

DT50

PLUS-TWELVE

Malossi's 62cc conversion kit helps Yamaha's
small trail iron to a bit more power

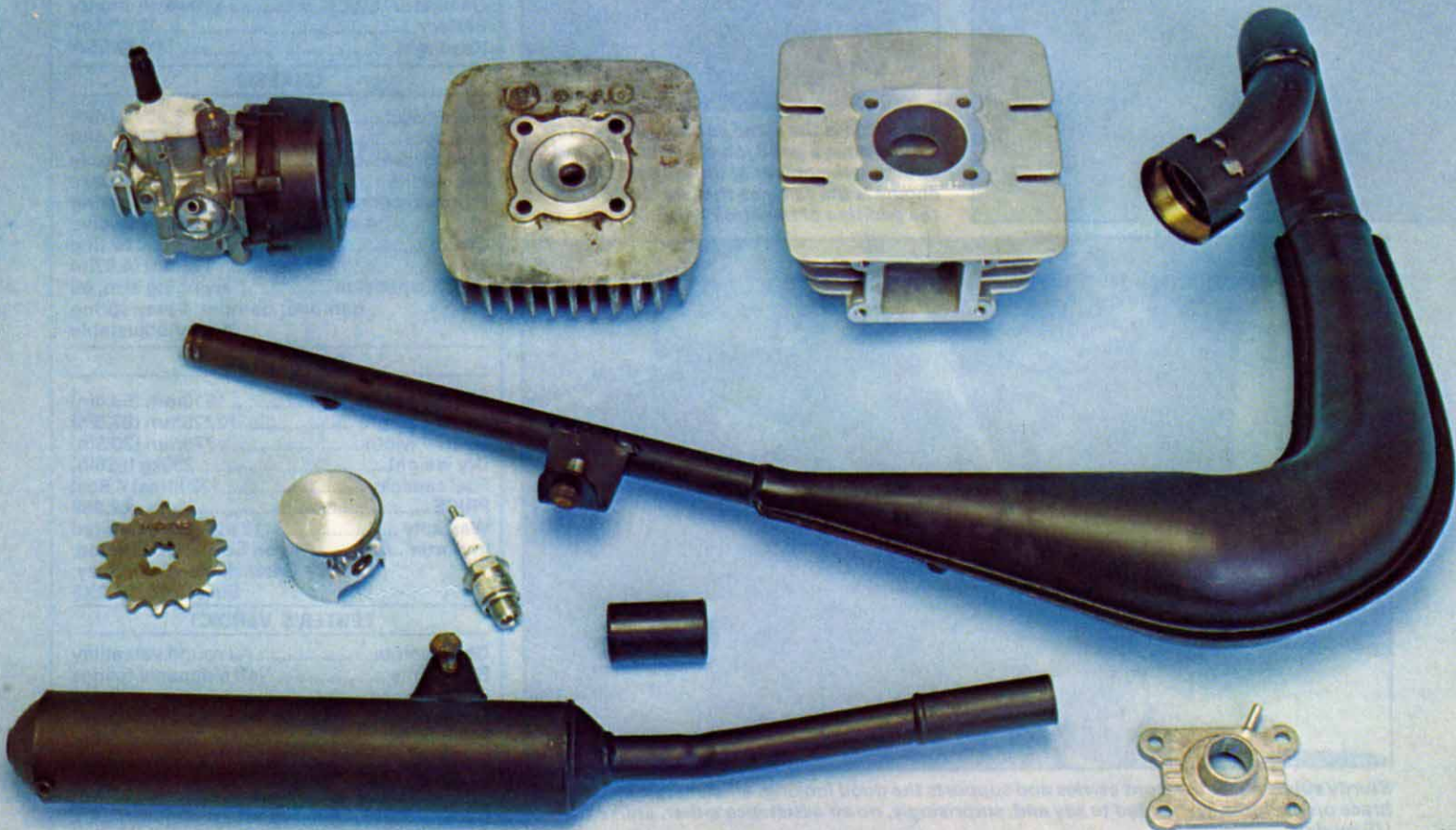
The old barrel and piston told a familiar story. Whatever it was that had dropped into the crankcase of Greg Tillson's DT50M had found its way back up to the combustion chamber via the transfer ports. On its way it had taken a large lump out of the side of the piston, scored the barrel beyond repair and pock-marked the combustion chamber.

Removing the piston revealed the cause. An earlier seizure, due to oil starvation, had distorted the cage of the needle roller small end bearing, allowing bits of roller to drop into the crankcase.

We were due to try out a



Above: Piston, small end bearing, main bearings and oil seals were reduced to scrap.



Malossi big bore kit on the bike, supplied by Spare and Repairs of Watford, who also supplied the tune-up kit for the TS50ER featured in the August '83 issue of *Mechanics*.

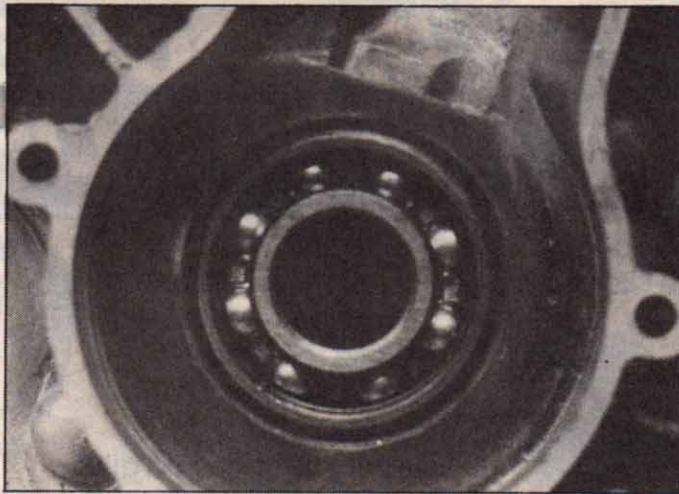
There was little point trusting to luck, so I decided to pull the engine apart completely to clean any remaining bits of roller out of the case and to check the condition of the bottom end.

Engines do not come much simpler than the piston-ported two-stroke and although I'd not come across this particular variant before, it did not take long to get it all to pieces.

The job required the use of two special tools; a Yamaha puller for the magneto flywheel (£1.80) and a universal puller to part the unusually stubborn gearbox sprocket from the output shaft.

To hold the clutch centre while undoing the retaining nut, I made up a crude but effective tool by arc welding a length of tubing to an old DT50 steel clutch plate taken out of a spare engine that Greg, the bike's owner, had in his shed at home.

The DT50's vertically split crankcase halves are held together by crosshead screws so they had to be loosened with an impact screwdriver (a Draper item; cheapish and pretty tough). Someone had been at the engine before and two or three chewed up screws had to be loosened by careful use of a narrow chisel and a light hammer. This method is fine as long



Main bearings had to be replaced after small end failure.

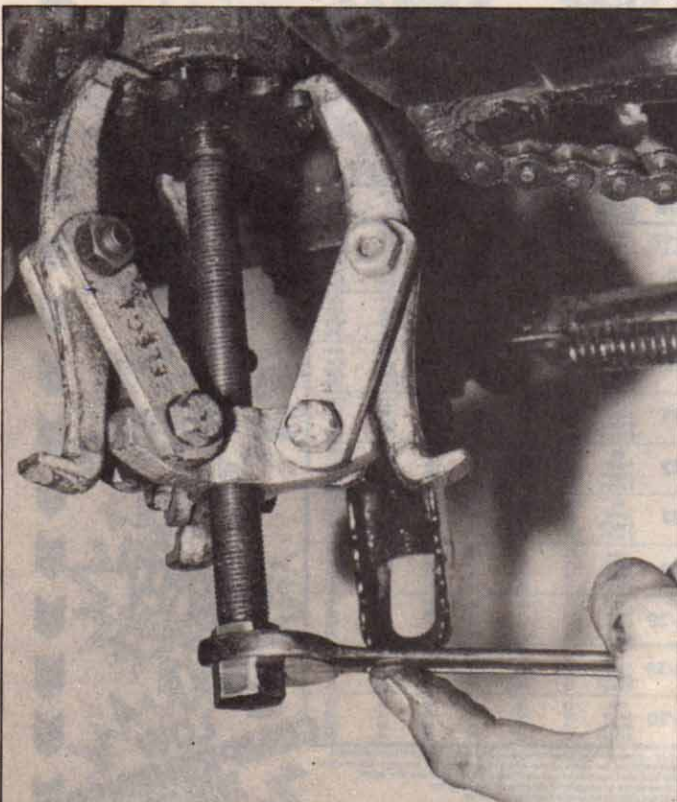
as you apply equal amounts of intelligence and brute force.

For reassembly, I selected the best screws out of the spare engine.

Separating the crankcase halves was a bit of a chore and much careful tapping around the joint face with a leather mallet was needed to break the seal.

The DT50 crankshaft is a drive fit in the magneto side main bearing and Yamaha recommend the use of a special tool which bolts on to the crankcase outer, to push the shaft out. I used a hydraulic press because that was available and the special tool was not.

You can, in fact, drive the crankshaft out of the bearing



The gearbox sprocket showed a marked reluctance to part from the output shaft due to a combination of rust and muck. Eventually, after much fruitless levering, a universal puller was used.

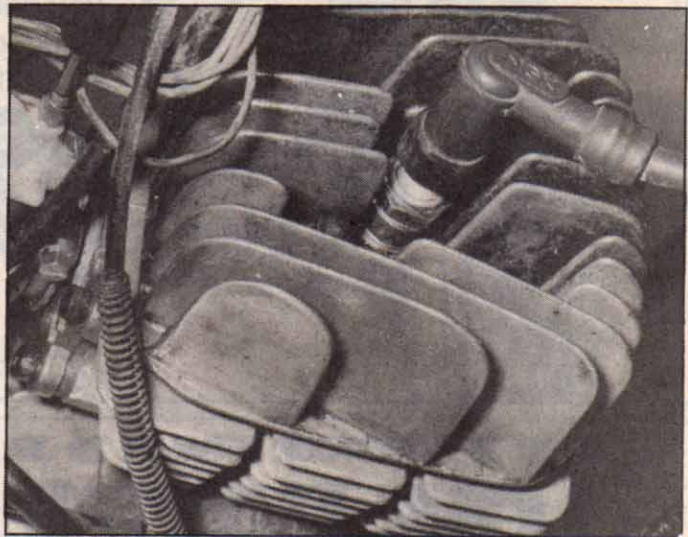
wall which is fed by a window in the piston. This, I suspect is more to direct extra lubricant to the small end than to give any significant gain in power.

To avoid any hassles, the carburettor comes complete with a snap-on air filter with a foam element. The standard airbox you can simply throw away.

The standard cylinder head is used (pic 3 and 4), as they are the standard reed valves.

The actual capacity given by the conversion is 62cc.

I was favourably impressed with the ease of fitting on the Suzuki kit we tried earlier on this year. The Yamaha kit was almost as good. However, if you are fitting a kit to your RD or DT, you need to be careful when fitting the carburettor manifold



Standard cylinder head is retained with the conversion kit.

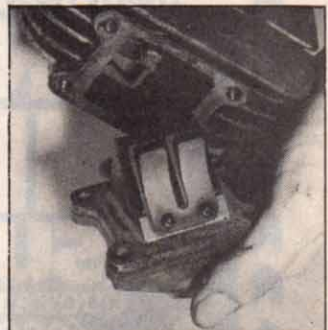
with a soft-faced hammer if you are careful not to let it tip sideways and jam.

On inspection, I found that bits of the aforementioned needle rollers had found their way into the main bearings, reducing them to scrap. The transfer passages were pockmarked as well but miraculously, the big end bearing was in perfect condition.

I went new main bearings and new crankshaft oil seals and the engine went back together as easily as it came apart. I won't tire you with the details here as the real point of all this is the Malossi tune-up kit and what it did to the DT's performance.

The kit, which costs £92 including VAT, comprises an alloy cylinder barrel with an electrofusion coating to form the cylinder walls rather than a steel liner. A piston, a flat slide, Dellorto carburettor plus manifold stub, a gearbox sprocket one tooth up on standard (14 instead of 13), a complete new exhaust system and all necessary gaskets.

The barrel has a boost port cut into inlet side of the cylinder



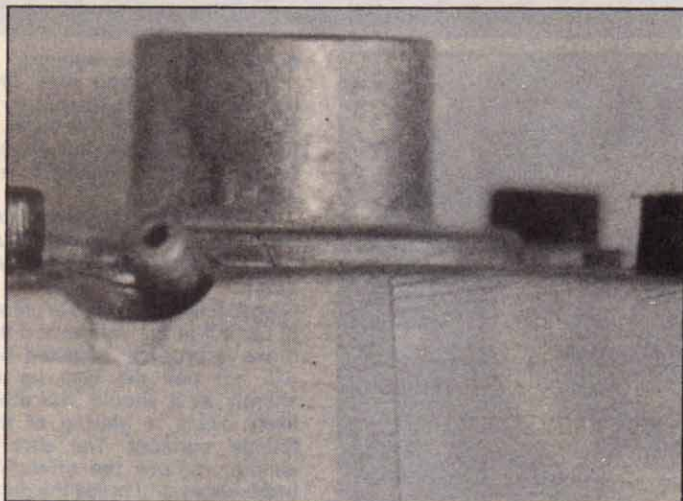
Stock reed valve is fitted to the Malossi barrel.

to the barrel. The manifold incorporates the oil injection inlet pipe in its construction. The pipe is too close to the barrel when the manifold is bolted up. Close enough, in fact, to cause it to break off as you tighten the fixing bolts. The answer is to file a small piece out of the top cooling fin on the barrel before fitting the manifold, as shown in the photograph (pic 6). After doing this, you must wash the barrel thoroughly and preferably blow it dry with an airline to ensure that all traces of swarf are removed.

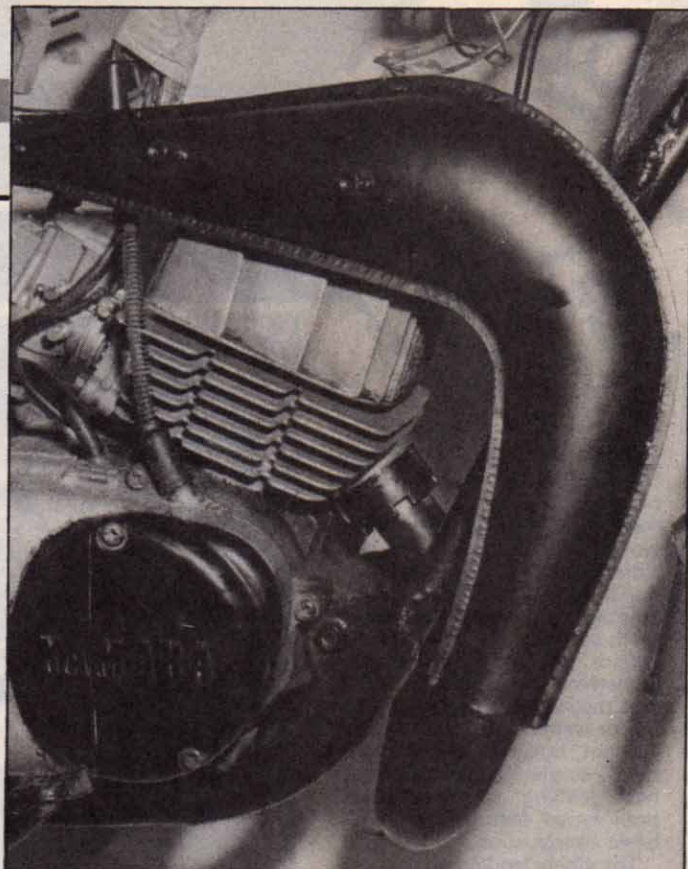
That small detail apart, fitting ▶

DI-50

PLUS TWELVE



Top fin on Malossi barrel had to have a cutout filed into it to give clearance for the input orifice for the oil injection pipe. A point not mentioned in the accompanying instructions.



Malossi exhaust is a good fit on the standard mounting points.

the piston, barrel and cylinder head was simplicity itself. Anyone with a small amount of spanning experience and a few grains of commonsense could do it.

Although some people would disagree, I prefer to assemble the barrel onto the piston dry rather than coat both components with two-stroke oil. The reason for this is simple: liberal coatings of oil on assembly could lead to the piston ring becoming gummed up in its groove, causing loss of compression. There is going to be plenty of oil around as soon as the engine is started anyway so there is no risk of seizure or premature wear.

The exhaust went on with no problems, matching up to the existing brackets (pic 7). A new gasket is provided with it and, thoughtfully, Malossi include a bracket for attaching the right-hand sidepanel.

Malossi recommend that the spark plug be changed from the standard NGK B7HS to a B9HS.

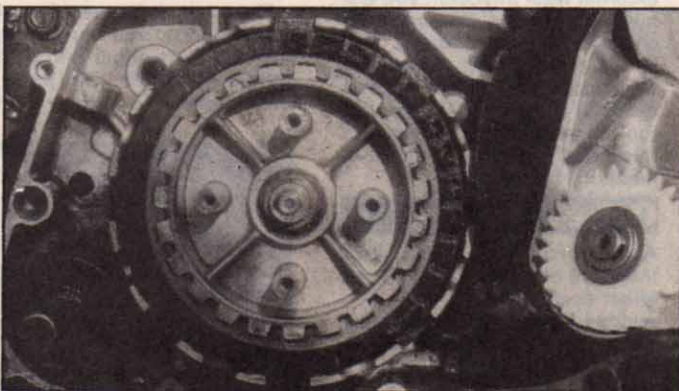
Also supplied is a new throttle cable for the Dellorto carb. As is common practice, the cable from the twistgrip goes into a junction box from which come two cables, one for the carb and one to operate the stroke control on the oil injection pump.

After fitting the new cable, you must then check the oil pump setting before firing up the engine. With the throttle in the fully closed position, the plunger pin on the pump should be lined up with the index mark

on the pump pulley. Adjustment is effected by adjusting the cable.

And so to the moment of truth. The engine fired up second kick and sounded very good, crisp and mechanically quiet as it should have been with new main bearings and an all new top end. Trouble was that when I tried to ride the bike, the clutch let go as soon as the engine started to pull strongly into its powerband. I'd thought that the clutch was a bit naff, even on the standard, restricted engine. With the extra power offered by the conversion it was as good as useless.

A new clutch arrived four days later and was fitted in about thirty minutes. And that, at long last, was that. The bike was certainly much quicker than before even bearing in mind that I was taking things very easy on that first test ride to give every-



Tired clutch couldn't cope with the extra power so a new one was fitted.

thing a chance to bed down properly.

I handed the bike back to owner Greg Tillson with strict instructions not to thrash it from the word go.

The engine certainly sounded a great deal better than before. Previously it sounded like a tin of nails being shaken vigorously every morning when Greg set off for work in the panel-beating department of a local garage.

The Malossi exhaust gives a crisp, pleasing note without being too noisy.

A week later, after the bike had covered a hundred or so miles, Greg said that, while the acceleration was vastly better than before, the top speed was something of a disappointment, an indicated 40 mph being the top whack.

I took the bike out for a quick spin and it felt loose enough to

give it a bit of stick. Acceleration, as Greg had said, was greatly improved. Revving hard through the gears, I managed to wring 45 mph out of it but a high speed misfire put paid to any increase on that figure.

I whipped the flywheel magneto cover off and had a look at the points while the engine was running. As I suspected, at high revs, arcing was taking place across the points, suggesting that the condenser was breaking down under high load.

Maybe this is something I should have checked out at the start, although the bike was not misbehaving in like manner in 50cc restricted form.

If you're contemplating a similar conversion though, you should at least check that the points are in good condition and correctly gapped.

Also, you must check the state of the bottom end of the engine. There's no point at all fitting go faster bits only to have the main bearings give up as a result.

The bike seemed to be struggling to pull the higher gearing given by the larger gearbox sprocket.

At that point, we ran out of time for this issue. However, on its way to the office are a new condenser and points, a thirteen tooth gearbox sprocket and some Harpowa Reeds. With the misfire sorted out and the above bits added, I'm hoping to see more improvement yet. Let you know next month.

Jim Lindsay

IceniCAM Information Service



www.icenicam.org.uk