more powerful new short-stroke engine, also slower. Neither Williams nor Croxford were able to match the lap times of the Monocoque with the new bike on any type of circuit.

"There was an element of Frank Perris thinking I should be concentrating more on riding rather than engineering," reflects Peter, "especially in terms of training and preparing myself for races. Also, I was persuaded against my own observation that it was difficult to work on the engine at a race meeting, that everything was too inaccessible within the monocoque – although years later Norman White, one of the team mechanics, told me this was definitely not so, and that he found the bike easy to work on in the paddock. So I'm left with the third and maybe most influential factor, which is jealousy – partly my own fault, however, because when people asked me

The forks, set at a head angle of 27 degrees, were all new, a cocktail of AJS motocross stanchions and tripleclamps delivering 98 mm of trail, mated to the team's own leading-axle cast magnesium sliders

technical details about the bike I always answered with 'I' rather than 'we', which might have ruffled some feathers. However, the Monocoque chassis was very much my own personal project, which I conceived, helped develop and raced myself, on behalf of the JPN team. I'm very, very proud of it – even if it was a lost opportunity."

Until recently, only two of the four John Player Norton monocoque chassis built in 1973 still existed as complete bikes – one racer in the US, the other mild steel prototype in the National Motorcycle Museum in Birmingham. Improbably, the other two chassis raced that season had both ended up doing duty as house furniture: Peter Williams's TT-winning frame had been turned into a standard lamp and presented to him as a

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memento by the JPN team, who had also converted the chassis Dave Croxford had totalled at the Silverstone F750 round in his famous Woodcote corner pile-up into a coffee table, inscribed with the dictum 'Five weeks to make, five seconds to destroy!' That's what they call re-cycling.

Brought back to life

However, thanks to the diligence and expertise of P&M's Richard Peckett – ironically, today's leading specialist in BSA/Triumph three-cylinder classic race preparation – both JPN Monocoques are back on their wheels again, in as close to exactly original specification as possible, after a huge amount of research by both Peckett and Mike Braid, owner of the Croxford bike.

The Williams TT-winner, on the other hand, belongs to the owner of the largest collection of John Player Nortons in the world today, Spanish enthusiast Joaquin Folch, who 20 years ago bought the assembled stable of three JPN racers – one '72 pannier-tank model and two '74 spaceframes, plus a large number of parts including a spare longstroke motor – belonging to the Spanish Norton importer, Juan Antonio Rodas, who had acquired them to race in Spain's national F750 series in the mid '70s.

A Norton rider since his days at college in Barcelona, Joaquin later added a Cosworth-engined Challenge to his collection, but to complete the set he acquired Peter Williams' standard lamp from him back in 1984, complete with its identifying Imola dent which Peter pointed out upon collection as confirming it was his TT-winning frame. Folch later commissioned P&M to rebuild it into a bike, using his spare JPN engine which would certainly at some stage have been used in a Monocoque frame a quarter century ago. After a five-year rebuild, the result was completed in time for Folch to ride it in the 1998 TT Parade on the Isle of Man, marking the 25th anniversary of Williams' F750 TT victory with the same bike – an event in which Joaquin kindly invited me to ride the second of his '74 spaceframe bikes, which Richard Peckett had also freshly restored, alongside him.

I have since had the chance to ride the Williams JPN Monocoque at both a damp Snetterton and a sunny Mallory Park, two very different types of circuits which showed up the bike's all-round nature well. However, credit must first of all go to Richard Peckett for his phenomenal work in piecing together a jigsaw puzzle of parts in order to recreate so historic a motorcycle in such authentic, original guise, including re-creating the engine mountings, swingarm, footrest controls and handlebars from original JPN drawings, as well as commissioning new wheels to replace the time-expired original magalloys. Thanks to him, the TT-winning JPN Monocoque lives again – the way it was.

That allowed me to experience not only the thrill, but also the surprise of discovering one of the most unusual riding positions in modern-day motorcycling. Nothing else is like the Monocoque to sit in/on, except another JPN! The bike is very low and slim – improbably so for a 750 – but relatively long, so you must squeeze into a very snug, semi forward-reclining stance that has the seat quite far back and your arms reaching forward to the short, stubby handlebars. These position your hands very close together, next to the steering head, and partially obscured from view by the all-enveloping fairing – do not think

SPECIFICATION

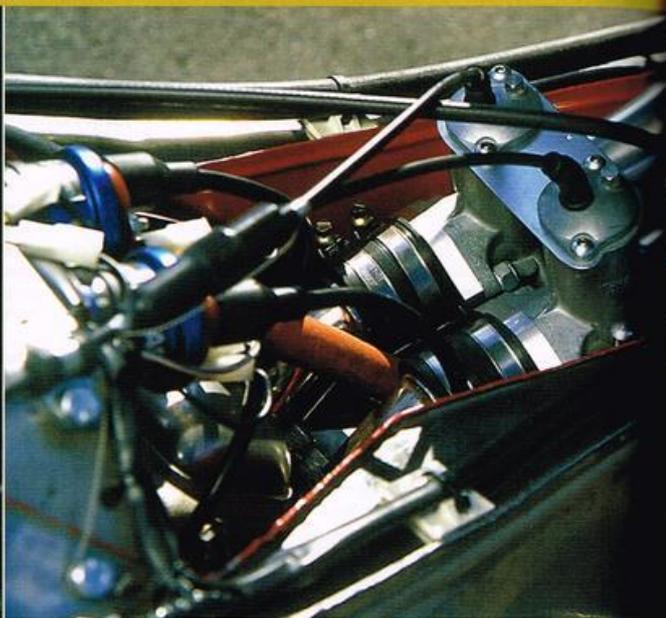
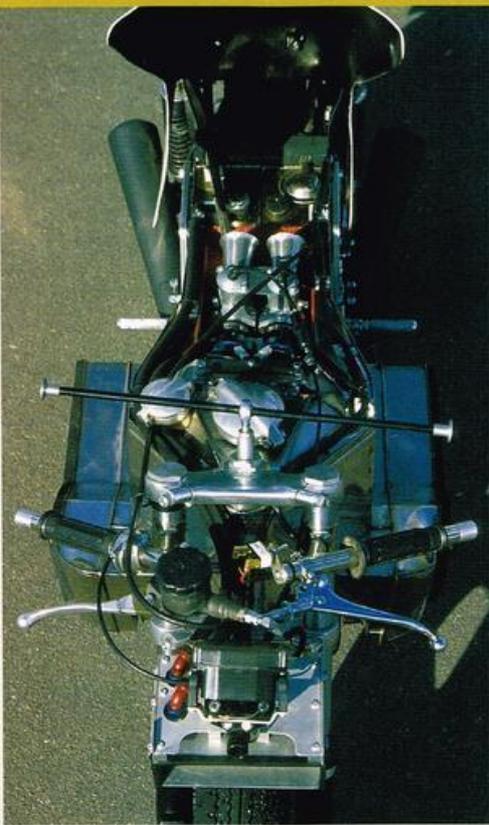
JOHN PLAYER NORTON MONOCOQUE

Engine	Air-cooled ohv pushrod parallel twin-cylinder four-stroke with 360° crankshaft
Dimensions	73 x 89 mm
Capacity	746 cc
Output	76 bhp at 7,200 rpm (at crankshaft)
Compression ratio	10.5:1
Carburation	2 x 33 mm Amal Concentric with electric fuel pump
Ignition	Lucas Rita electronic with 12v battery
Gearbox	5-speed Quaife close-ratio with triplex chain primary drive
Clutch	Multiplate dry (4 steel/4 bronze)
Chassis	Stainless steel monocoque
Head angle	27 degrees
Trail	98 mm
Weight	350 lb/159 kg dry
Weight distribution	48/52 %
Wheelbase	56 in/1,420 mm
Suspension	Front: Leading-axle Norton-AJS telescopic forks Rear: Tubular steel swingarm with twin Koni/Girling shocks
Brakes	Front: 2 x 10 in/254 mm cast iron Norvil discs with two-piston Lockheed callipers Rear: 1 x 8 1/2 in/ 215 mm cast iron Norvil disc with two-piston Lockheed calliper
Tyres/wheels	Front: 3.50/3.25 x 18 Dunlop KR124 on 2.25 in Norvil wheel Rear: 3.75/5.00 x 18 Dunlop KR124 on 3.00 in Norvil wheel
Top speed	158 mph
Year of construction	1973
Owner	Joaquin Folch, Barcelona, Spain.



about waving to the fans Rossi-style till after you have won the race, because you would never get your hands back inside the fairing again if you did! Pushstarts are an absolute no-no – you need to be sitting aboard the bike with someone to push you, even though the long-stroke Commando-based motor fires up very easily when you do so. Really, the wind-cheating riding position reminds me most of a human-powered modern day track cycle.

Compared to the Monocoque, the later '74 JPN spaceframe I rode at the TT not only felt shorter and frankly more agile, and it also had a less recumbent riding stance. This was easier to adapt to although the Monocoque was very precisely tailored to suit a rider of PJW's stature, so for anyone taller like myself, it was



always going to be a tight squeeze. Anyway, in the pre-slick tyre days of the early '70s, hanging off was not the approved method, so in any case you were supposed to sit tight in the seat, moulding yourself to the ultra-low-slung bike. The screen came too far back for me to get underneath it easily, but by ducking my head inside it down the Snetterton back straight, I saw an immediate 300 rpm gain in engine speed on the Krober rev-counter. It all works.

The Monocoque steers beautifully in big, sweeping corners like Coram or Riches at Snetterton, holding exactly the line you set it thanks to a relatively long 1420 mm wheelbase and kicked-out 27-degree head angle. There is, however, some power understeer because of this, when you get hard on the throttle exiting a turn – it will not hold a tight line, and pulling it on line requires some effort, making you glad that the light, precise steering allows you to counter this quite readily.

Turn-in is good. The Norton goes exactly where you point it entering a bend, although the all-enveloping bodywork does take some getting used when you do so – it just feels a bit awkward. Peter Williams had a distinctive

“ I never revved the bike higher than 7,600 rpm or much lower than 5,000 ”

riding style in which he used wide, sweeping lines in turns rather than squaring them off, a technique honed by years of racing underpowered GP singles against Italian multis where the vital thing was to maintain corner speed. The JPN's geometry is geared to that objective, so while it is not quite as nimble as you first expect it to be, being so small and low, it is superbly stable round big turns, and within the limitations of the twin-shock rear end, copes well with any bumps you meet cranked over on the angle.

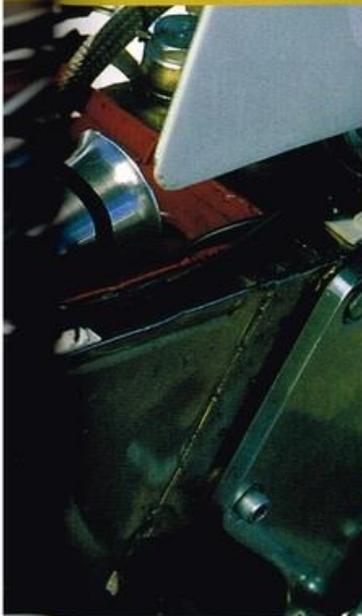
The forks are more responsive and work pretty well but by modern standards the twin Konis have not so much travel and zero progression, though on a smooth short circuit of the modern era that is not so much a problem. I know, though, from riding the later JPN fitted with the same suspension in the Isle of Man that this package gives a 'lively' ride over bumps, which the longer wheelbase on the Monocoque would help smooth out. By the standards of 35 years ago, though, the JPN must have made a great Isle of Man or Silverstone bike, relying on the low centre of gravity to make it both stable and reasonably quick-steering, with you parked in place aboard the seat rather than hanging off the bike.

Powertrain masterpiece

However, the big surprise is the engine, which is improbably smooth and punchy, yet incredibly eager to rev. I have ridden many Norton twins down the years, both road and race, but with hand on heart can say I never sampled one remotely as well-balanced as either of the JPN engines that Peckett has built up for the Folch bikes. It is a pleasure to hold the throttle wide open in top gear with the engine booming away beneath you, yet no sign of the vibromassage any other twin-cylinder BritBike racer I ever rode insisted on inflicting. The isolastic engine mountings may play their part in this but it is hard to credit that this pushrod twin has no power-sapping balance shafts, and on the contrary has two big pistons

Left: Bird's-eye view of the Norton with its twin pannier tanks.

Above: The air-cooled ohv pushrod parallel twin-cylinder four stroke engine was fed by twin Amal carburetors.



rising and falling together.

The turbine-like power delivery starts in earnest at 4,000 rpm, once the twin exhaust megaphones stop hiccuping and the engine smoothes out, builds strongly to peak power at 7,400 rpm, then holds it well till almost eight grand – but only for a last lap dash.

"I never revved the bike higher than 7,600 rpm or much lower than 5,000," says Williams, and after sampling his bike, I understand why. It picks up revs very fast, the engine seemingly with less inertia than other big twins of the era that I have ridden, and suddenly it is time to change up on the right-foot, rod-linkage gear lever.

The 5-speed Quaife cluster has well-chosen ratios and the change action is sweet and precise, but rather slow, so that you must use the clutch even for upward shifts. In best MV Agusta/Monza style, there is just 500 rpm between fourth and top gear, which is also ideal for Silverstone, with around double that between the other ratios. Changing up at just over 7,000 rpm gives impressive acceleration for what is quite a heavy bike – this may only be a humble air-cooled pushrod twin, but once wound up it motored past modern 600 Supersports down the Snetterton back straight, thanks to the masses of strong, usable midrange power on tap.

Braking disappointment

However, where they will get you back every time is on the brakes, because even by the standards of a quarter century ago, the JPN's downsized 10-inch Norvil discs are a disappointment. Though gripped by exactly the same benchmark Lockheed callipers of the era as the Ducati 750SS I used to race and still own, they lack the bite of the V-twin's larger cast-iron Brembos, leaving you to squeeze very hard on the lever to get any meaningful response, as well as stepping on the rear brake for maximum assistance. Even then the Norton does not stop so well, so that you end up a) praying hard, b) using a lot

of engine braking (remembering this is not a desmo so it is quite possible to tangle the valves!) and c) keeping up corner speed better than you intended, which may perhaps be the brake package's hidden agenda! Or maybe not, in which case you end up grateful that the Monocoque chassis has such huge reserves of handling poise, as well as such good grip from the front KR124 Dunlop tyre, in spite of the 48/52% rearwards weight bias.

'British is Best' was the watchword in building what was almost certainly the last-ever British racing motorcycle to use 100% UK-made components, but the JPN team should have ignored the Union Jack on the seat flank and gone for the Italian stoppers, at least. No go without slow....

In every other way, though, this motorcycle is a credit to the man who conceived and rode it, the team which constructed it, and the restorer who recreated it – a significant marker in the evolution of two-wheeled chassis design that is arguably the forerunner of the twin-spar Deltabox frames we see on current road and race bikes today, with the added benefit of carrying fuel in the spars.

As a longtime admirer of the JPN Monocoque, and with the added privilege of now having ridden it, I am left with a sense of regret and frustration, as well as satisfaction – the latter because it performs as well as it does, the former because its development was cut short so cruelly. And frustration? If ever a chassis cried out for a more powerful, more sophisticated, more modern engine, it is this one – now as well as back then. Can you imagine what a great bike a modern JPN Monocoque would be, with a fuel-injected V-twin engine, leading edge suspension and brakes and the same wind-cheating build, perhaps with more rational if equally distinctive bodywork?

Here is the formula to do so, courtesy of the bike that did the most, with the least, a quarter century ago. **TM**

Despite the less than ideal riding position for Alan Cathcart, he fell totally in love with this 35 year old racing bike