



The Oz Vincent Review

Edition #41, August 2017

The Oz Vincent Review is a totally independent, non-profit, e-Zine about the classic British motorcycling scene with a focus all things Vincent. OVR, distributed free of charge to its readers, may be contacted by email at OVR@optusnet.com.au



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Welcome

Welcome to this latest edition of The Oz Vincent Review. In this edition – in line with our objective of having content for all Classic British Bikes, not just Vincent's, we take a long look at the mighty Norton Commando. The front cover depicts the original prototype with the designers and builders that rushed it into production standing proudly in the background. Among the development staff are Bob Trigg (second from left), Wally Wyatt (fourth left), Tony Dennis (behind cup) and Bernard Hooper (on Dennis's left).

And the back cover? Those canny chap's at Norton, just like those at HR panniers, were well aware that 'sex sells'!

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Martyn

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Letters To The Editor

Hi Martyn,

I found this picture of the Vincent Lightning I was telling you about. If I'm remembering right I believe this bike was a 1955 model, possibly one of the last Lightnings made. I always read that there were only a handful of these built over the years. It looks to me that this bike was made for competition.

It is not fitted with lights or a kick-starter. The single gauge is a speedometer. I know for sure that this bike had 83 miles on the clock. This is an original, untouched machine as far as I know. I wish I had a picture of the other side of the bike. It had straight pipes with no mufflers. I tried to convince the



owner that we should start the bike up but he was hesitant to do so. I think I could have talked him into it if he had lived, he passed away at 54, a talented surgeon and all around great guy.

I know that about 7 or 8 years ago some German collector offered him US\$300,000 for the bike, I remember him laughing about it, he wasn't going to sell the bike to anyone at any price. The building where his collection is still looks the same, but with no windows I don't know what remains of his collection, I have heard that most of the vehicles are still there, once when Sterling Moss was visiting friends in Wisconsin, he stopped by the building to see his collection and had a few pints in the pub.

Regards, Bob and Rena Gomach, USA.

Martyn,

Thanks for publishing my most recent missive in OVR #40, and even more thanks for making the page layout work (you are obviously not faking being an "editor"... 😊)

One other really almost (not so) silly thing that I remembered from reviewing my photos in juxtaposition to the photo immediately following my piece was the orientation of my kick starter compared to where most Vincent owners have theirs located. Basically, I have my kick starter set up so that my foot hits the ground just as the kick starter lands out on the spring stop.

That is because in the very early days with the original magneto when I was young, strong, and fit, I once ripped the kick starter out of the quadrant when I landed out on the stop at full force. That was not such a big deal in terms of repairs but I came very close to a serious knee injury as a result when my foot hit the ground at full force with zero resistance and if I did the same thing today, some thirty years later, I would probably be up for a knee reconstruction.

I know that's an 850 Commando owners kick starter action and the Vincent is more "swing" than "kick", but I don't have any trouble starting the Vincent with the kick starter where it is. I have also been told that punching the kick starter stop out of the casing is not an uncommon outcome.

Anyway.. I like simple solutions to simple problems that might otherwise result in big repair bills.

Later, Holger, Australia

Martyn.,

Re OVR 40 One of the team, machine, on line, half way down on left is my father Tom in 1948 working on a B Rapide or Shadow far back road test Dept.

Cheers, David Bowen, Australia (late of Stevenage)



The **2017 Martin Motorsports Modern Classics'** People's Choice Second Place award went to the 1952 Vincent Black Shadow owned by OVR reader Eric Heilveil, centre with lanyard.

As you entered the 13,000-square-foot showroom, you immediately encountered a museum-quality display of motorcycles from 1952 through the early 1990s, glistening in the sunlight.

So, what exactly draws more than 1,300 visitors year after year? According to the event director, Jack Broomall, it's the variety of the motorcycles and changing themes. "Out of the 100 motorcycles here, only four have ever been in the show before, the rest are new," he said. "And with a different theme each year, the show is like a 'box of chocolates' - you never know what you're going to get, which adds to the surprise and delight."

This year's theme, Broomall explained, was the "Quickest and the Fastest" featuring the fastest production bikes of their eras. Each bike had a display card with its history, and many owners were on hand to add further details. One of the "fastest of its time" was a 1952 Vincent Black Shadow owned by Eric Heilveil, a longtime collector of motorcycles.

The Black Shadow was used in 1952 speed trials in Montlhery, France, where it reached world record speeds of more than 100 mph. "I've always wanted this one," Heilveil said, explaining that he had a friend who owned the British-made motorbike but stored it in his basement, where it sat in a puddle of oil. "It's one of those situations where if you find the bike you want, you can't afford it. If you can afford to buy it, you can't afford the parts to fix it."

Eventually, though, he negotiated a price that was acceptable to his friend and was able to purchase and restore the bike, removing a quarter-inch of grease that coated it. It's fast, he says, admitting that he reached 105 mph last year when he rode it in Montana.

Buyer Beware!

A friend recently visited Britain in search of a Vincent twin. All fired up by tales of 100,000-mile intervals between rebuilds and the 100mph cruising potential of the Stevenage machines, he duly bought his ideal bike.

Almost predictably, the dream turned to a nightmare with depressing rapidity. My friend bought a well-worn, high mileage Vincent that looked exactly what it was — a 65 year-old motorcycle that had seen a lot of service and had not had the benefit of an expert restoration.

Now, blasting up the Great North Road in the fifties on a nearly new machine, with your cap turned waggishly back to front, was a very different proposition to prowling the fast lanes of today's motorways with a sorely tired motor-cycle. Within 100 miles of this treatment, my friend's bike petered out with a partial seizure of the front piston and a set of big-end rollers with a distinctly blue hue. The engine rebuilt, he still found himself saddled with crude Miller electrics and a level of complication which required mechanical skills unfamiliar to riders of more modern bikes.

Before he made his final choice, my acquaintance had been deliberating between a Vincent and a desmo Ducati. In his case, he made the wrong decision — he would have been better off with the less demanding later machine. But his experience under-lines the sad fact that buying a classic motorcycle can be expensive, frustrating and disappointing. Great care must be taken in deciding the type of bike you want, and the individual example. The mechanical condition of two seemingly identical machines can vary enormously.

The first step in selecting a machine is to decide exactly why you want a classic bike, and what you will use it for. For the enthusiast newly converted to the classic cause it is worth, initially at least, avoiding some of the more legendary machines. What is often the staunchly defended idiosyncrasy of a particular marque can, if the rider doesn't know how to make it work, become an insurmountable obstacle to enjoyable motor-cycling. Velocette devotees may laud "That Clutch" — but there is no denying that it's a component that can be a pain to the uninitiated.

The newcomer to classic motorcycling should therefore aim not at the exotica the road testers rave about, but at something solid and reliable. For this type of rider a BSA Gold Flash is a far better bike than a Rocket Gold Star, and a MSS Velocette preferable to a Thruxton —the reverse of what the dyed-in-the-wool enthusiast would have you believe.

Another powerful attraction in the classic movement is the appeal of riding a machine that you can claim is 'all your own work'. There are some excellent books which deal with restoration techniques (Jeff Clew's *The Restoration of Vintage and Thorough-bred Motorcycles*, Phil Irving's *Restoring and Tuning Classic Motorcycles*, and Radco's *Vintage Motor-cyclist's Workshop* among them) and these are required reading, as is listening to advice from classic enthusiasts. However, full restoration projects are expensive and time-consuming, and are best avoided by people who prefer the twist grip to the spanner. Well-intentioned enthusiasts have probably butchered as many noble classics as the custom bike and chopper set. It's so easy to tear into a bike with a set of spanners and fit all the pieces into boxes, but so much harder to get it all back together again.

Correspondingly, bikes in pieces are best avoided, even if they are billed as 'stripped for inspection' or 'requiring final assembly'. Before you take on such a project, ask why the bike was stripped in the first place, and under what conditions the parts have been stored. There is then the problem of having a vast jigsaw puzzle to which the only clues are provided by parts books and manuals. Unless these are precisely the right ones, you can be misled as much as informed.

You will also find that despite the vendor's vigorous protestations to the contrary, it is never 'all there'. For a start, the pieces that fell off the bike



while it was still being ridden will be missing. And in any motorcycle there are enough obscure spacers and sun-dry adjusters to make total retention impossible for all but the scrupulously meticulous person — who probably wouldn't sell a bike in bits anyway.

Many machines are bought in a haze of nostalgia to replace a bike sold years ago — some people even endeavour to track down the very motorcycle they once owned. But when time has eroded the bike's performance to the same degree that memory has enhanced it, disappointment is inevitable. There are pitfalls even if you seek a machine as close to showroom condition as possible: excess shine should be viewed with scepticism, as regular usage will throw up teething problems long after the glitter of a fresh restoration has passed.

It's best if you have known and coveted for as long as possible the machine you eventually buy. That way, you'll be familiar with the mechanical attributes of both the bike and its previous owner. Failing that, a close scrutiny of how and where the machine has been kept will tell you more about the state of its crankshaft than the sheen on the timing cover will reveal.

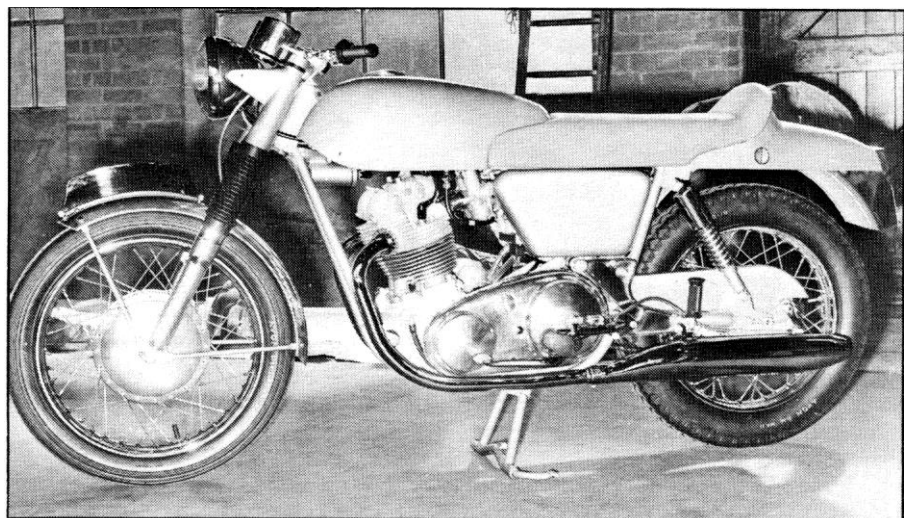
An obvious way of saving yourself a lot of chasing about is to buy from a dealer, but you must expect to pay for the time you save by parting with more money than a private seller would charge. Clearly, the dealer will try for the highest possible price while doing as little work on the machine as he can get away with. Recent experience of a bike sold as 'ready for immediate use' showed that 'ready for short-term use' would have been a more accurate description of its potential. A catalogue of minor but upsetting faults rapidly arose, leaving the purchaser, a born-again motorcyclist, sadly disillusioned with classic motor-cycling and its practitioners. Virtually all the problems with the machine were the result of a sound bike being partially stripped for a quick cosmetic tart-up, and then badly reassembled. A better buy would have been a slightly tattier example which showed signs of miles successfully covered.

Creation of the Commando

'ISOLASTIC mounting', say the Commando Service Notes published by the Norton Owners Club, was developed as a way of producing a lighter, smoother motorcycle by spending as little as possible on research and development.'

The booklet continues: 'Once the development had reached a stage where the system worked it was put into production, and from 1968 to the electric start models we have all been stuck with an under-engineered system . . . The problem is further complicated by the strangeness of the system — the average dealer still does not know how it works —and the feeble way in which it was constructed. A .010in clearance has to be maintained in an assembly of unplated steel washers and two bits of soft plastic situated directly behind the front wheel, and covered with a loose-fitting plastic tube, so that the rain and grit which gets in cannot get out again.'

Oh, how scathing we can be when armed with the benefit of hindsight! When the 750cc Norton Commando was sprung on an unsuspecting public at the 1967 Earls Court show, it was hailed as the saviour (yet another one?) of the British bike industry. With a top speed of 120mph and a standing quarter time as low as 12.8 seconds in practised hands, the Commando was as fast as any motorcycle being made at that time. And although it was a long-stroke



Show Commando for the 1967 Earls Court with silver frame and orange seat; green globe on the tank has yet to be added.

vertical twin, with a whopping 89mm piston travel, it DIDN'T VIBRATE! To be more accurate, it shook as merrily as any other unbalanced big-bore parallel twin, but the ingenious Isolastic rubber-mounting system prevented the trembles from reaching the rider.

The first production Commandos reached customers in April 1968, and the bike's speed, handling, good looks and uncanny smoothness evoked a glowing response. Remember that the Triumph Bonneville and the BSA Lightning were then the most advanced motorcycles the British were selling; the Triumph Trident and BSA Rocket triples did not appear until later in 1968, the superlative Vincent twins had ceased production in the mid 1950's and the 750cc Honda four was merely an ugly rumour that few people in Europe took seriously.

'Is this the instant classic?' trilled the American magazine Cycle World. Its test Commando was the second fastest machine it had ever thrashed through the standing quarter, the time of 13.47 seconds being bettered only by a Dunstall Norton. Cycle World intoned: 'Certain fabled machines, such as the Vincent and the Ariel Square Four, have earned places high in the list of all-time great motorcycles. No one should be surprised if the Commando acquires a reputation that will allow it to join that select band.'

What happened to turn that enthusiastic praise, written in 1968, into the bitter comments offered in the Commando Service Notes, penned just a few years later in the mid-seventies? Lack of product development, the bugbear of many British bikes, was the culprit. With the passing of miles, Commando riders found that their shimmed Isolastics were difficult to adjust and lubricate, the swinging arm spindle was weakly located in the gearbox cradle by a Vain screw,

the frame and centre stand broke, an inadequate lay shaft bearing caused gearbox failures, and alternator magnets worked loose, among other troubles.

It would be convenient to chastise the Commando's design team for these shortcomings, but not entirely just. For the fact is that the Commando concept was stitched together in a remarkable dozen weeks in the summer of 1967 by engineers and stylists who were starved of funds and forced to work with decades-old components. The Commando epitomised the Great British Compromise. But if the bike was a lash-up, it was certainly an inspired bitsa.

The project's chief designer, Bernard Hooper, was strapped for facilities because Norton, as part of the Plumstead-based AMC group, had just been rescued from collapse by Dennis Poore's Manganese Bronze empire, which owned the Villiers engine company in Wolverhampton. Shortly after the takeover in 1966 Poore summoned executives from both camps to a round-table conference in his office and asked them to toss around ideas for a replacement for the ageing 750cc Atlas, which had been around since 1961. A new bike was needed to revive Norton's image—but it had to be available quickly and cheaply because of the shortage of cash. It was decided to resurrect a five-year-old design for a dohc parallel twin with unit-construction five-speed gearbox. This attractive-sounding power source had been laid out about five years previously by Charles Udall, who gained renown with Velocette before moving to AMC. Hooper's team was charged with modernising the cylinder head of the P10 as the bike was termed, but

found it hard to muster enthusiasm for the task.

Development engineer Bob Trigg remembers: The camshafts were driven by a huge length of chain — about three feet of it. This could have given terrible trouble in service. The engine also vibrated, as you would expect, and I felt it would probably leak oil.'

Work on the P10 halted when it became obvious that the bike could not possibly be completed in time for the '67 Earls Court

show. And in any case, Wally Wyatt, one of the Plumstead-based engineers, had managed to extract from a modified Atlas engine more power than the P10 was capable of giving.

Only 11 weeks remained to the show when the P10 was finally abandoned and all efforts were switched to an Atlas-powered machine. Yet Dr Stefan Bauer, Norton Villiers's director of engineering who had previously worked with Rolls-Royce and in the nuclear industry, insisted that the new Norton should not vibrate and must have a modern structure for a frame. He didn't want an old-fashioned collection of tubes, even if it was graced with the Featherbed name.

How could these demands be reconciled with the vibration-prone Atlas engine, which had been stretched from the 1947 500cc Dominator engine? Bernard Hooper provided a tentative answer during discussions at Plumstead: hang the engine, gearbox and the rear swinging arm on rubber bushes. This would soak up the shakes and void any tendency for the final drive sprockets to twist out of line.

Hooper and Trigg talked over the idea on the train ride back to their base at Wolverhampton, and realised that it could work. Trigg began to prepare drawings, and also sketched out a backbone-



Looking like a tubby Vincent Comet, the 800cc dohc P10 was the twin the Commando replaced. The 'pushrod tubes' conceal the chain drive to the camshafts.

type frame proposed by Bauer and Hooper. This was based on a 2.25in diameter spine, which carried a triangulated rear section and twin front down tubes. The finished frame weighed 241lb, nearly a third lighter than the famous Featherbed unit.

The Isolastic theory was a success in practice. Norton called in a leading rubber company for assistance, but were told that what they proposed would take two years to develop. With only weeks available, the Wolverhampton team had to tackle the job themselves, making initial experiments with very large hushes. These reduced the vibration level hardly at all, but a softer grade of rubber was found to banish the shudders above 5,000rpm. Bauer suggested cutting the hushes in half, which gave smooth running above 3,500rpm, and a further reduction in size finally contained vibration below 1,800rpm.

'Riding a Commando was like flying an aeroplane,' Trigg remembers. Wild, rose-tinted exaggeration? Not a bit; compared to the singles and twins then on the market, the Commando was an astonishing, almost eerie experience. At tick over the fuel tank and exhaust pipes juddered and the front wheel jogged gently up and down. But vibration disappeared as the revs rose, and the Commando soared along like a turbine. I have good reason to recall this deceptive sensation — it cost me money when I got fined for innocently riding at 60mph in a 40 zone on one of the early models!

The vibration bogey had been beaten, but there was still the urgent need to liven up the Commando's ancient components with fresh styling. Wolf Ohlins, an advertising agency with no previous experience in motorcycling, was called in and offered a surprisingly useful contribution. 'Some of their suggestions made us laugh, but other ideas were good,' Hooper says. One of the agency's contributions was the distinctive ears at the front of the seat on the first Commando. Too short to be effective as knee grips, they were nevertheless part of a group of features that made the Commando stand out from other vertical twins of the day.

Visitors to the 1967 Earls Court exhibition will almost certainly recall the Commando displayed— it had a silver frame, tank and cylinder barrels, an orange seat and a large green globe on each side of the tank. The globe had been devised by the Wolf Ohlins advisers as Norton Villiers's new corporate image and it survived on the company's spares packaging.

But beneath the show bike's gimmicky colours was truly elegant styling. The base of the glass-fibre fuel tank, seat and tail unit ran in a single straight line from front to rear, a horizontal theme repeated by the low-level silencers. The Atlas engine was canted forward at an angle matched by the front mudguard stays, frame down tubes, forward edge of the side panels and the rear suspension units. The handlebars were traditional British flats, and ahead of them jutted a chromed speedometer, rev counter and headlamp shell. An aluminium front mudguard was fitted and the single-bolt primary chain case was highly polished. Distinctive forged-alloy plates carried the footrests. In production the impractical garish colours were changed to a black frame and seat, and a green tank and tail unit. The Fastback, as the first Commando was called, was arguably the best looking Commando ever made, and an outstanding machine by the standards of the late sixties.



Modifications including the use of 8.9:1 pistons had raised power output to nearly 60bhp at 6,500 rpm compared to the Atlas's 49bhp. A triplex primary chain replaced the single-row chain, and a new diaphragm clutch required only light pressure at the handlebar lever. Weighed with its 3.25-gallon tank half full, the Fastback scaled just 430lb. This modest bulk allied to the Atlas motor's mid-range poke produced those rapid standing-quarter times and a 0-60mph acceleration rate of around five seconds.

The Commando earned a £1,000 Castrol award for the 'best contribution to motorcycle safety, comfort and performance'. For five years from 1968 to 1972 it won the Motor Cycle News Machine of the Year contest which, if nothing else, proved that it exerted a strong pull on the minds of 14-year-olds barely literate enough to fill in a coupon.



Unfortunately, those who actually rode Commandos had to wait until 1975 before the unsatisfactory shim adjustment on the Isolastics was changed to a Vernier arrangement. Incredibly, the Vernier adjustment had been specified in the original 1967 patent for the Isolastic system. But in tests on prototype machines in 1968 the cheaper shims appeared to work well and were included on the production bikes.

As a hasty compromise, the original Commando Fastback incorporated some clever thinking. But once production got under way and the model proved popular, the inevitable problems that were bound to occur with a rapidly developed machine were not rectified quickly enough. Inertia, another nasty habit in British motorcycle factories of the time, had set in and left a nasty stain on the Commando's reputation.

Story by Mike Nicks, UK

WORKSHOP WISDOM

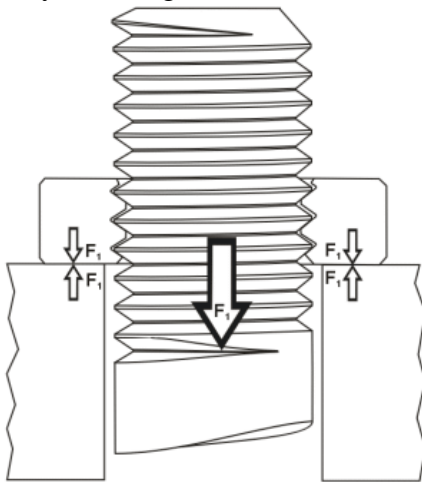
Use and Abuse of Lock Nuts

Many types of old machinery have two nuts on the bolts. A thin nut is frequently used in these applications. Sometimes the thin nut can be observed below the standard thickness nut and on other installations, it's on top. Although it may seem counter-intuitive, the thin nut should go next to the joint and not be put on last. In other applications, for example on column attachments, two standard thickness nuts are frequently used.

This month the effectiveness of this locking method is investigated and the tightening procedure that should be used if effective locking is to be achieved.



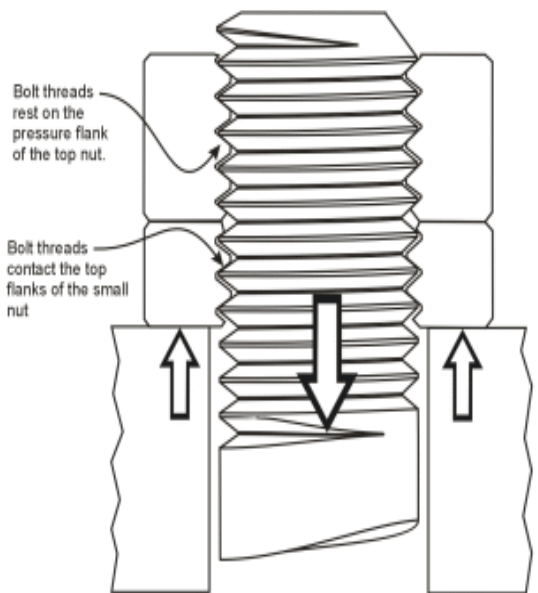
The use of two plain nuts goes back at least 150 years based upon observation of historic machinery. Tightening one nut down and then simply tightening another nut on top of it achieves little locking effect. A specific procedure needs to be followed if locking is to be achieved. When a thin and thick nut are used, it may be thought that the thick nut should go next to the joint since this would take the entire load. However, by placing the thin nut on first, when the thick nut is tightened on top of it, the load on the threads of the thin nut are relieved of their load.



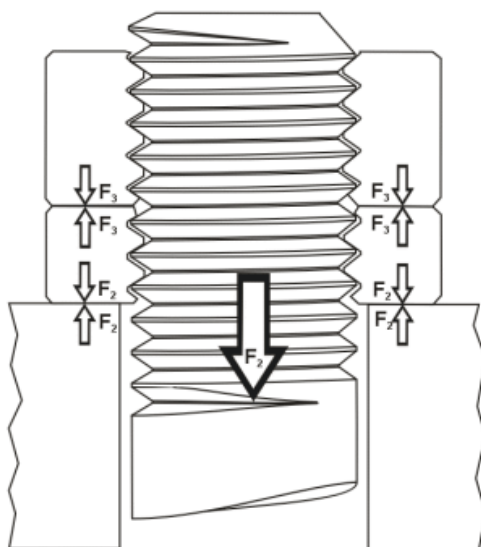
The thin nut should be placed on the bolt first. This nut is typically tightened to between 25% to 50% of the overall tightening torque. The second (thick) nut is then placed on the bolt and the thin nut held to prevent rotation by a spanner whilst the thick nut is tightened to the full torque value. The series of diagrams show the effect that the procedure has on forces present between the nuts and in the bolt.

When the thick nut is tightened onto the thin nut, as the load increases, the load is lifted from the pressure flanks of the thin nut. As tightening continues a point is reached when the bolt thread touches the top flanks of the thin nut. At this point $F_3 = F_2$. Continuing to tighten the top nut results in the jamming of the threads leading to $F_3 > F_2$. If tightening is continued, the force between the two nuts will continue to increase. If the thick nut is overtightened, there is the risk of thread stripping or the tensile fracture of the bolt between the two nuts.

The reason why the two nut system is effective in resisting self loosening is due to the way the threads are jammed together (hence the term jam nut being frequently used for the thin nut). Since the bolt thread is in contact with the top flank of the small nut and the bottom flank of the top nut, relative thread movement is not possible. For self-loosening to occur, relative movement between the bolt and nut threads must occur. It is this jamming action that is the secret of the two-nut method.



In order to achieve the appropriate bolt preload prior to the threads jamming it is necessary to tighten the smaller nut. The greater the grip length of the joint, the greater is the extension



needed to achieve a given preload and hence the higher the initial load that must be sustained by the small nut. Although the axial backlash can be calculated for given tolerance conditions of the nut and bolt threads, there can be a factor of 10 difference between the minimum and maximum values. Such variation makes it difficult to establish the correct preloading of the small nut. As a result, the bottom nut is tightened to a simple percentage (i.e. 25% to 50% of the overall torque value). Two full height nuts can be used if the principles that have been outlined above are followed. Small (jam nuts) are frequently used since there is no need to have a full height nut on the bottom since the threads do not carry the load. An advantage of a thin nut in this application is that a greater amount of axial backlash will be provided for a given tolerance class.

The proper application of the two-nut method is time intensive and requires a degree of skill and is hence unlikely to make a major comeback on new machinery any time soon.

A 1973 Road Test of the Norton Commando 850

There's no substitute for cubic Inches! The 750 Commando was the Machine of the Year for five years running and the 850, launched in 1973, was the first real development of the basic Commando since it was introduced!

The 850 is very much the same as the standard Commando with its cycle parts, but it's the motor which is most interesting. The new iron barrel has a bore of 77 mm while the standard 750 is only 73 mm. It is simply this increase in size which gives the extra power. One of the most important points about the new motor is the effort Nortons have made to make it more reliable and easier to ride. The compression ratio is lower than the 750: 8.5 against 8.9:1 and the carburettor size is the same at 32 mm. This helps produce not only more power than the 750 but, very important, more usable power. Other firms have produced big-bore-kits for the Commando but they have never made any attempt to beef up the bottom end. The 850 is strengthened considerably where it matters. The four outside cylinder-head bolts pass through the barrel and screw into the crankcase. This should reduce the possibility of the barrel trying to lift off the cases and also cuts the loading on the cylinder-barrel base.



The main bearings are what Nortons describe as "high-capacity, super-blended, large-diameter, roller main bearings", which apart from sounding like an advert for margarine means that the bearings are normal roller bearings with a slight taper on the ends. This will give the advantages of the roller bearing for load capacity and the advantage of taper rollers for isolating the crankshaft from too much end float. These modifications to the motor should result in a longer life. But it is not only in this department that Nortons have been busy. The crankcase breathing system has been revised. The breathing is now done from the back of the timing cover. It was found with the old system, that when the engine was being held at high revs for any length of time, that a lot of oil came up the breather and this resulted in a build-up in pressure in the cases which caused oil leaks. The new breathing system is more efficient, and with legislation becoming more strict about emission control, the new 850 Norton should have no trouble complying. The silencers, too, have come in for some development. They are really quiet and certainly won't give the Noise Abatement Society anything to complain about.

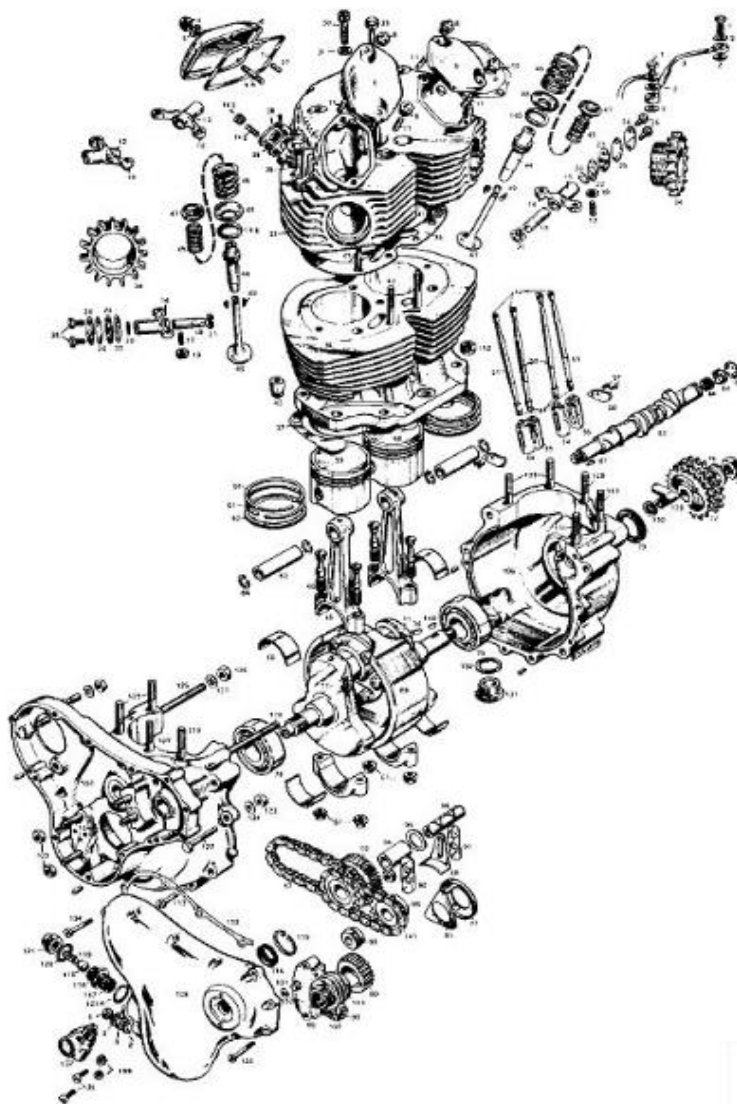
What's it like on the road? Really good. The motor is smooth and flexible and there is so much usable power, I never had any trouble when overtaking. The really impressive feature of the motor is the way it doesn't seem to matter what gear you're in when you want acceleration. More than once I managed to get into second gear instead of first at traffic lights because the gearbox works the opposite way round to that which I am used to, but even in second gear there was no need to slip the clutch to get really good acceleration.

To find out the standing-start quarter-mile times, we took the 850 to the Santa Pod Drag Strip. We entered the Norton at the season opener meeting on April 1 and the results were very impressive. On the day there was a headwind of between 30 and 40 miles an hour, which was slowing the times of all the bikes and causing some of them real handling problems. Fully road equipped that means including the baffles in the silencers, a full tank of petrol and full toolkit. The Norton was running in the 13.9-second bracket all day long, and, there is no doubt, that without the headwind the Norton would have no trouble in getting down to about 12.8 or 12.9 seconds. In a straight race against a 750 Commando, the 850 was a lot quicker over the first eighth mile and was still pulling away slightly on the last part of the strip. Although the drag racing session was interesting, I don't expect the majority of owners are really interested in a split second difference in standing quarter-mile times, but I did use the Norton as much as possible under very varied road conditions—London rush-hour traffic to deserted twisting country lanes—and the motor was always perfect.

However, there were one or two minor complaints about the handling. On the rare occasion I had to shut the throttle halfway round a corner, the frame felt like it was hinged in the middle. And when I checked, I found that the swinging arm had enough play in it to fail the MoT test.

When Charles Deane rode the bike, he thought the front end was too light and, if the power was put on hard going round a corner, the front wheel became light enough for the bike to want to go straight on. Charles and I are about the same size and weight and yet I had no problem with a light front end which either means that we ride a bike differently. I used the bike quite a bit for night riding, and fortunately our model was fitted with a quartz halogen headlight. This light was so good that I would not consider buying a Commando without one.

Although I really enjoyed riding the Norton I have two complaints. The first is that the seat is far too high, and although it only measures 32 in. off the ground, it's so wide it feels more like 38 in. It would be no problem for Nortons to lower the seat on this bike as there is enough room for it to be dropped at least 2 in. All that needs to be done is to make a new seat base, The other complaint is also caused by the seat height. The only way I could get a good swing on the kick-starter was with the bike on the centre stand. When I tried to start it off the stand, it turned into a Sammy Miller balancing act, with the likelihood of me and the bike toppling into the gutter! Once underway, the height doesn't matter, in fact the riding position is really good.



The footrests are high and the tank is wide enough to grip comfortably between the knees. Also, the seat is well shaped to stop even weak-armed riders like me from falling off the back. With its fantastic, performance, the Norton would be dangerous if it didn't have the brakes to match. The front was deceptive, because it had a very wooden feel. However, it never locked the wheel and I never felt that there was any chance of the bike not stopping in time. The lack of feel could probably be overcome by giving the brake slightly more leverage, at the same time providing a method of adjusting the gap between the lever blade and the handlebar. The back brake is superb. The design is the same as that used on Nortons since the days of the Featherbed Dominators. Odd to say, but in those days it never used to work particularly well and, although there are no obvious improvements, the brake is very smooth and does not suffer from fade no matter how hard it is used. Neither the clutch nor gear-box could be faulted. No matter how much the clutch was slipped it always took up the drive cleanly. Gear selection was always positive and never once did I miss a gear, even when I did clutch less changes.

This is one bike that does not need the complication and expense of a five-speed box. Nortons are the only firm still making a gearbox with a one up three down pattern and this can cause confusion. Perhaps it is time they changed the pattern to be the same as other manufacturers. This new Commando would be my choice for the "Machine of the Year" if it wasn't for so many points of criticism over quality control; Maybe our model had been badly treated by who-ever had tested it before, but we had considerable trouble during the first week we had the bike. One of the bolts which holds the inner chain case to the crank-case had come undone because its tab washer had not been properly done up.

The bolt had smashed its way through the inner chain case. When we took the outer cover off, there was an even bigger horror inside. Somehow the triplex primary chain had only been fitted to two runs of the engine and clutch sprocket. I would have thought it impossible for the chain to have jumped a complete row of teeth, which means the chain must have been put on wrongly. We are never sure if the bikes supplied to us for road test are the best of the range or if the manufacturer cleans up a development model just enough for "mad" journalists to wreck. But if the Commando was supposed to be a good example of this model, then Nortons have some rethinking to do on their quality control.

Within 1500 miles our Norton was starting to look very second hand. We had rust on the cylinder-head bolts, rust on the barrel and on the centre of the front disc. The exhaust pipes had turned a very attractive shade of blue and the motor was running slightly rich. In places, the frame appeared to have no paint on it. The cross tube under the motor and the front engine mounting had started to rust. The rear chain oiler had lubricated everything from the pillion footrest back, except the rear chain. There was no possibility of the nearside front fork leg rusting, there was too much oil leaking for that to ever happen and the white lining and top layer of paint on the back of the fuel tank had been worn away by the riders' knees. All this on a very expensive motor-cycle which should be an advert for the quality of British engineering. It's not good enough!

I like the Norton, but if they are hoping to sell this new model to anyone apart from founder-members of the Norton Owners' Club they are going to have to crack down on the standard of workmanship. The design is very good, it combines the best of the traditional; separate gearbox, a reliable fuss-free motor that is easy to work on, with enough new features to make it an attractive bike. But who wants to buy a new bike and have to spend time working on it instead of riding it?

Norton Commando



1973 Commando 850

Manufacturer	Norton-Villiers
Also called	SS, Hi-Rider, 850 Roadster, 850 Interstate
Engine	745 and 828 cc (45.5 and 50.5 cu in) air-cooled OHV parallel-twin
Top speed	115 mph (185 km/h) (750) ^[1]
Power	58 bhp (43 kW) @ 6,800 rpm (750) ^[1]
Transmission	4-speed (chain)
Wheelbase	56.75 in (1,441 mm)
Dimensions	L: 87.5 in (2,220 mm) W: 26 in (660 mm)
Seat height	(nominal) 33 - 34 in (838.2 - 863.6 mm)
Weight	420 lb (190 kg) ^[1] (dry)
Fuel capacity	10 l (2.2 imp gal; 2.6 US gal)

Event Calendar

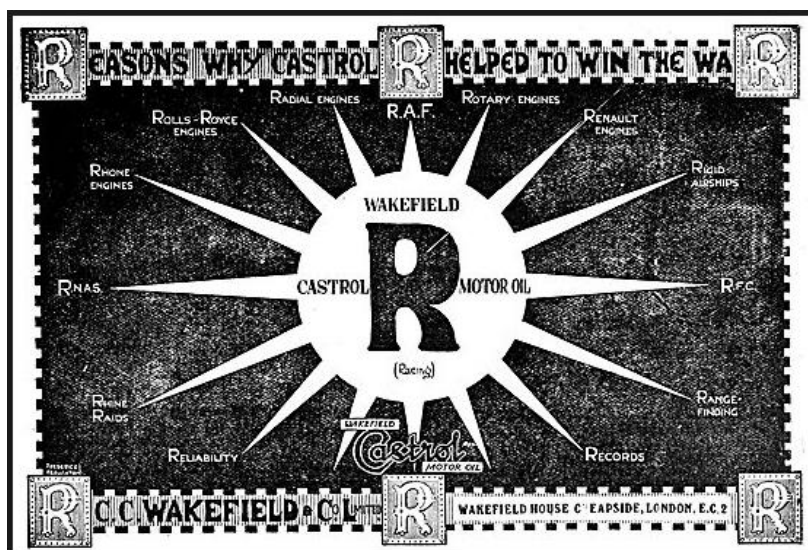
2017	
August 26-27	Antique Motorcycle Swap Meet; Bulli Showgrounds, Bulli NSA Australia. More info at www.amcaaustralia.org
Sept 10	Gawler Swap Meet, Gawler South Australia. More info email swapmeet@gawlercarclub.com
Sept 10	Shepparton Swap Meet, Shepparton Showgrounds, Victoria
Sept 17	Central Coast Motorcycle Swap Meet at Doyalson, Queensland. Contact Alan on +61 2 4396 7187
October 1	Motorcycle ONLY Swap Meet. Balhannah Oval, Balhannah, South Australia
October 13-16	Vincent New Zealand Riders Rally in Waipukurau, NZ. Contact Kevin Coombs for more info; email theshifters@yahoo.com
October 15	Longford Swap Meet, Longford Tasmania.
Nov 10-12	AJS & Matchless Downunder Jampot Rally, Lake Hume, Albury NSW Australia. Contact model2a@yahoo.com.au
Nov 18-19	Bendigo Swap Meet, Bendigo Victoria. Email bendigowrap@impulse.net.au
2018	
March 23-24	NZ National Vincent Annual Rally at Waikato NZ. email thmotorcycles@xtra.co.nz for details
August 27-31	Australian National VOC Rally, to be held at the Maroochy River Resort in Queensland. Contact kevinfowler2@bigpond.com for more info
2019	
June 3 - 19	VOC International Rally; Belgium and Austria. More info to follow also see MPH
2020	
tba	International Jampot Rally in Nelson, New Zealand for AJS & Matchless bikes. Contact nipper@nipper.net.au



Castrol R

It is curious that we understand much better than its inventors the way Castrol R works, yet take it for granted. Keith Howard redresses that balance

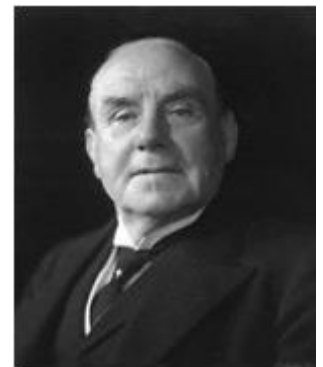
In the case of Sir Charles Cheers Wakefield, later Baron Wakefield of Hythe, the sweet smell of success was more than a metaphor. You still catch the scent of the substance that made his company a household name in the early 1900s wherever older racing engines are exercised: that distinctive, heady perfume of Castrol R. Although castor oil, the origin of the smell, was still the purgative bane of many a childhood when C C Wakefield & Co introduced its Castrol range in 1909 (the name being a contraction of castor oil), to high performance engines on the road and in the air it was to become a more welcome part of the diet.



The story begins in 1899 when, having spent 15 years working for the London office of Vacuum Oil Company of Rochester, NY, later to metamorphose into Mobil, Charles Wakefield resigned his position as general manager and determined to strike out on his own. It was an auspicious time to be doing so. Within four years the Wright Brothers would take tentatively to the air, followed albeit somewhat belatedly by compatriot Samuel Franklin Cody at Farnborough in 1908. A year later Louis Bleriot flew the English Channel and, five years after that, storm clouds over Europe would spur a period of unprecedented aircraft development effort. On the ground, progress was scarcely less momentous as the horseless carriage progressed from being a curiosity and plaything into an increasingly practical mechanism, as well as another vehicle of human endeavour and national rivalry.

Charles Wakefield wasn't slow to realise that here lay both an important new market for lubricating oils and, just as significantly, a whole new marketing opportunity also. The world was agog at the daredevil exploits unfolding on land and in the air; having your product name attached to such derringdo was a golden opportunity to exploit what today we would call product placement. So Charles Wakefield determined to produce a new breed of oil for this new breed of machine, and make certain that the world knew of it.

Engine oil development, like engine development itself, was then in its infancy. Today's world of multigrade and synthetic oils was a long way off. Prior to the sinking of the first petroleum well in 1859, engineers had had to use animal and vegetable fats and oils for lubrication, but these proved far from ideal at the extremes of temperature involved in the internal combustion engine. As every cook knows, fats and oils thicken when you put them in the fridge and leave gummy, varnish-like deposits when you heat them in a pan. This same behavior in an engine made cold cranking difficult on startup, while oxidation of the lubricant at combustion temperatures could, literally, gum up the works.



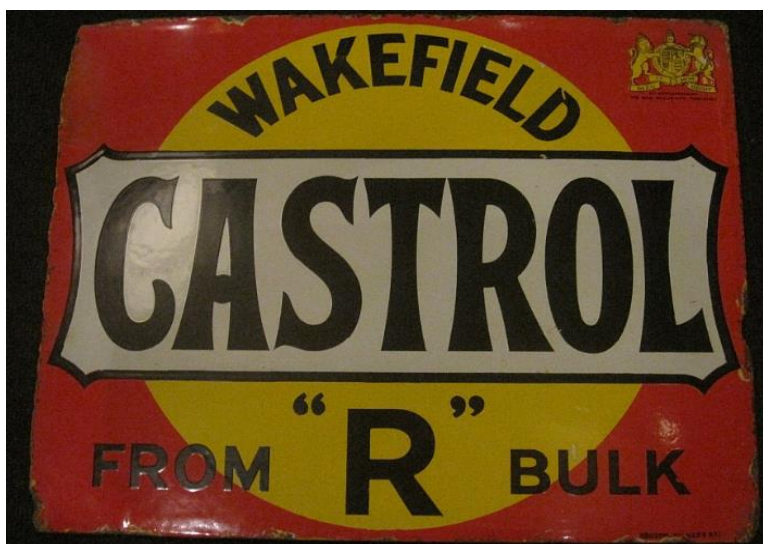
Charles Wakefield

Mineral oils relieved these limitations, even in their early forms offering a level of thermal and oxidative stability traditional lubricants couldn't match. But they were far from perfect. In particular they lacked what, at the time, was termed "oiliness", the ability to adhere to metal surfaces in a thin, continuous film. Wakefield researchers found that whereas castor oil coated a hot metal surface, mineral oil tended to pool on it, leaving areas of metal exposed.

Today we have a much better understanding of why this happens. Castor oil is composed almost entirely of triglyceride fatty acids, of which ricinoleic glycerides form by far the largest proportion (typically around 86 per cent). Fatty acids are polarised molecules comprising an oily, hydrophobic (water-hating) head and a hydrophilic (water-loving) tail; the hydrophilic ends of castor oil molecules are adsorbed to the metal surface, leaving the oily heads protruding.

The result is that castor oil provides excellent boundary lubrication, much better than that achieved by early mineral alternatives. In hydrodynamic bearings, like crankshaft bearings, where a relatively thick layer of oil is established, this offers no benefits. But where the oil layer is thin — on cylinder walls and cam lobes, for instance — it ensures a higher level of scuff resistance.

Mixing castor and mineral oil therefore seemed a good idea in the early 1900s, but the two are not readily miscible. What Wakefield researchers discovered was that a surprisingly small proportion of castor oil — as little as 0.7 per cent — was sufficient to confer its high film strength on the mix, and thus Wakefield Motor Oil (Castrol Brand) was born. In fact, five variants were introduced initially for different applications, Castrol R being the flagship product intended for aero and racing engines. Wakefield & Co's core business



was — and in the immediate future, would remain — lubricants for the railways and industrial customers, but it was Castrol Brand that was to carry the company name to the four corners of the globe.

Success was almost immediate. In October 1909, Britain's first aviation prize, the Inauguration Cup, was won by Frenchman Leon Delagrangue using Castrol oil. Following which, on land and in the air, the litany of Castrol successes encompasses many of the most significant events in aviation and motoring history, including Britain's winning of the Schneider Trophy three times in a row with the R J Mitchell designed, Rolls-Royce powered Supermarine S5, and most of the World Land Speed Records established during the highly competitive inter-war years. In the Great War, Castrol R even came to the attention of Kaiser Wilhelm II, achieving almost 'secret weapon' status when it was discovered that a captured British aircraft could operate at considerably higher altitudes than German equivalents due to its engine oil's superior low temperature performance.



In the 1920s castor oil was removed from general motoring oils as mineral oil technology advanced, but its superior film strength ensured it a continued role in high performance engines.

Only in 1953 was Castrol R superseded by R20, again containing castor oil but this time mixed with a semi-synthetic, and the successes began all over again. Mercedes-Benz immediately chose it for the advanced W196, Fangio scoring a first-time-out victory for both oil and car when he won the French GP in '54. Even today castor oil remains the lubricant of choice in certain applications, notably methanol powered two-strokes because of its complete miscibility with alcohol fuels. As a result you don't have to go to a historic race meeting to catch that distinctive castor aroma. Appropriately, it can even be smelt today where enthusiasts fly model aeroplanes.

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For sale.

Craven Panniers and small top box. Offers around \$400. *Does not include bike or rack.* These look like the original fittings to a 1968-71 Triumph Saint (NSW Police bike). Would come up nice when painted black. Located in Sydney, Australia. Contact me if interested.

alynvincent@mac.com



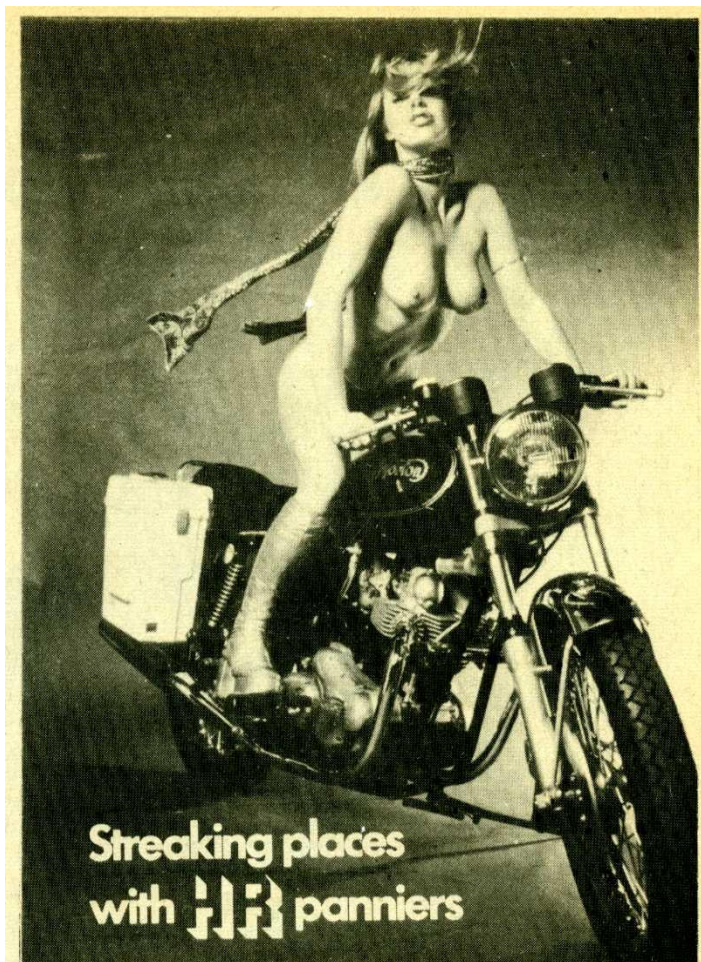
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The Service Providers listed have been used with a degree of satisfaction by OVR readers in the past. Just because they are listed does not imply an endorsement of them by OVR. Service providers are not charged a fee for this service nor can service providers themselves request that their information be included, though they may request that an entry referring to them be removed.

Spares:

V3 Products, Australia: (aka Neal Videan) has an extensive range of top quality Vincent Spares including multiplate clutches for twins, oil leak eliminator kits, socket head tappet adjusters, paper element oil filters and lots lots more. Ships worldwide. Email for a price list to nvidean@optusnet.com.au

Coventry Spares Ltd, USA: Fantastic service and deep product knowledge plus extensive range of excellent Vincent Spares and tools. Ships Worldwide. See website for more information <http://www.thevincentparts.com>

Conway Motors Ltd, UK: Anti-Sumping Valves, Comet Multi-Plate clutch conversions for Comets plus an extensive range of excellent Vincent Spares. Ships Worldwide. Email for more information steve@conway-motors.co.uk

VOC Spares Company Ltd, UK: Full range of Vincent Spares. Ships Worldwide. Visit their web site for more information <http://www.vincentspares.co.uk>.

Terry Prince Classic Motorbikes, Australia: Specialises in restoration, manufacture of new parts, and the development and manufacture of high performance components for Vincent motor cycles. For more information visit the web site [Click Here](#) or telephone +61 2 4568 2208

Fastline Spokes, based in Broadford, Victoria, can supply Australian made spokes for just about any bike. Owner Bruce Lotherington manufactures spokes to order with a turn around time of less than 1 week. For more info see www.fastlinespokes.com.au or phone (+61) 0411 844 169

Union Jack Motorcycles, Australia: Full range of Triumph, Amal and control cable parts, plus an extensive range of Vincent parts. Ships worldwide. More info at the website www.unionjack.com.au

Pablo's Motorcycle Tyres, Australia: Road, Classic, Road Racing, Classic Racing, Enduro, Motocross, Speedway, Trials and Slicks....and if they haven't got it - they'll get it! For more info see their web site www.pablos.com.au

Paul Goff, UK: A massive range of electrical spares and replacements including 6 and 12V quartz Halogen bulbs, LED lamps, solid state voltage regulators and lots lots more. Ships Worldwide. PayPal accepted. See Paul's website for more information www.norbsa02.freeuk.com

Nuts n Bolts:

Acme Stainless Steel, UK: All stainless steel fasteners are machined to original samples supplied by customers and clubs over the years to enable us to keep your machine looking authentic and rust free! Ships Worldwide. More info at their web site www.acmestainless.co.uk

Classic Fasteners, Australia: Classic Fasteners is a family owned business, established in 1988. Their aim is to supply obsolete and hard to obtain fasteners for your restoration project be it a professional or private venture. The print catalogue, available for download, lists the current complete range. Ships Worldwide. <http://www.classicfasteners.com.au/>

Precision Shims Australia: All types of shims made to your requirements, ships worldwide. More info at their web site www.precisionshims.com.au

V3 Products (see entry under Spares above) also stocks a large range of Vincent specific nuts n bolts.

Keables, Australia: The original nut n bolt specialists who are able to supply just about anything with threads and bits to match such as taps n dies. Recently have relocated to 11 Braid St, West Footscray, Vic. Ph 03 9321 6400. Web site www.keables.com.au

Restoration Services:

Steve Barnett, Australia. Master coachbuilder and fuel tank creator who does incredible workmanship; located in Harcourt, Victoria. Ph +61 3 5474 2864, email steviemoto@hotmail.com

Ken Phelps, Australia – Qualified aircraft engineer and builder and daily rider of Norvins for over 30 years, who has the skill and experience to carry out overhauls, rebuilds, general repairs and maintenance to Vincent HRD motorcycles. Full machine shop facilities enabling complete engine and chassis rebuilds, Painting, wiring, polishing, aluminium welding and wheel building. Ken Phelps Phone: (61+) 0351760809 E-mail: ogrilp400@hotmail.com . Located in Traralgon, Victoria, Australia

Outer Cycles, Australia: Jim Browhly is a master craftsman who manufactures bespoke motorcycle exhaust systems for classic bikes, no job is beyond his capability, so if you do need a new system that will be made to your precise requirements, give Jim a call, telephone 03 9761 9217.

Grant White – Motor Trimmer, Australia: Specialising in Vintage and Classic Cars and Motorcycles. Located in Viewbank, Victoria. ph 03 9458 3479 or email grantwhite11@bigpond.com

Ace Classics Australia is a Torquay Vic. based Restoration business specialising only in British Classic and Vintage Motorcycles. Complementing this service, they provide in-house Vapour Blasting, Electrical Repairs and Upgrades, Magneto and Dynamo Restoration plus Servicing and Repairs to all pre-1975 British Motorcycles. They are also the Australian Distributor and Stockist for Alton Generators and Electric Starters. Phone on 0418350350; or email alan@aceclassics.com.au . Their Web page is www.aceclassics.com.au

General Services :

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Ringwood Speedometer Service, Australia: Experts in the repair and restoration of all motorcycle, automotive and marine instruments. Smiths chronometric specialists. Telephone (03) 9874 2260

Rays Custom Spray Painting, Australia: Ray Drever is skilled in painting bike tanks and frames. Also a craftsman in flame work and airbrushing. Located near Geelong; contact Ray on 03 5251 2458 or 0402 988 284.

Dyson M/C Engineering, Australia: Wheel building, Crank rebuilds, Bead blasting, Rebores & Engine Rebuilds and more. Located at 12 Chris Crt., Hillside, Victoria. Phone 0400 817 017

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MotorCycle Fairings, Australia: This crew are total professionals when it comes to painting. Expert service, quick turnaround and fair prices. <http://www.melbournemotorcyclefairings.com.au/>
Ph 03 9939 3344

Temptation

... comes in many forms.

Take the new Commando 850, for instance. To one man, it's the highly developed Norton 830 c.c. twin cylinder engine, conjunction of brute strength and finesse, with its 120 mph + speeds; to another, the superlative roadholding and ultra-responsive handling, echoing that racetrack sensation. To a third, its appeal lies in its no-holds-barred appearance and freedom-loving approach to life.

But find it yourself—the Norton experience!



Commando 850s
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in Great Britain and Europe:

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92 Puteaux, Paris. Telephone: 506 55-90

Italian Branch: Via Altabella 7, 40126 Bologna
Telephone: Bologna 270.716

