BOLT-ON BHP BONANZA

YOU don't need to be a tuning genius to add worthwhile horsepower to your engine. Brian Crichton discovers over 20 per cent more bhp in a Yamaha DT125MX thanks to four simple bolt-on items.

PACKING over 20 per cent more punch into your engine in the space of a Sunday afternoon and for a total outlay of £66.35 has got to be good news.

It gets even better. For just £35.10, the cost of two of the items tested, you can hit a 23 per cent power improvement at one point in the rev range.

The remaining two of the four items tested give more in the way of looks than power.

The four parts combined balance out for trick looks as well as performance. And with the exception of having to drill a hole in a rubber inlet manifold, all the items bolt on with the use of basic tools.

Winners in this bolt-on bonanza are owners of Yamaha DT125 and 175MX models. We know there are plenty of you out there because these models are the best sellers in the Yamaha range.

If you are not a DT owner don't despair. Some of the four items tested may well fit your machine, and you can expect similar power gains to those quoted.

Testing was done using a DT125MX on the LEDAR dynamometer with Leon Moss at the helm.

The first bolt-on goodie to come under performance scrutiny by the dyno was Serval's new alloy silencer.

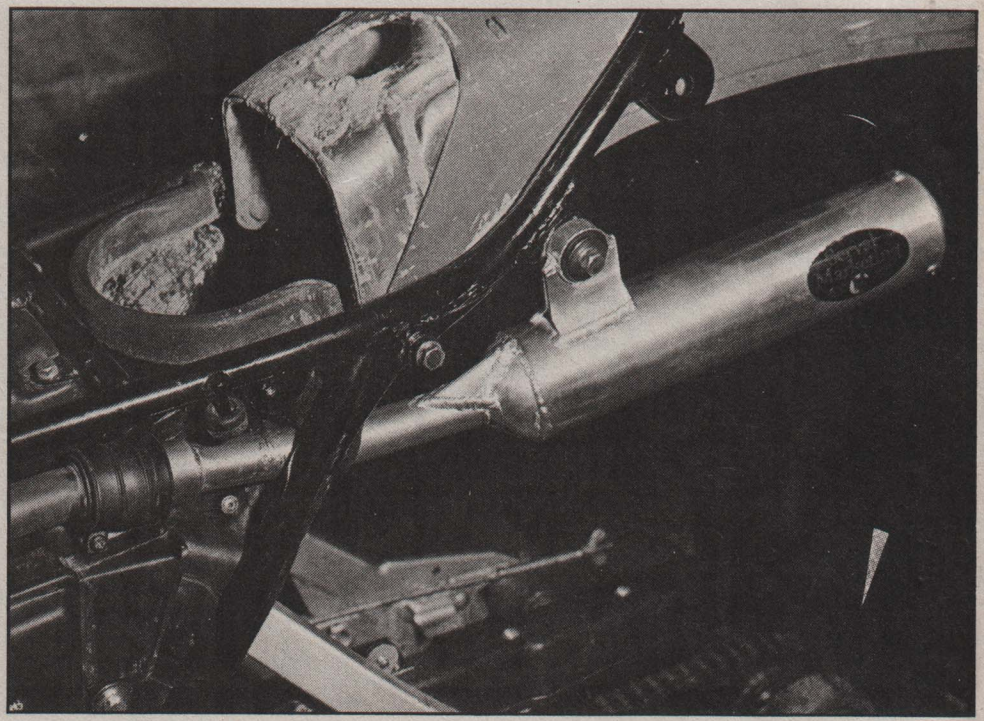
Inside Yamaha's DT125MX power is waiting to be unchained.

This gave a healthy power gain (see figures in table 2 (Page 18) column G) over standard (table 1 column A). Power was increased all the way up to 6000rpm, which should especially delight DT owners who do a lot of trail riding.

The silencer has more advantages up its sleeve. It not only looks good, it weighs only 1lb 5oz compared to the standard silencer's 3lb 7oz bulk — nearly two-thirds less! And the silencer can be dismantled with the aid of a small Allen key for repacking.

The one drawback is the increase in noise. Leon unzipped his noise meter and made a few notes, concluding that in his opinion the silencer should be within current legal levels.

Fixed to the dyno and ready to flex its muscles.



Serval's silencer is a direct bolt-on replacement for DT125 and 175MX models.

Obviously, that's an opinion and not a cast iron defence. Government noise tests are taken in the open air under strict regulations. Our random tests were within the echoing four walls of the smoke filled test house.

Next we reasoned that the average two-stroke single owner would consider the American Boyesen two-stage reed. So the carburettor was removed and the plastic Boyesen reed inserted in place of the standard steel item.

The important trick here is to bend back the reed stops according to the instruction to give a 12.5mm gap. We measured the standard gap and found it to be 8.5mm.

The Boyesens are much more flexible than the steel petals and can open further without the risk of fracturing, allowing more fuel/air to pass into the engine for more power.

The results of our dyno tests were the first we had seen on Boyesen reeds. They gave concrete proof that the reed can allow an engine to develop more power.

The combination of the Serval silencer and the Boyesens (column H) increased both power and throttle responsive torque, extremely important to off-road riders. Gain in both respects peaked at over 20 per cent. In particular mid-range with the reeds was much improved.

If you were working to a limited budget then you should feel well satisfied with the £35.10 so far spent.

Step three was to fit the American made Roost Factory bottle, a copy of the Yamaha Energy Induction System (YEIS).

This requires a hole to be hand or electric drilled through the rubber intake manifold to allow the fitting of a spigot which links the intake passage with the bottle.

The spigot slightly distorts the shape of the rubber which was rather disappointing. More disappointing was no increase in power except right at the end of the power curve (column 1).

To make up for it the bottle, which we fixed to the left-side frame tube behind the engine, looked power plus. At least it didn't detract from the performance, so it could justify its presence as a cosmetic improvement.

Standard reed block has the stops set at 8.5mm as shown here. Bend them back to 12mm for improved performance. Replacing the block has to be done carefully to prevent reducing the gap.

Our final move would appeal only to DT owners who stick to the street. It's an S&B Maxi Flow air filter, which is also imported from the States. The filter is too exposed for serious dirt riding.

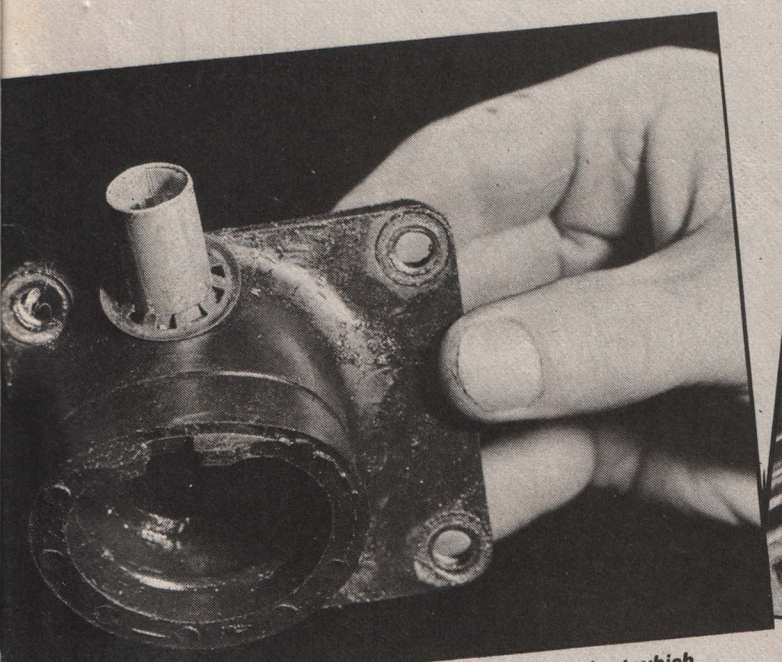
The filter claims it does not require oiling, unlike the American K&N which it looks very much like.

Figures in column B should be compared to those in column I. They show that the filter allowed the engine to breathe a little easier between 6-700rpm.

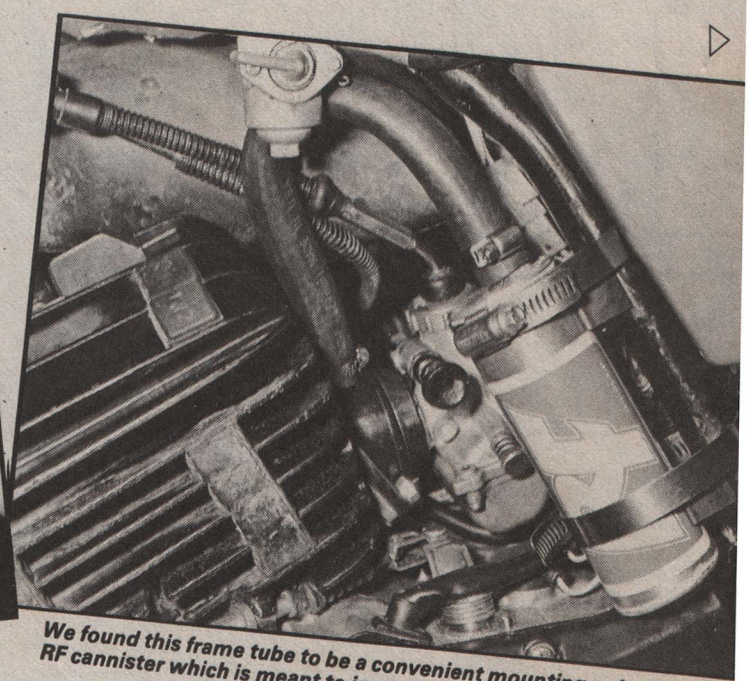
When on the dyno the engine is run under full throttle. We thought it might benefit from a larger main jet because of the new air filter. The stock 130 was replaced with a 140. Surprisingly carburation was marginally better with the 130.

On some engines, removing the standard air filter can mean up to twice the standard size of main jet is required to compensate. Just goes to show you have to treat each engine as an individual.

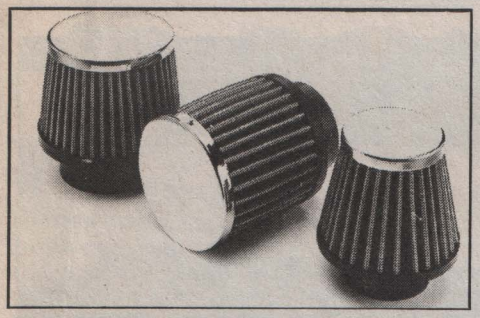
It would have been nice to have had the time to try each of the four items individually to detail exactly how much each one affects a stock engine.



Rubber inlet manifold has to be drilled to accept the spigot which links to the RF bottle via a rubber hose.



We found this frame tube to be a convenient mounting point for the RF cannister which is meant to improve fuel flow to the crankcase.



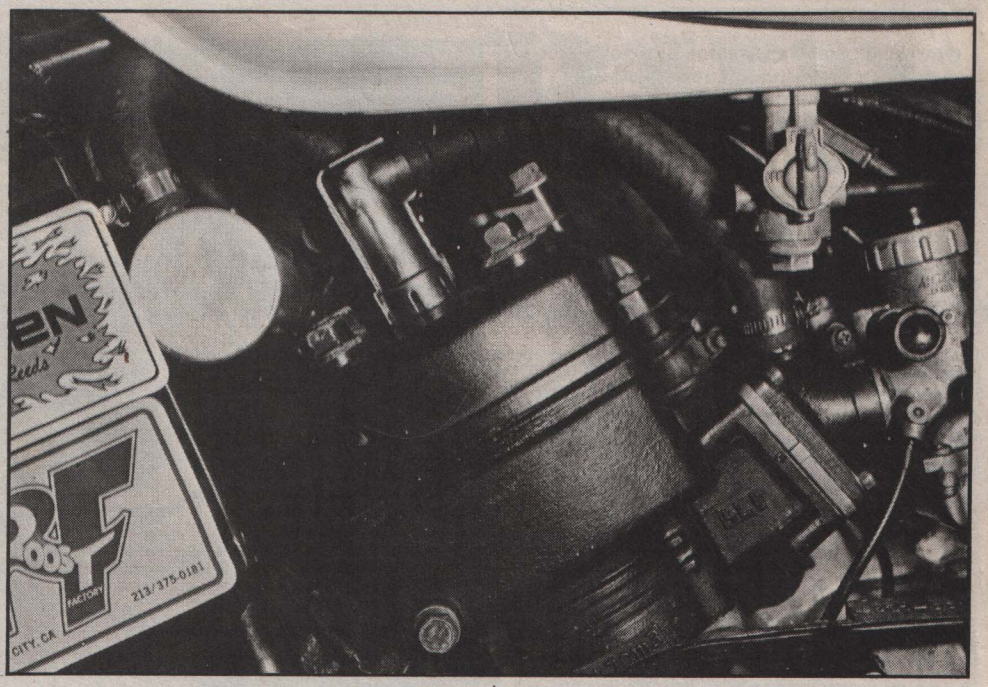
Some of the new S&B Maxi Flow filter range being distributed by Nick Pepper of Wisbech.

PRICES	£ inc VAT
Serval silencer	21.50
Boyesen reed	13.60
RF boost bottle	25.00

Available from: Serval Marketing Ltd, Serval House, Clifton Road, Shefford, Bedfordshire. Tel 0462 815757. 1 11/16x3x3in S&B Maxi Flow filter £6.25 price includes postage from: Nick Pepper Motorcycle Accessories, Unit 31, Boleness Road, Wisbech, Cambs. Tel 0945 63510.

APART from the DT range Yamahas other best sellers are the LC250 and 350 watercooled twins. Serval decided to make up an experimental boost bottle for LCs.

Headington Service Station of London Road, Headington, Oxfordshire, kindly loaned us an RD250LC with 10,000 miles on the clock for dyno testing.



A single bottle is used linking both inlet rubbers. With the LC the inlet rubbers already have holes for the standard crosstube which links the inlets. This made fitting the spigots easy. The cannister was placed behind the radiator above the engine (see above right).

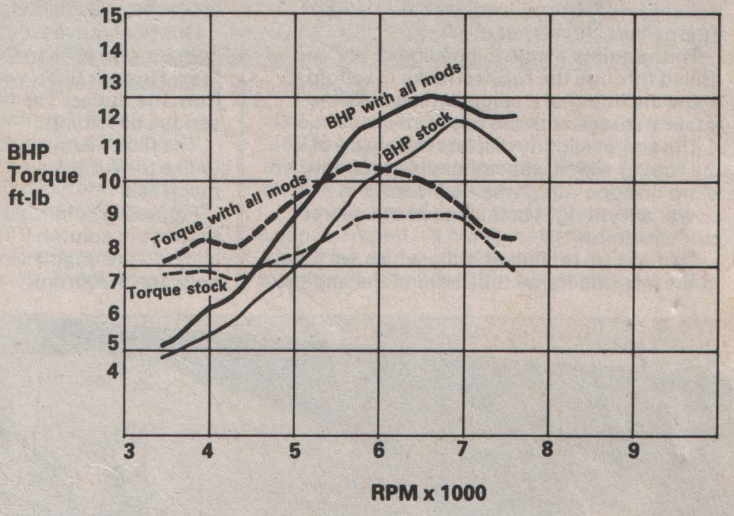
The bike was not running too well so the plugs were changed. But there was still the occasional misfire. In spite of this problem the figures showed that the cannister was harming full throttle power once the machine was in its power band, though there was some improvement in maximum power at lower rpm.

	BHP			TORQUE FT-LB		
RPM	A	B	C%	D	E	F%
3500	4.8	5.3	10	7.3	7.3	0
4000	5.5	6.3	15	7.3	8.3	14
4500	6.3	7.3	16	7.3	8.4	15
5000	7.4	8.9	20	7.9	9.5	20
5500	8.9	10.8	21	8.5	10.3	21
6000	10.3	11.8	15	9.0	10.4	16
6500	11.1	12.5	13	9.0	10.1	12
7000	11.8	12.3	04	8.8	9.2	5
7500	10.8	11.9	10	7.6	8.3	9

A: Stock engine. Max bhp 11.9/6900rpm; B: Several silencer, Boyesen reeds, RF boost bottle and air filter fitted. Carburation standard; Max bhp 12.6/6600rpm. C: bhp percentage increase; D: Stock engine torque figure ft-lb. Max torque: 9.1/6800rpm; E: Engine as B. Max torque: 10.5/5800rpm; F: Torque percentage increase.

	BHP		
RPM	G	H	I
3500	5.3	5.3	5.3
4000	5.9	6.1	6.1
4500	6.8	7.3	7.1
5000	8.4	9.1	8.9
5500	9.7	10.6	10.4
6000	10.4	11.7	11.5
6500	11.2	12.1	12.1
7000	11.7	11.9	12.0
7500	10.8	11.2	12.3

G: With Serval silencer only; H: Serval silencer plus Boyesen reeds: I: Serval silencer plus Boyesen reeds plus RF boost bottle.



RPM	Stock bhp	With bottle
4000	9.3	9.5
4500	9.9	10.6
5000	8.4	9.7
5500	—	—
6000	—	—
6500	—	—
7000	22.6	19.9
7500	26.7	19.8
8000	29.8	22.6

The reason for the 5500-6500rpm gap is because the engine would not stabilise under the dyno load for an accurate reading.

We hesitate to draw concrete conclusions from the above figures because the bike was not 100 per cent. But the figures do look pretty damning.

Maybe two separate bottles would be a better bet. The bike had to come off the dyno before we could obtain a double cannister set-up, so we don't have any answers at present.

Each single bottle costs £25. If you'd like to do your own experimenting Serval will be pleased to supply □