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*Although clubman racers pushed the sohc Inter engine to output over 40bhp, a state of tune giving around 30-35 horsepower at 6000rpm is easier to live with*





# RAPID ROADSTER

*For a while, the plunger cammy Norton fell out of favour with fast lads who preferred the featherbed frame. But Rowena Hoseason reckons that any 500 single which will take you to the ton is worth a second chance...*

Photos by Kay Eldridge of FocusedImage.com.au, Rowan Bond, Mortons archive and Bonhams auctioneers

**W**hen people talk about Norton's cammy singles they typically mention the Manx first and the International...

well, eventually, maybe, as a bit of an afterthought. Hardly fair, seeing as the International came first and the Manx model popped up post-war. The Inter was the 1930s race-bred roadster equivalent of the works overhead cam competitors.

Joe Craig and Arthur Carroll drew up the new Norton cammy engine for the 1930 season, to cure some of the groundbreaking CS1's idiosyncrasies. The CS1 was an impressive engine, but it was technically tricky to keep in tune and riders found it tough to extract its peak performance. The Inter was a smaller machine overall, with a shorter wheelbase and lower riding position which favoured the vintage style of 'lean out' cornering, knees gripping the tank to stay in the saddle. ➤



*The sohc Inter engine was offered in 350 and 500 forms. As you'd expect, the 350s lacked the torque of the bigger engine but responded well to a big fat handful of revs. This is a 1949 490cc Model 30 which found its way to Australia*



The new model paved the way for the cammy Norton to become a clubman's racer rather than a pure works machine – it was perfectly possible for Inter owners to swap a valve or a piston without an entire team of mechanics. Inevitably the boys of Bracebridge Street offered private customers the option to upgrade their Inters with all manner of competition-spec components. In the mid-

1930s you could specify an Inter in 'Manx GP' trim, bristling with optional extras. After WW2, things became clearer with the launch of the customer double-knocker Manx model in 1949, while the Inter stayed available with its sohc top end. That doesn't stop today's sellers misdescribing an overpriced cammy single as a Manx when it is in fact an Inter, of course...



*Setting up the bevel-driven overhead cam is a laborious process, but you can achieve an oil-tight engine with patience and (in this case) modern materials. Neoprene and silicone can work wonders!*

## BACK IN THE DAY

Even among the actual Internationals, there's a clear demarcation of desirable incarnations. Most folk feel that the truly unapproachable Norton is equipped with a featherbed frame, so the 1953-onwards version of the Inter, with all-alloy engine and laid-down gearbox, is usually the one which hogs the limelight. At the other end of the spectrum lies the simplicity of the Inter's original iteration with rigid rear end and girder forks; a genuinely vintage experience from the 1930s. The final featherbed Inters might be the most powerful of the bunch and are blessed with the best handling of their era, but the early Inters are pretty frisky when the engine comes on song. Both types sell for seriously big bucks.

Then there's the awkward interim model. The Inter was reintroduced after WW2 for the 1947 Clubman's TT, where both 350 and 500 took top honours. This bike was little more than a refreshed version of the pre-war racer, but the customer machine which followed for 1949 was a more pragmatic proposition. For the first time, the public was offered a cammy engine in a chassis with suspension at both ends – but the 'garden gate' frame with tele forks and plunger suspension did not meet with universal approval...





**Above:** Norton offered an optional bronze alloy head from 1935, but the valve seats tended to sink so it was typically only used on track, and road riders stuck with the cast iron head



**A pukka TT carb, correctly accessorised. Owner Rowan says 'If I inadvertently leave the bath plug in the bellmouth and try starting it, then I can forget kicking it over for a few minutes. It normally starts very well after that'**



**It's all a bit of a tight squeeze, fitting in the TT carb alongside the superbly-styled six-pint oil tank with its extended filler neck especially designed to suit the TT pits**



**Purists tend to prefer their cammy Nortons with the famous featherbed frame, or to have a rigid rear end. But back in 1949, the plunger chassis was praised for its comfort over cobbles and the like**

The pre-war rigid bikes' short wheelbase and low centre of gravity gave them responsive handling and instinctive steering. 'Plunger suspension,' observed Don Morley, who owned several Inters over the years, 'especially if combined with tele forks, raises this level, adding considerably to the overall weight to ruin the entire equation. Indeed, these Inters suffer from stodgy and decidedly unsporting handling.' He thought the 1949 incarnation of the Inter was 'beautiful-looking but ultra-heavy and evil-handling.'

Historian Roy Bacon agreed. He thought the post-war Inter was 'wonderful to look at,' but 'it was no road machine. It rattled, it leaked oil and the cam timing battled with the silencer to hold the road performance down to around 85mph for the 500. The 350 was slower, having to drag along virtually the same weight, and thus its acceleration suffered badly.'

Even so, if you fitted a free-breathing pipe, then 'a good 500 could make a memorable experience.' Fitted with a Brooklands can, a plunger-framed 500 in a pre-war state of tune was timed at 97mph, and Bacon reckoned that 'the engine, coupled to a close-ratio gearbox, had deep-down stamina. The plunger frame called for a firm hand and could roll at higher speeds, but would always

work with a rider to keep him out of trouble and get him through a corner.'

Fast riders certainly could make the most of the racing version of Norton's plunger frame. 'It made the bikes much more comfortable to ride in long races like the TT,' according to the firm's works rider Freddie Frith. And indeed, Frith clocked the first ever 90mph lap of the TT circuit in 1937 on a cammy single in a pre-production plunger frame. However, as Jim Reynolds once observed, 'action pictures of the time suggest a very physical high-speed wrestling match!'

These opinions explain why the plunger Inters have traditionally been less sought-after than their siblings, and why their values haven't risen quite so stratospherically. Although the Model 30 (490cc) and Model 40 (348cc) were the top of Norton's range for 1949, those times were pretty tough. Gone were the gloriously high compression ratios of the late 1930s, when works racers ran 12:1 on exotic fuels – the 1949 Inters were fitted with compression plates to cope with poor quality, 72-octane pool petrol.

While the works bikes were still gussied up with trick bits, the road-going Inter specification was a bit less special than it used to be and shared many more components with the ohv roadsters. The sohc iron engine ➤



**Although Motor Cycling would've liked the front brake to have more bite, they were impressed that it stopped 390lb of motorcycle from 30mph in 31ft... in the wet. In the dry, it could easily squeal the front wheel**



**A glimpse beneath the fuel tank reveals the exposed hairpin valve springs**





*By the 1980s, this generation of International had fallen out of favour. But when it was new The Motor Cycle said that 'few riders could ask for more. It will cruise effortlessly and indefinitely in the seventies and do so with a degree of riding comfort that has to be experienced to be appreciated...'*

retained its ribbed crankcase with built-up crankshaft, duplex gear oil pump, exposed hairpin valve springs surrounded by oil feeds, adjusters and breathers, with petrol provided via a TT carb.

A three-spring multi-plate clutch transmitted drive to Norton's four-speed positive-stop gearbox, now converted to foot change. The chain-drive magdyno was mounted behind the cylinder, ahead of the handsome, wraparound oil tank. The petrol tank lost its delicious scalloped edges but kept the cutaway to accommodate the carb.

The garden gate frame is similar to the one used on the ohv ES2 single, adapted to suit the cammy engine and fuel/oil tanks. While the Roadholder forks at the front end were an undoubted improvement over Norton's Webb-type girders, the Inter lost its lightweight pre-war mudguards and was weighed down with a set of standard guards. The Inter was given different tyres to the ES2, and swapped from a 3.25 rear section to 3.50 for 1951.

Although the roadtests of the time overflow with gushing appreciation of the post-war plunger Inter, you can tell that it was a tricky creature to tame. 'A trace of clutch drag made low speed gear changing slightly heavy,' said *The Motor Cycle*, 'and it was not usual to obtain an absolutely clean change from bottom to second gears.' They felt that the 32-inch saddle was pretty high, while the 29-inch wide handlebars were unusually wide.

Although this gave it 'the feel of a big machine,' the Inter was considered extremely agile, and its braking was flat-out fabulous: 25ft from 30mph is impressive by any standard. *Motor Cycling* noted that the rear springing felt quite hard in action, but certainly aided stability: 'road-menders' vicious cross-gullies could be tackled without grip-easing.' Both publications suggested that the Inter was suited only to experienced, hard riders – and *Motor Cycling* had the decency to note that their bike was equipped with a special silencer: the customer machine would be quieter and somewhat... slower.

The reintroduced Inter had certainly lost some of the pre-war model's sparkle, but it was only intended to be a stop-gap, while Joe Craig and his gang got to grips with the Manx motor and an all-alloy sohc engine which would slot into the featherbed frame from 1953. Even so, some technical trickery kept the plunger Inter competitive on the Island, where it claimed three wins in 1949, 1950 and 1951 in the Senior Clubman's TT.

The plunger Inter was also a practical proposition for the man (or woman) in the street. Before WW2, intrepid traveller Theresa Wallach secured her gold star at Brooklands on a 350 Inter, lapping at over 100mph. Yes, I did

type that right. A 350. At 101.64mph. OK, so Wallach chose her motorcycle wisely – the bike was hired (for £5) from legendary tuner Francis Beart – but her achievement is all the more mighty when you consider that it lashed down with rain that day...

The post-war version might not've been up to matching that feat, but instead a tele / plunger Inter carried Wallach on an epic adventure across America. For nearly three years, she worked her away around the USA, Mexico and Canada, maintaining her machine as she clocked up over 30,000 miles.

So take heart if you quake at the idea of setting up the Inter's top end, with its cam driven via that handsome two-piece bevel shaft and an Oldham coupling. Don Morley suggested that any reasonably competent spannerman shouldn't feel too intimidated by the Inter engine. It need hold no great terrors,

***This was what happened with low-octane petrol and a high-comp piston on a high speed, long distance ride. 'I have learned to read and listen to the signs much better these days,' says owner Rowan. Since then he's covered 6000 trouble-free miles***

