

CUT OIL BILLS!

FEBRUARY 72

15p

MOTORCYCLE

SCOOTER & THREE-WHEEL

MECHANICS

LARGEST SALE

**EXCLUSIVE
'WILD' WADE
INTERVIEW**

**DUNSTALL
COMMANDO
CONVERSION**

**LAMBRETTA
TUNING
FOR SPEED**

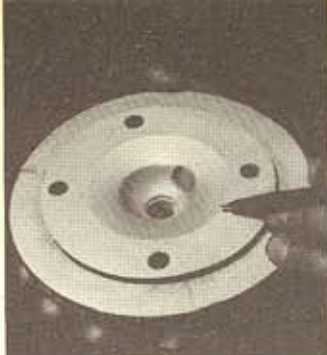


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TOP END



This is the side-squish head used on everything except the 125 GP. You can't do much about improving it, so the best thing is a 125 GP head, or...



... one of Wildcat's special central-squish heads. Les plugs old plug hole, drills central ditto and machines heads for piston clearance



Wildcat's bore out to increase capacity and on a full race job they will also open out the inlet and exhaust ports. Compare with standard hole left



The big-bore conversions be done by themselves, even if inlet/exhaust are opened out it's worth chopping transfer port down to b

BREEDING



Brian Lecomber investigates the Rafferty Newman conversion...

When Ye Ed said how about doing a piece on Lambrettas for this tuning series, I must confess I thought he'd gone off his chump.

"Who the hell," I asked, "wants to tune a scooter?"

"Scooters," I went on sagely, "fall over. They fall over if you go fast round comers. They try to fall over if you go fast in a straight line. If you tune the engine they will simply fall over more readily. So why tune the engine?"

Ye Ed was not impressed. "Lots of people want to tune Lambrettas," he said. "Some people race them, some scramble them and others get their kicks from pushing them past the E-Types and so forth on the road."

Okay! So you want to tune Lammies, I'll tell you how to do it. I still figure they were designed for cats, who have a superb sense of balance, but if you fancy your chances of survival on a souped-up Lammy, good luck to you.

To start with, THE people in

the 'Lammy' tuning game are Messrs. Rafferty Newman, of Motorcycle House, 242 West Street, Fareham, Hants. They make the "Wildcat" parts, and their tuning king is Les Rafferty himself and he told me all about it.

In the first place, the man bent on making a Lammy go faster should think in terms of getting as much swept volume as possible. Rafferty Newman will supply a 175 cc conversion for the 125 and 150, and a 200 cc conversion for the 175 models, and the 200 cc TGs, SXs and GPs can be taken out to 225 cc.

While you're at getting the big bore conversion, it's as well to tinker with the ports a little.

Rafferty Newman will do this for you, provided you don't expect your barrel back by return of post and you'd be well advised to have them do it, since clangers are costly.

If you don't want that, it can help to open up the transfer ports as shown above, but beyond that I wouldn't recommend messing about too much unless you really know what you're about.

BOTTOM END



Always replace the three crankshaft seals whenever you take the crank out. They are held by circlips, with main bearing between seals on timing side



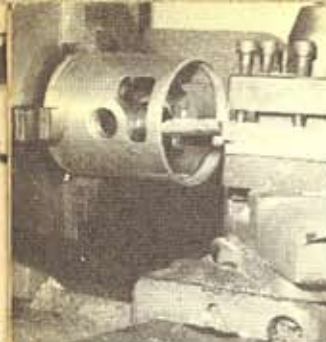
This primary compression plate (or crankcase stuffer) drops into barrel hole and is nipped lightly by the barrel. It increases crankcase compression



Next step in the battle for case compression is to leave out the gasket 'twixt the faces. This can be safely done on all models Use smear of gasket goo instead



This, believe it or not, crankweb balance hole filler kit, which further increases primary compression! Smo corks with Araldite, push



Dykes pistons are best, but whatever piston you use it's worth taking $\frac{1}{16}$ in. off the bottom of the skirt. This makes for better timing, and if . . .

. . . you have a converted barrel, you can also cut the bottoms off the transfer port windows, as per the Dykes piston on the left. The $\frac{1}{16}$ is still removed

Many inlet manifolds are available, and the main thing is to open the bore to match the modded barrel and an Amal Concentric carb. The . . .

. . . flange-fitting Amal is adapted to stub by use of Wildcat adapter. Manifold and adapter must be filed if necessary to match the size of carb

The best exhaust for road use, says Les Rafferty, is the one made by Ancillotti. This replaces the standard system for fast road work

A WILDCAT!

With the big barrels goes a two-ring Dykes piston: whatever piston you're using you will get better timing by lopping $\frac{1}{16}$ in. off the bottom of the skirt, but when you're using a R-N race barrel, as re-ported by Les, you can get still more by cutting the skirt away completely underneath the porting windows. If that sounds rather peculiar, look at the photographs. Porting windows are very difficult to explain in words.

Having done that, we will now look at the head. All the standard 'Lammy' heads, except the 125 GP, are side-squish. This isn't the best idea in the world, so the bright man gets hold of a 125 GP head, which is a central squish with a non-central plug, and sends it to Les, who will fill up the old plug hole and bore another one, making it central plug.

I do hope you followed that, but there is a snag to it: your 125 GP head, which is now central plug and central squish, will fit a 150 or 175, but won't fit a 200 or a modded 225, because the stud holes are in the wrong

place. So if you've got a 200 or 225 you'll have to ask Les Rafferty if he'll sell you one of the special central-squish, central-plug heads he has on his shelves for the bigger engines.

Finally, regardless of what head you use, you *must* have the combustion chamber machined out if you're using a Dykes piston, otherwise same will clout the head. The amount of machining depends on the bore, so if you take my advice, you'll get Rafferty Newman to supply a big-bore barrel, race-modded, plus a Dykes piston and a central-squish head all in one fell swoop.

Carb-wise, Les reckons on a 26 mm Concentric if the device is 125, 150, or 175 cc, and a 30 mm unit if it's bigger. Ump-teen manifolds are available for Lambrettas, so all you really have to do is get one which is big enough to be opened out to match your bigger race-ports in the barrel and the bigger carb at the other end.

Rafferty Newman will sell you same and likewise they will sell you a better exhaust system than the standard.

At the bottom end, the main things you can do are to fill up the holes in the flywheels, fit a compression plate and leave out the timing side crankcase gasket. All these moves increase crankcase compression, which is obviously desirable.

The holes in the flywheels are dealt with by the laughably simple expedient of stuffing corks into them and plastering the corks with Araldite to give them a bit of conviction. RN do a brisk line in both corks and Araldite. They will also put a little more padding on the crank webs, but this obviously involves splitting the flywheels, which is going to cost more. Make sure the crankshaft seals are in good nick, too, or you're wasting your time padding.

The compression plate is delightfully simple, too. You merely drop it into the crankcase mouth and bolt the barrel down on top of it. The barrel nips it and holds it in place and its presence further boosts crankcase compression.

Finally, you can lighten the main flywheel by machining all

the electrics off. This obviously means you have to go over to external coil ignition and you won't have any battery-charging apparatus, but if you're planning on competition this won't matter.

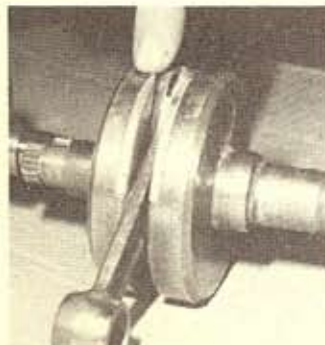
Les will sell you the necessary bits. He recommends an ignition setting of 2.5 mm btdc on the piston for all tuned Lammies and he further states that a tweaked job is best run on a petrol mixture of 25:1.

PARTS & PRICES

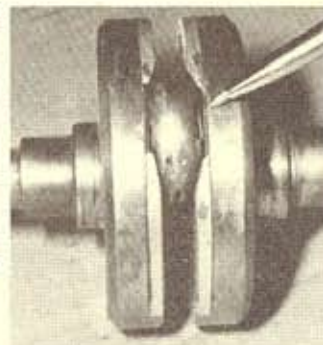
<i>Amal carb conversion</i>	
stub	£1-25
<i>Dykes barrel, piston, head assembly for:</i>	
150-175 conversion	£12-50
175-200 conversion	£14-50
200-225 conversion	£16-50
<i>Cylinder head conversion</i>	£2-60
<i>Crankcase compression plate</i>	60p
<i>Flywheel padding kit</i>	35p
<i>Large bore Ancillotti exhaust</i>	£6-95
<i>Standard Ancillotti exhaust</i>	£5-50
<i>626 (26 mm) Concentric</i>	£7-59
<i>930 (30 mm) Concentric</i>	£7-92
<i>Dykes pistons</i>	£4-00
<i>Dykes ring sets</i>	55p
<i>Lambretta tuning manual</i>	65p



. . . into holes in crankwebs, and smother with Araldite again. Leave to set and Bob's your aunt! Four quite big holes filled for better compression



The crankshaft can be further padded here, but this is a job for the experts, since the wheels have to be separated. Rafferty Newman will do it



The big-end on earlier models was not held central on the crankpin: for this reason a little extra relief here improved lubrication. Not worth . . .



. . . while on later jobs. If you don't mind having no charging system, the flywheel can be lightened thus: you will have to use separate coil . . .



. . . ignition, though. This means the stator units are removed from points plate and a new coil and condenser are then needed