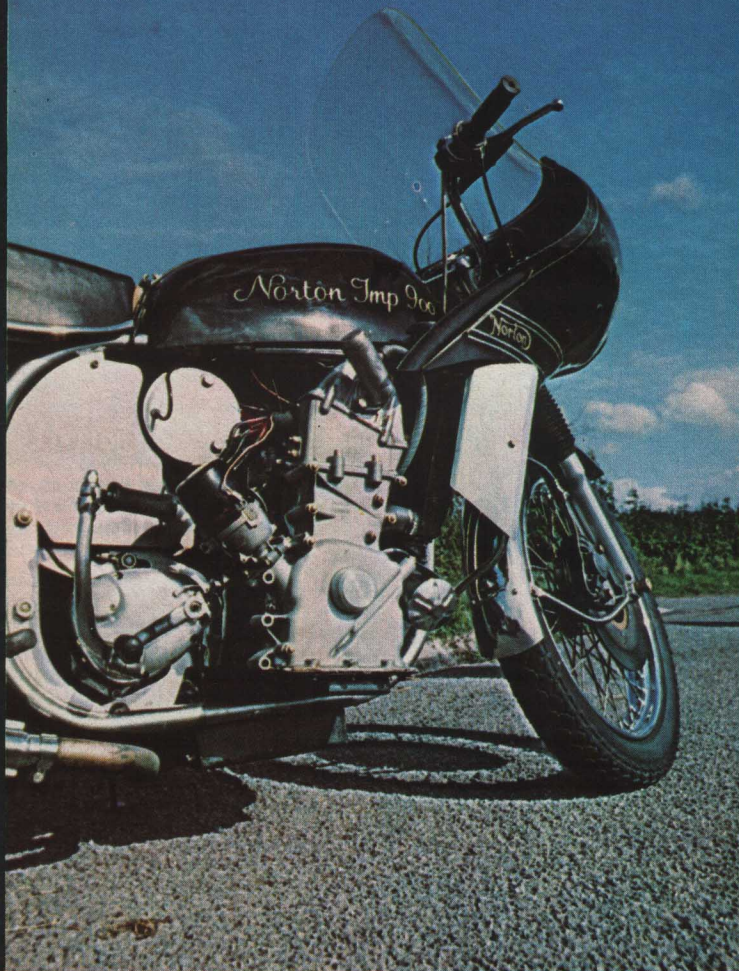


Words: Dave Walker. Pictures: Rod Sloane.



FANCY THE IDEA OF A
WATER COOLED FOUR-CYLINDER
MOTOR IN A NORTON CHASSIS?
THEN THIS IS FOR YOU

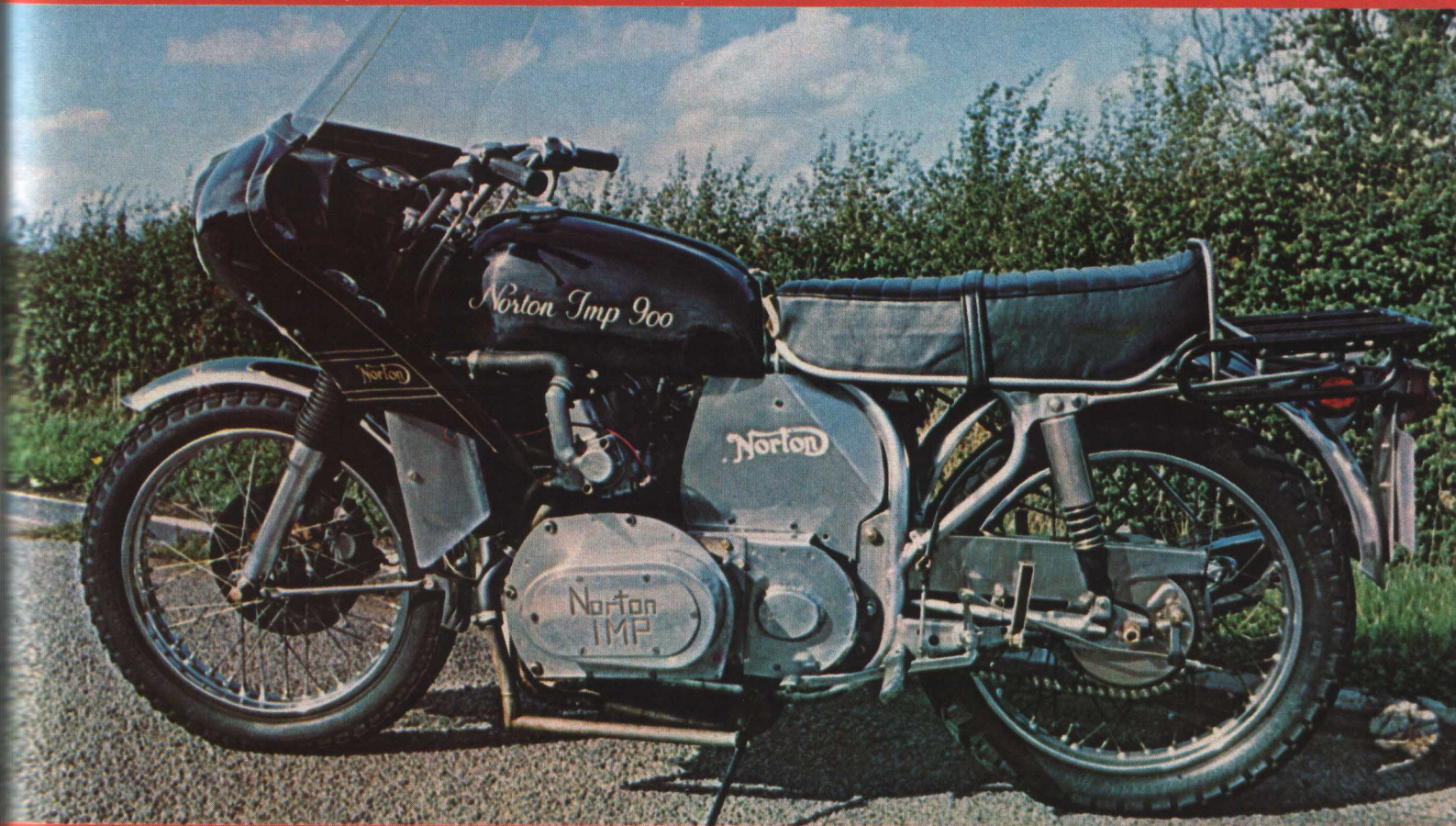
Norimp

with style

LUNATICS. Fancing wanting to shoehorn a Hillman Imp engine into a Norton featherbed frame. It seems that hundreds do, judging from our post bag, so I was delighted to hear recently that a chap by the name of Doug Parnell has just started selling a conversion kit to do this very job.

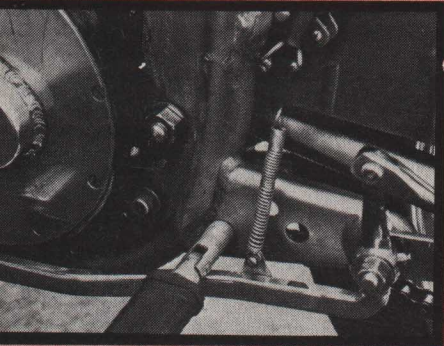
Lets face it, though, even if you could squeeze a car engine into a Norton frame it is bound to look a mess and handle like a pig, isn't it? All the same I couldn't resist the temptation of going down to Bristol to have a look at this unlikely sounding hybrid. I even thought about chancing a ride if it looked safe enough.

When Doug Parnell wheeled the bike out of his garage all thoughts of laughter, suppressed or otherwise, evaporated. Instead, I started to take the whole thing seriously, for Doug's NorImp is a

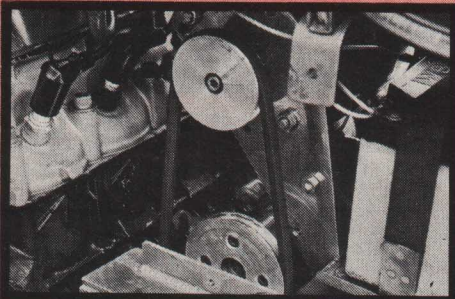




1: Accessibility is a real plus point, the distributor just couldn't be easier to get at.



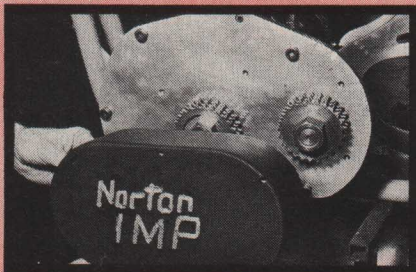
2: The frame gusset has to be cut away here to clear the primary chain oil bath. Production units will be cast in alloy.



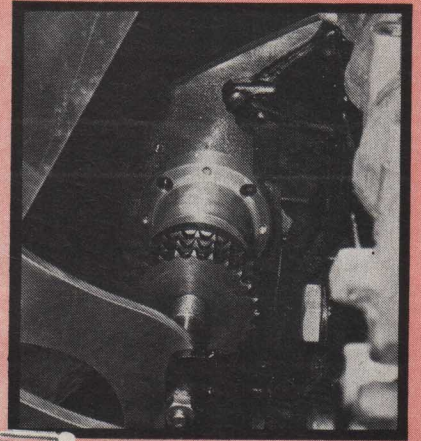
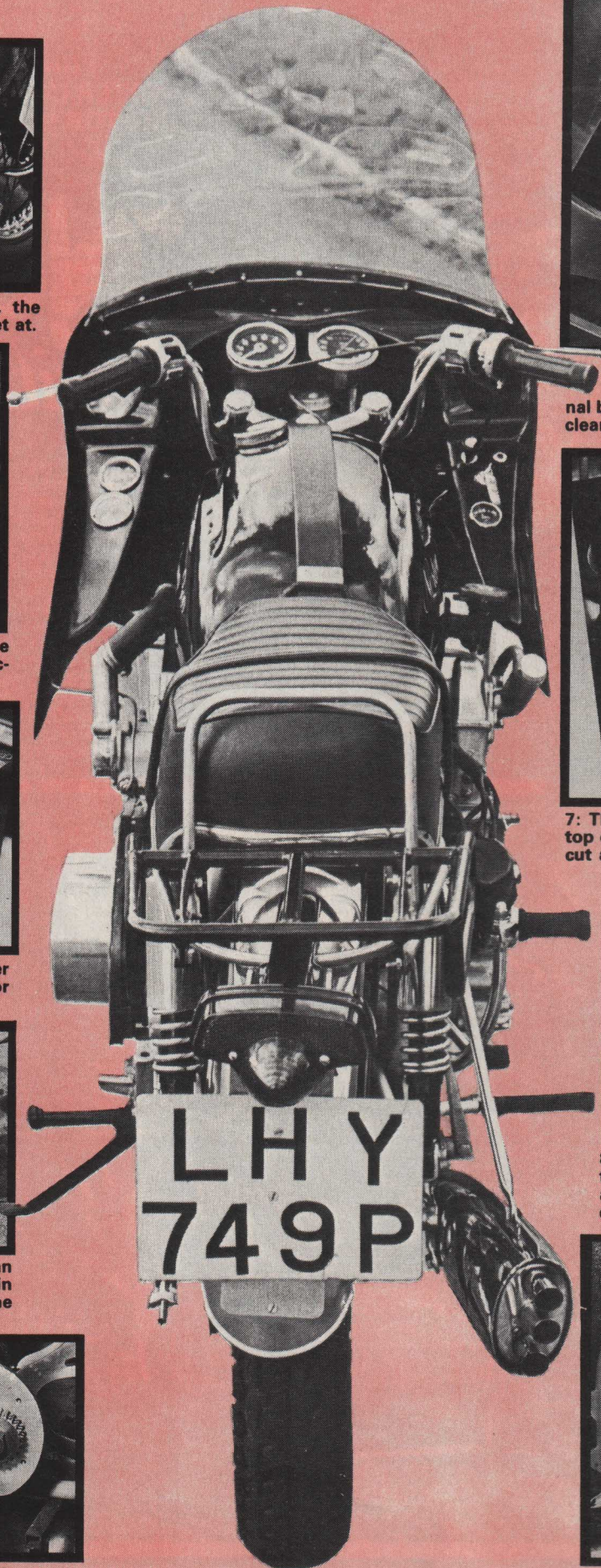
3: A Ford Escort fan belt drives the water pump (lower pulley) and the alternator which tucks up under the tank.



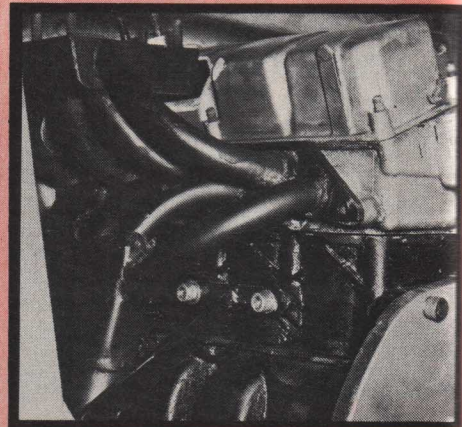
4: The cut and welded sump pan with the new section fitted in which tucks down between the frame tubes.



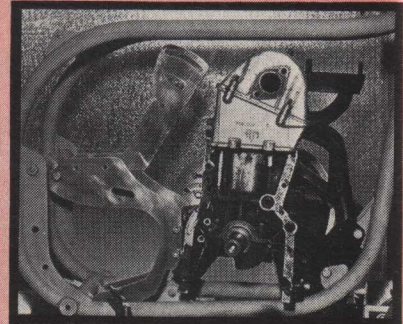
5: Heart of the conversion, the steel mounting plate fitted with the engine and countershaft sprockets.



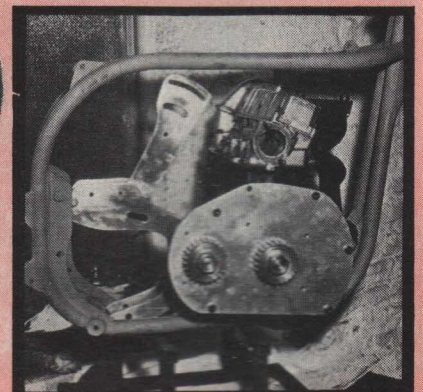
6: The business end of the countershaft. Part of the original bell housing has to be cut away to clear.



7: The inlet and exhaust manifolds. The top of the cambox does not have to be cut away to clear (see text).



8: Off side view of the engine installation showing the mounting brackets and plates. The head will come off with engine in frame.



9: Near side shot showing the massive mounting plate which bolts to the cylinder block.

Norimp

very neat, very well engineered, conversion. And not only that, its ready for the road weight at 528lb, is some six pounds lighter than the 750F Honda. Moreover, overall width is only 24in.

After swinging a leg over the saddle the bike started first prod. Only trouble was I tried to push the brake pedal into first, forgetting that the Norton box has its gear lever where it should be. A second stab, this time from my right boot, produced some forward motion but only a few inches before the bike stalled. I had also forgotten that the change was up for down and down for up (Bike British — you know it makes sense). By this time Doug was looking decidedly worried about letting such a complete idiot loose on his pride and joy but I managed to get it all together the second time and off I went to explore the Norimp's character.

Like a lot of Norton (pre Commando) owners I have an unshakeable faith in the Featherbed frame set up and it is extremely hard to give an unbiased opinion on handling. Suffice to say that neither time nor the extra weight of the Imp motor has detracted from my opinion of the Featherbed frame — for a road bike it is, quite simply, the best there is.

With the engine pushing out a modest 40-plus bhp full throttle performance is not exactly startling but Doug has built his personal bike as a touring mount and for that it is ideal. With a shade over 3,000 rpm on the tachometer the bike was cruising at 70 mph and felt as if it would hold that forever, which is hardly surprising when you think about it because the Imp motor was designed to pull a lot more weight than 528lb and to last for 50,000 miles without major overhauls.

I didn't get a chance to check fuel consumption but Doug says he has done about 6,000 touring miles on the bike so far and fully loaded it gives around 50 mpg, which can't be bad.

PRACTICAL

The more you look at this conversion the more of a practical proposition it becomes. Take servicing. After buying plugs, points, oil and filter you will still have change out of a fiver! To that include the fact that everything is all so easy to get at, with the distributor mounted under your nose and the filter at the off side front, and it all adds up to an excellent long distance tourer, especially so for the man with a limited budget. And if sidecars are your thing then what better than a Norimp to pull the extra weight? With its low speed torque it must make one of the best chair bikes around which the number of Imp powered outfits on the race tracks confirms.

Speed freaks should not run away with the idea that the bike is strictly for the cloth cap mob. The all alloy, ohc motor can, in 998cc form, be tuned to give 100 plus bhp! and with that sort of power the bike would be one of the quickest projectiles on the road.

If you are wondering if the Norimp can be built to satisfy your own particular needs your next question must inevitably be: "How much aggro is involved in imp-proving (groan) a standard Norton ES2, Dominator or what have you?" The answer is surprisingly little, thanks to two years of hard work by Doug Parnell who can supply just about all the main items required for the conversion.

If you were to bolt the engine straight into the frame and line up the drive chains you would be left with two cylinders sticking out

of the off side of the frame which would not only look silly but would upset handling more than a trace! The answer is a countershaft running just behind the engine from which the drive is taken to the gearbox. The countershaft is neatly mounted on to a hefty steel plate which bolts onto the side of the Imp motor. No flywheel is needed and an adaptor bolts straight on to the crankshaft to take a triplex sprocket and chain system running in an oil bath. The oil bath is essential because the chain speed is too high for solid lubes which would just throw off. From here the drive is taken to the Commando clutch again by triplex chain... which is also mounted in its own oil bath. Attached to the end of the countershaft is a V-belt pulley used to power the water pump and alternator.

SUMP MOD

Rather than fit an expensive dry sump conversion Doug has modified the standard sump pan by cutting off the existing well and welding in a new section that drops down between the frame tubes. As he assumes that a customer will already have a sump with his engine he just supplies the new section ready for welding in.

The radiator is Mini or 1100 with width reduced by four cores. The neck is also repositioned and if you feel this mod is beyond your own capabilities a local radiator repair firm should soon be able to knock one up for you. When he was still experimenting Doug did try the rad from an LE Velo but the pressure from the pump just blew it apart. Talking of water pumps, any FoMoCo stores will supply one for £4.50 this unit being a Ford Escort item, as is the fan belt. The pump just bolts into a housing supplied by Doug and has got to be a good buy compared to a Yamaha TZ item at £52. The alternator, also driven by a Ford fan belt is a stock Lucas motor cycle unit mounted in a circular casting to keep out the weather.

On the plumbing side, Doug has opted for a Weber 28/36 DCD carb on his own manifold because it has interchangeable chokes and can be adapted to suit most stages of tune from bog standard up to around 65 bhp. The exhaust is a four-into-one job which tucks away under the motor

PARTS AND PRICES

	£	p
Arbor and countershaft	8	50
Front engine mount	12	96
Rear engine mount	6	48
Gearbox plates	11	50
Countershaft mounting plate (facar)	6	27
Countershaft oilbath	10	10
Crank arbor	24	58
Countershaft plate (one unit)	55	00
Timing chain blank	3	24
Crank pulley spacer	0	81
Alternator plate	6	48
Alternator carrier	34	26
V-belt pulleys	3	24
Waterpump mounting	7	56
Clutch oil bath	10	21
Exhaust manifold	38	34
Inlet manifold	28	08
Sprockets	N/A	

Available from: Stoke Gifford Engineering, 24 Charles Close, Thornbury, Bristol, Avon BS12 1LN.

and on his bike it leads into a Trident silencer. On the road this gives a pleasant exhaust note, not too noisy, but still enough to make it sound like a real motorcycle. If you look at the plumbing pics you will see the top of the cam box has been cut away at one point but this was part of an earlier experiment and is not necessary with the production set up. In fact, most of the items in the pics are the original one off jobs as fitted to Doug's own machine but most production items will be made in Mr Parnell senior's engineering shop — Precise Engineering (Bristol) Ltd.

Doug himself trained as a toolmaker at the British Aircraft Corporation and his skill is reflected in the quality of design and manufacture of his bits, particularly the countershaft set up which is impressively sturdy.

He is flexible in his attitude to selling parts. If you just want the countershaft and nothing else then you can have it and go your own way with the rest of the job, it's up to you. What is worth remembering though, is that the mountings already line up with the countershaft which lines up with the gearbox plates etc. and my advice would be to use most of Doug's bits as they, to a large extent, complement each other.

If you decide that you just have to build a Norimp then the first job is to locate an engine. Look around the local car breakers for a Mk.I unit, it makes a much better proposition for tuning. The Mk. II can be spotted from the straight edge of the cylinder head on the face just below the spark plugs, the Mk. I edge is wavy, as in the pics. Not all engines will line up with Doug's mountings so if you are using them check this point first.

CRANK BALANCE

As you will have to discard the flywheel it would be worth while having the crankshaft and connecting rods balanced by a specialist car tuner to keep vibration to a minimum. This would also help reliability, although the bottom end of the Imp is very strong and can stand 8,000 rpm when balanced. When it comes to modding the engine the sky is the limit but if you restrict yourself to a ported Imp Sport head and not too wild a camshaft, it's possible to retain most of the low speed tractability that makes the conversion so attractive. With these mods and a suitably choked 28/36 DCD Weber you should then have around 65 bhp on the end of your throttle cable, good news for tourers and cafe racers alike.

The whole lot will fit into most Slimline and Wideline frames although some frames don't have enough lugs at the front, and the plates are drilled to accept the standard Norton four-speed gearbox. It would be a wise move to fit a disc front brake 'a/la' Commando because the standard drum would be hard pushed to stop the increased weight. Using the Commando clutch unit means that there is no cush drive in the system so a Commando rear wheel with a cush drive would not go amiss if chains are required to last more than five minutes.

If you want something really pokey there is a company that markets a supercharger kit for the Imp motor and it looks like it should slot in behind the cylinder block and take its drive from the end of the countershaft. The main trouble here would be getting a transmission to stand the torque but if it could be done it would make an interesting road bike, to say the least!