A BEAST TO BUILD

Alan Birch found building the Norvin of his dreams a formidable challenge, but he's justifiably pleased with the results of two years' hard labour. Mick Duckworth reports

TWENTY years ago, Alan Birch built a Tribsa by putting a Triumph engine into a BSA frame. After eight years, he rebuilt the machine with a Norton Featherbed frame to make a Triton. After another eight or so years of development work he decided that he'd got the job just about right, and moved on to build the ultimate classic bitza — a Norvin.

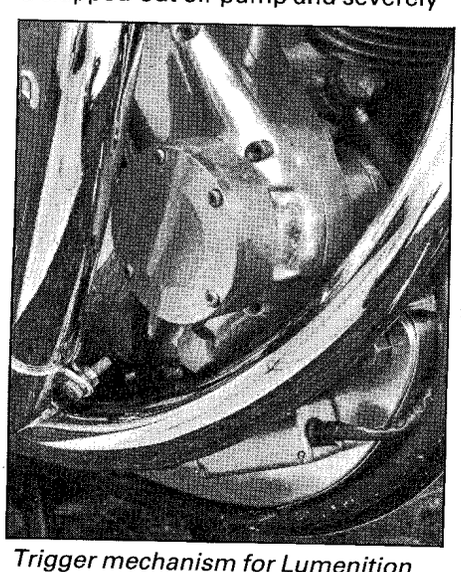
Alan has always admired the Vincent V-twin engine, and had followed the exploits of George Brown's 1,000cc Nero sprinter in the sixties. But when he located a Rapide engine through a friend and bought it, he got quite a shock. Dating from around 1948, the engine had been used for racing, and a catalogue of mechanical horrors lay inside. The integral gearbox had been sawn off (as many were to allow a Norton box to be used), but this was no problem. What dismayed him were odd crankcase halves, a broken mainshaft, loose main bearings, a loose crankpin, a clapped-out oil-pump and severely worn valve gear. 'It was a real pup,' says Alan.

The engine also had several modifications of the type that complicate rebuilds. The camshaft bearings had been converted to needle-rollers, and BSA Gold Star valve springs were fitted. Rather than rush headlong into work on the motor, Alan lumped it back together, found a 1957 wideline Featherbed frame, and concentrated on the problem of installing one in the other.

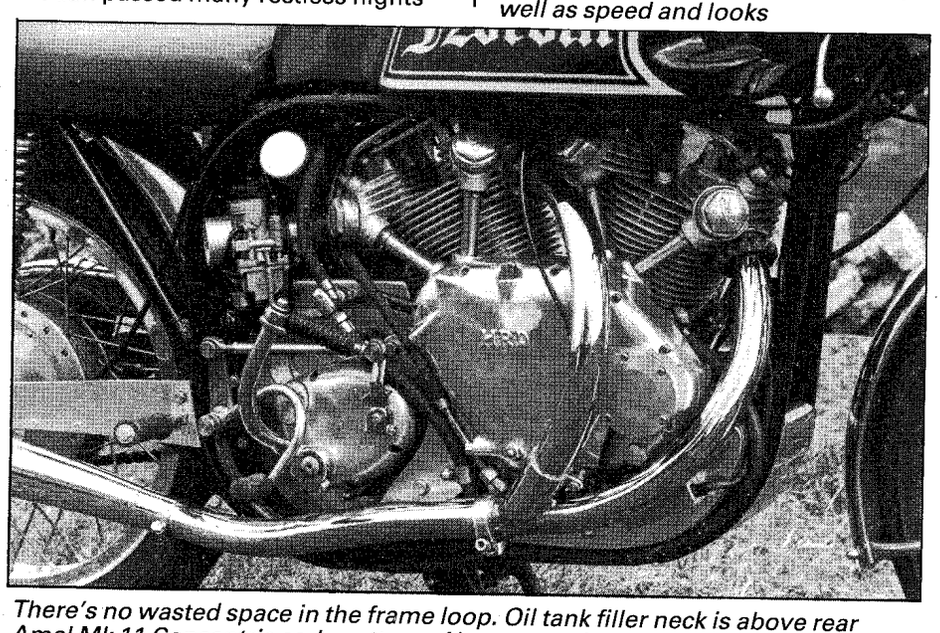
It was a close fit — and it was evident that the engine had already been in a Featherbed as it carried damage from rubbing against the frame. The biggest headache was determining the shape and position of engine plates. He already had a Norton gearbox in its standard position with respect to the centre-line of the frame. This made it clear that arranging the primary transmission would be far from easy, especially as a 12 volt alternator was planned.

Alan passed many restless nights

Alan Birch rides the awesome Norvin cafe-racer. His special was built for reliability and weather-resistance as well as speed and looks



Trigger mechanism for Lumenition electronic ignition is mounted on the timing cover, with a junction box for the dual systems mounted on an engine plate



There's no wasted space in the frame loop. Oil tank filler neck is above rear Amal Mk 11 Concentric carburettor; a Norton gearbox replaces the original which had been sawn off

pondering how to achieve neat and oiltight primary drive. A breakthrough came when he wrote to Uniroyal to enquire about belt-drive, and they referred him to Medway Power Drives in Kent. An aluminium diaphragm clutch was obtained from Norton specialists Fair Spares in blank form without grooves for belt teeth. These were machined by MPD to suit a 30 x 8mm Uniroyal belt, and they also finished a mainshaft pulley designed by Alan which incorporates an extension shaft for taper-mounting the alternator rotor, and two locating pegs to drive it.

With the primary transmission coming together, an alternator stator mounting had to be provided, and Fauld Precision Machining at Uttoxeter machined one out of a chunk of duralumin 7in in diameter and 6in long. A plywood and filler pattern was fabricated for the drive enclosure, from which an aluminium casting was made.

The engine was booked in for the attention of Tony Maughan of Maughan and Son in Wilsford, Lincs, who specialise in precision re-building of the Vincent engine. For about £750 it was sorted out mechanically with an oversize crankpin, Maughan cams, and a special drive-side double main bearing arrangement with sealing to prevent oil from polluting the drive belt. Maughan also checked over the cylinder heads after Alan had broken fins repaired by a welder friend. New barrels, Omega pistons, and innumerable other bits and pieces were obtained from Doug Hollis of Claypole, Notts, as well as a great deal of expert advice and help.

The engine had been fitted with a Dolphin coil ignition conversion, and Alan used this as the basis for a new ignition system. Two Lumenition units designed for BMW twins were obtained from Devimead, which use a revolving shutter to break a beam of light, triggering a spark from an electronic box and coils. A back-plate was arranged to give sparks at the correct interval for a 50 degree twin, as well as provision for manual advance/retard adjustment. A neat junction box for the dual ignition system is one of many carefully fabricated components Alan has incorporated on his special: 'It may seem fussy and over-engineered, but with the lousy weather and salt we get in the winter a bike's got to be practical,' he says.

Living in the beautiful — but sometimes bleak — Derbyshire dales, Alan is a partner in a weighing machine company. His working hours are long, and involve travelling, which he does on his Norvin or his Triton whenever possible. When building the Norvin, he sometimes started work on it at 10pm — the project consumed his spare time over two years. Nearly three months were spent designing the 7-pint oil tank, before a dummy was made for the complex shape with double curves and cooling fins. Then stainless steel was laboriously cut, shaped and welded together stage by stage at brewery and dairy engineers Able of Uttoxeter. This, along with the battery box under the seat, is fully rubber-mounted to the frame.

Few special builders give consideration to making their machines easy to clean, but for this purpose Alan has boxed-in the engine plates, including the gap between the plates and the swinging-arm gusset behind the gearbox, so that road dirt and salt can't lodge in inaccessible corners.

An equation of function and style has been applied all over the cycle. The rear-set footrest and pillion peg hangers have been fashioned from extravagantly thick slabs of duralumin, stainless fasteners are used throughout, and a gearchange linkage, also in stainless metal, has been devised to clear the curve of the Norton Commando kick-starter which carries a Honda rubber. Stainless steel mudguards, fork stanchions and clip-ons are fitted, and both brake backplates are in alloy, the front being a twin-leading-shoe type from Fair Spares.

The rubber-mounted rear light unit, and twin horns — 'just legalities', as Alan describes them — are adapted Japanese components. The silencer is the classic Gold Star type — producing an awesome sound appropriate for the thinly populated dales around Alan's home. Standard Vincent exhaust pipes are used as far back as their intersection, then a length from a Velocette pipe is used to dip clear of the kickstart and gear-change.

Koni rear shock absorbers are utilised, and a late Triumph chainguard was altered to fit, then re-plated. Designing and fitting a centre stand was a laborious task which involved removing and refitting the gearbox plates several times, and welding strengthening pieces to the frame tubes; Alan still feels it could be improved to make operation easier.

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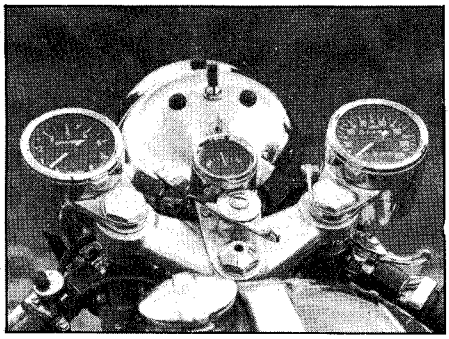
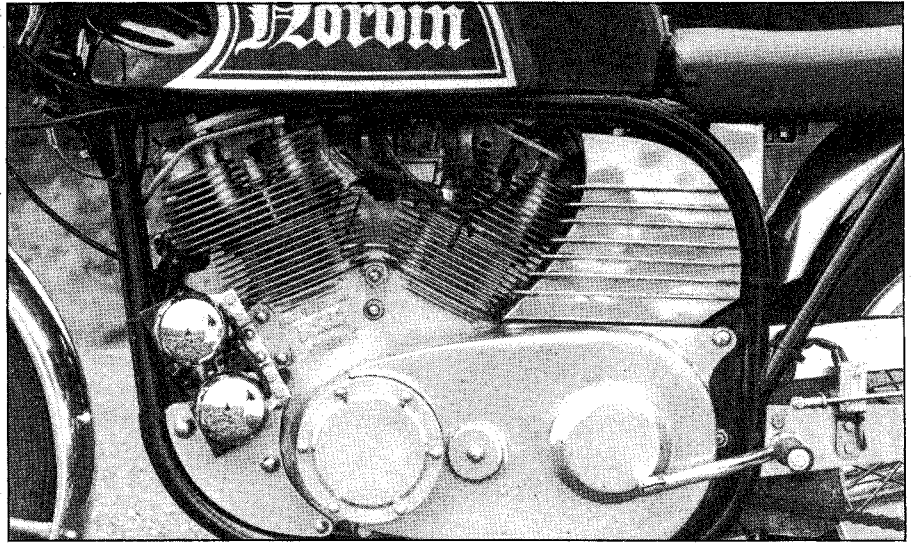
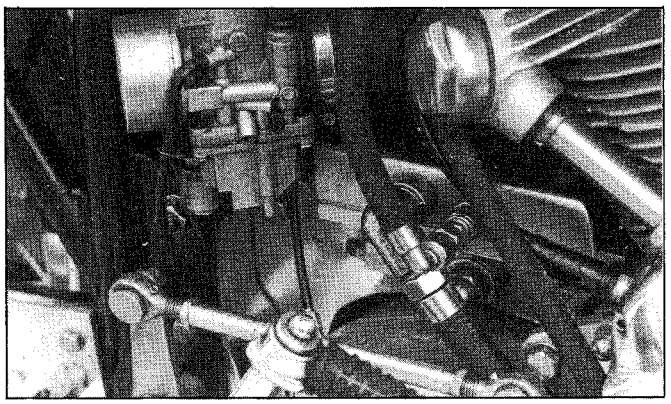


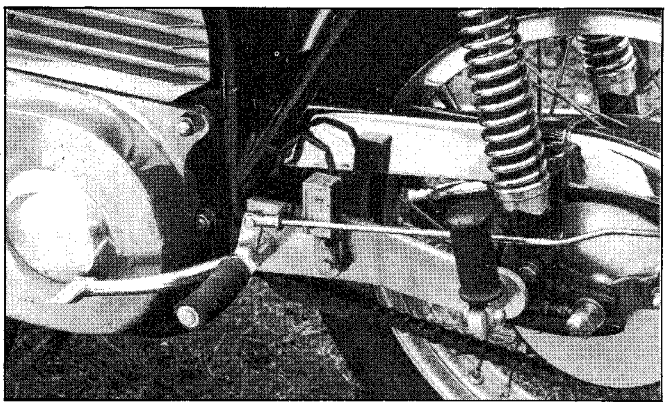
The alloy fork yoke carries Italian Veglia clocks from a Norton Commando and a Japanese ammeter



Alternator mounting and enclosure for belt primary drive were made from alloy, the finned oil tank is of stainless steel. Modern twin horns are fitted for safety. The front cylinder head is one of a batch Vincent made with twin plug-holes



Careful planning and attention to detail distinguish Alan Birch's Norvin from the average bitsa built in the 1960s



Durability was a main aim in the Norvin's construction, as heavy-gauge alloy and stainless steel fasteners suggest

The rev-counter and 150mph speedometer are Veglia instruments from a Norton Commando obtained from Fair Spares, a Yazaki ammeter is employed and the chrome headlamp holds a Wipac halogen unit. To complete the international mixture at the front end, the clip-ons carry German Magura clutch and brake levers and an Italian CEV dip and horn switch which doesn't quite live up to the sturdy practicality of the rest of the machine.

A mould was made for the fibreglass racing seat, and it was covered through Burton Bike bits. The frame and tank were coated in black by Philpow of Macclesfield, and Derby signwriter John Carpenter lined and lettered the fibreglass Manx-style petrol tank in 9 carat gold. The Gothic lettering and peaked headlamp are stylistic touches straight from the golden era of cafe-racing specials, when Alan built his Tribsa.

So crowded with machinery is the Featherbed loop, that finding room for accessible petrol taps posed a problem. Instead of manual taps, solenoid-operated valves originally intended for pneumatic equipment are activated by the ignition switch. The brake-light switch is an industrial limit-switch, worked by the rear brake pedal.

Alan Birch lost his right eye in an accident when he was fifteen, which makes the fitting of a rear-view mirror essential, so a BMW type found at a breaker's is clamped to the off-side fork stanchion. When the Norvin was photographed for *Classic Bike* Alan was recovering from a slipped disc in his back, but this did not deter him from manhandling, starting and riding his beast, albeit strapped into a heavy corset.

He also proffered his pride and joy for an outside opinion. What a superb ride! On the winding A6 near Buxton the effortless power of the Vincent engine could be rolled on and off as the machine steered easily from curve to curve, with changes of gear hardly required. The riding posture is fine if you're the clip-on type, and the brakes cope with the rolling weight of all that metal. The gear-change linkage is sometimes awkward, and the centre-stand calls for brute strength, but as Alan says: 'It took me 20 years to sort out the Triton, so there's scope on this one yet.'

PARTS AND SERVICES

Able Engineering Company, Unit 6, Marchington Industrial Estate, Stubby Lane, Marchington, Staffs ST14 8LP: stainless steel fabrication. **Burton Bike Bits,** 68 Edward Street, Burton upon Trent, Staffs: seat covering. **Devimead Ltd,** Watling Street, Tamworth, Staffs B77 5AD: Lumenition electronic ignition. **Fair Spares,** 37 Albion Street, Rugeley, Staffs: belt-drive clutch, twin-leading-shoe brakeplate, general Norton spares. **Fauld Precision Machining,** Station Road, Uttoxeter: machining work. **K and J Gardner,** Wolford Heath, Shipston-on-Stour, Warks: Gold Star pattern silencer. **C D Hollis,** The Square, Main Street, Claypole, Newark, Notts NG23 5BA: Vincent spares. **Maughan and Son, 42 Townend, Wilsford, nr Grantham, Lincs.** Vincent engineering specialists. **Medway Power Drives Ltd,** Unit A, Station Road, Cuxton, Kent: primary drive belt and pulley machining. **Philpow Coatings,** Black Lane, Macclesfield: epoxy coating and cellulose paint spraying. **Wilemans Motors,** Siddals Road, Derby: alternator and other parts.