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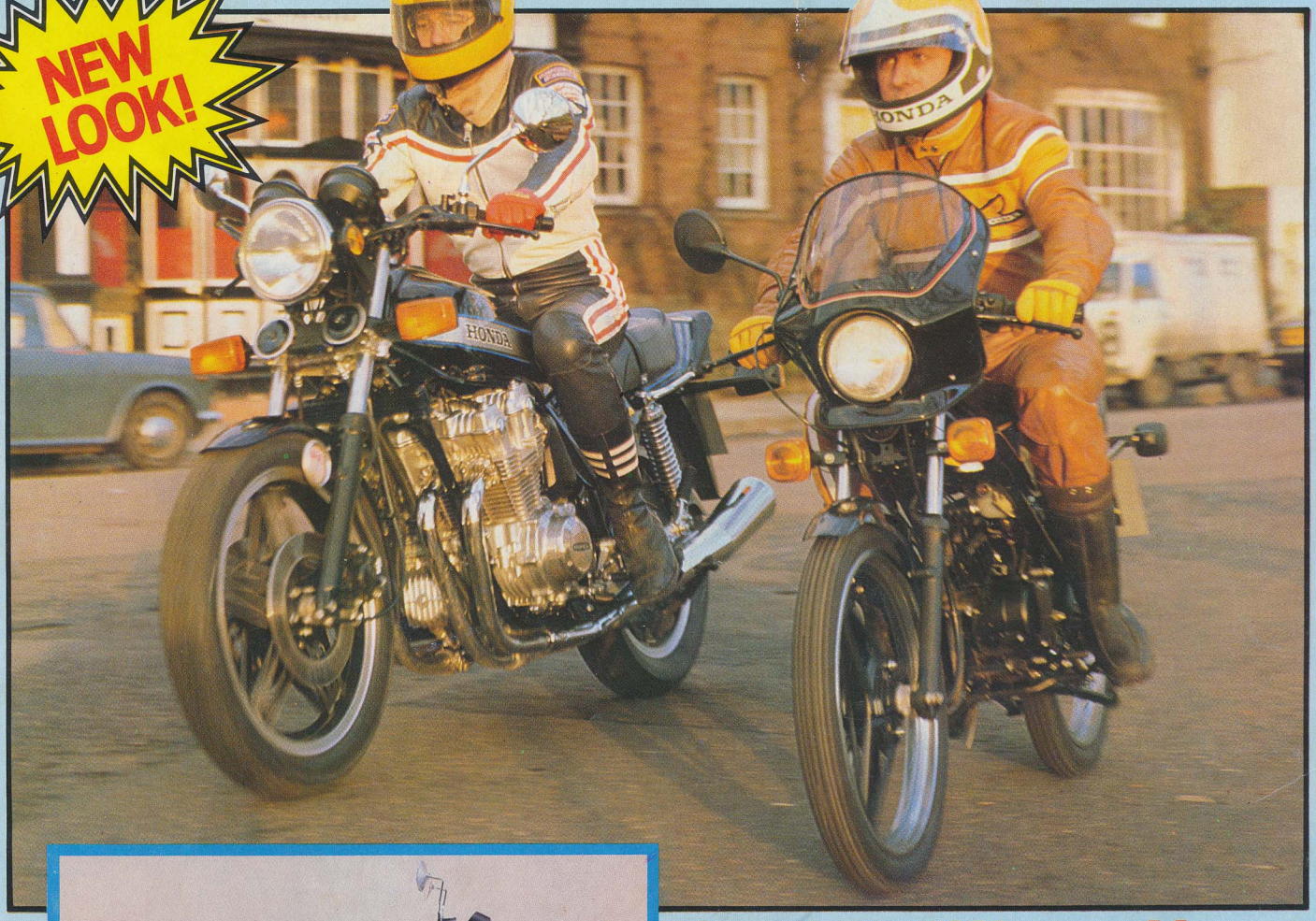

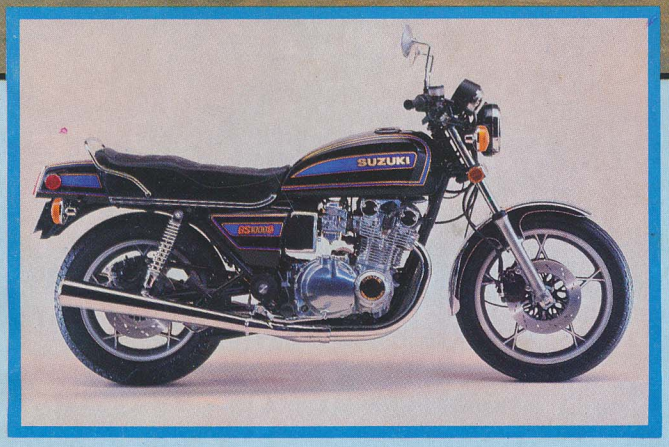

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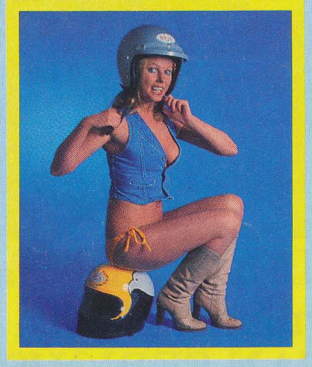

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250 SHOOT-OUT!

Which is the best — Suzuki 250X7 or Yamaha RD250?

Round One: Home tuning

THERE'S A little bit of arm wrestling going on in the office. Mine is being bent by the company's Suzuki X7 while Dave Walker's muscle is provided by his own Yamaha RD250C.

The idea is to see which one can come out on top in a series of monthly features covering tuning, streamlining and improving handling.

Both models are secondhand. The Yamaha was registered in 1977 and has only 3,000 miles to its credit. The Suzuki is a 1978 model with 8,000 miles recorded. You may remember it from the March, 1980 issue in the buying secondhand feature.

A fair bit has happened to the Suzuki since then. Unfortunately there is not the space to relate all the details. But the following are the main points.

The holed left piston was replaced with parts from Mick Hemmings Motor Cycles, Wellington Street, Northampton, at the following prices:

Item	Cost
Standard piston	£5.51
Piston rings	£4.44
Small end bearing	£2.27
Gudgeon pin circlips	£0.22
Two 92.5 main jets	£1.58
Total VAT	£2.10

With the 92.5 jets replacing the standard 87.5 items and the carburetter needles raised one notch above the middle position the motor ran passably well for general roadwork.

The motor was still down on power for, as yet, an unknown reason or reasons. The fastest speed seen had been 90mph indicated, equivalent to 78.0mph true speed.

It was time for the Suzuki to come under the magic spell of Leon Moss and his dynamometer at LEDAR of 10 School Lane, Baston, Lincs.

The Suzuki was restored completely to standard trim for its first dyno run. The 87.5 main jets were put back in, the K&N air filters removed and the standard air box and air cleaner replaced. The carburetter needles were left.

Biggest problem was getting the back wheel out. The spindle had corroded in so badly it took oxy-acetylene gear to expand the spacer and several hefty blows with a hammer to free it.

The standard worn-out endless chain was split by a chain breaker and replaced by a slightly used Tsubaki unit we had in the office.

Finally, bolted to the dyno with a new set of NGK B9ES plugs inserted, the Suzuki amazed us all by struggling to give a maximum of 17.9bhp at the rear wheel.

This compared woefully to the 28.5bhp figure given by a test model which went through the MCM radar at 100.5mph in the August 1978 issue.

The 92.5 jets were tried and made matters worse. Leon made up a flywheel extractor in order to slightly advance the electronic ignition so that it fired on the centre of the three flywheel marks.

The Phillips screws holding the stator plate had to be cold-chiselled off because their heads deformed under the pressure of an impact screwdriver. They were replaced by Allen head screws which just cleared the flywheel.

This tiny ignition adjustment made no different so the air filter was removed, but still power was down on the first run in completely standard trim.

A pair of brightly chromed Codnor expansion chambers designed for the X7 by Codnor Light Fabrications of Church Lane, Sawley, Long Eaton, Notts (price: £98.61 plus £3 postage) were brought into play.

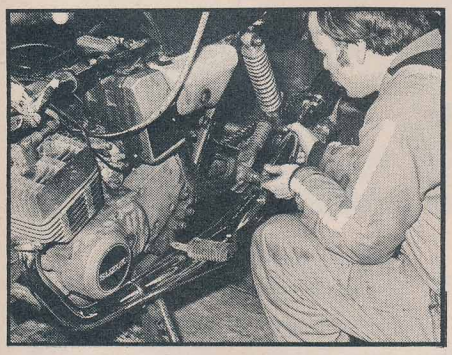
Suddenly the horsepower rocketted to 28.7bhp at 6,150rpm. This was the turning point. It was obvious the standard silencers were clogged and severely restricting the engine.

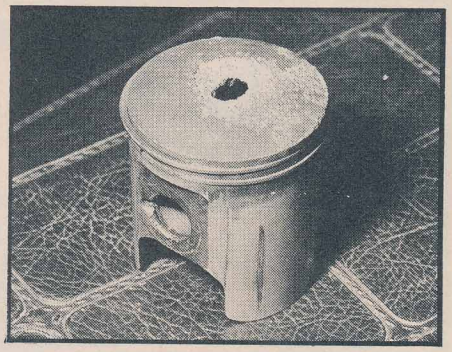
The next step was to sort out the main jetting (the machine was run under full throttle loadings while on the dyno).

The 92.5 jets were too weak. A pair of 100s were inserted in conjunction with the K&N air filters.

According to Leon the K&Ns offer no airflow restriction to this engine.

With the Codnor pipes the motor had become quite peaky and it was impossible ▷

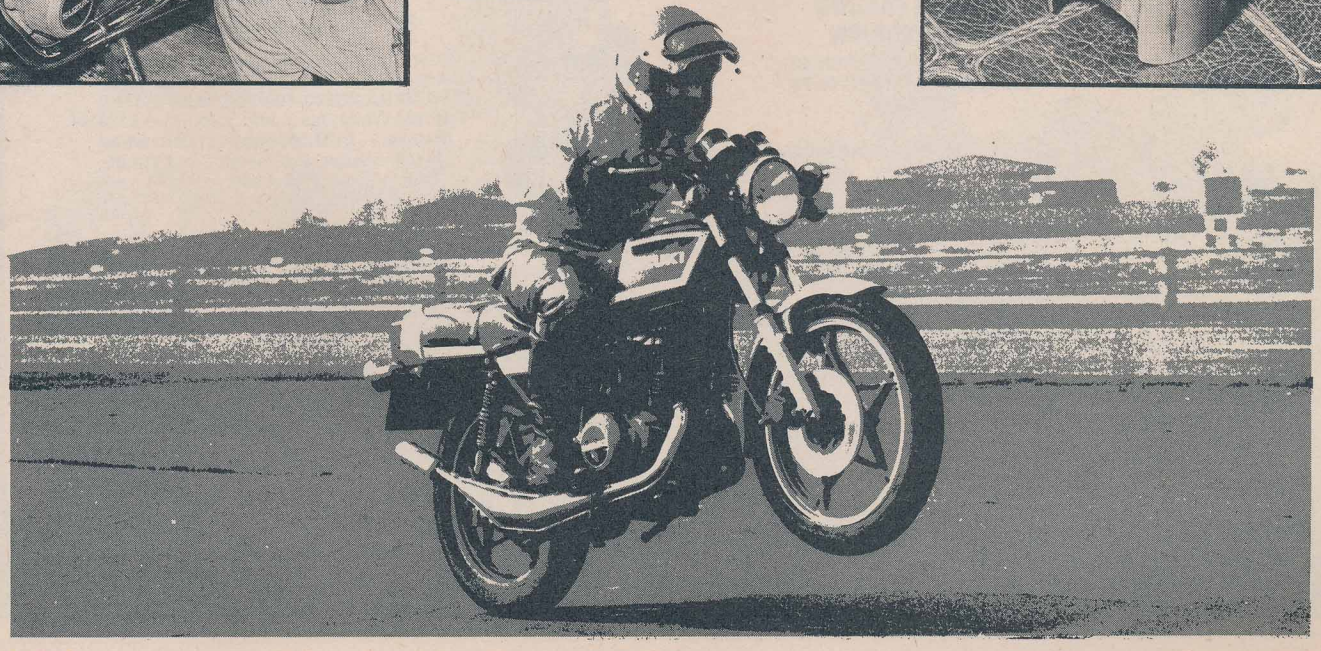




Left: Fitting the Codnor expansion chambers.

Right: The holed piston (see March issue).

Below: Acceleration on the Suzuki is now fantastic.



to hold the engine at a constant speed much below 7,000rpm.

A best figure of 30.5bhp was given at 7,300rpm. The jets were changed for 105s which gave almost identical results.

Leon reckoned as a compromise that 102.5s might be best. At the time of writing these had not been tried. But the machine was taken to MIRA where it recorded a best top speed of 98.84mph and a best standing quarter of 14.27sec with 90.19mph terminal speed.

On the road, the X7 now feels like a road racer. Power is reasonable to 6,000rpm when it suddenly zaps forward to the noisy accompaniment of the expansion chambers.

The X7 has pulled out of the slow lane and it's now running hard in the middle lane. Not surprising considering it is now giving more than 50 per cent more power than when it first dawdled into our lives.

Watch out for the next Suzuki v Yamaha shoot-out on the trail to power.

Brian Crichton

250 SHOOT-OUT!

Suzuki hits 98mph — Yamaha lags at 95mph

AS FAR AS I am concerned, Suzuki have played their ace and it isn't going to be good enough. To get anything like a respectable power output the X7 had to be fitted with expansion chambers.

I felt that if I could get close to their power output without chambers, fitting them should make the final result a foregone conclusion.

The bike was hooked up to the LEDAR Dyno where the first step with my RD250C was to remove the air cleaner, not just the element but the complete air box. The route from the carb intakes to fresh air is over a foot long and takes in two 90 degree and one 180 degree bends. Checking the standard jets these proved to be 115's and obviously larger jets would be needed to compensate for the greater air-flow and the change in depression.

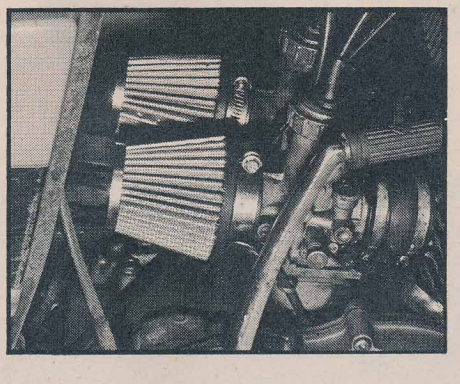
I started with 125's and tried to take a power curve — the bike wouldn't pull and much bigger jets were needed. To cut a long story short I tried going up in several steps until I reached 140's where the motor had gained one horsepower at peak, and a further two after the engine had "gone over the top" at 8,000rpm.

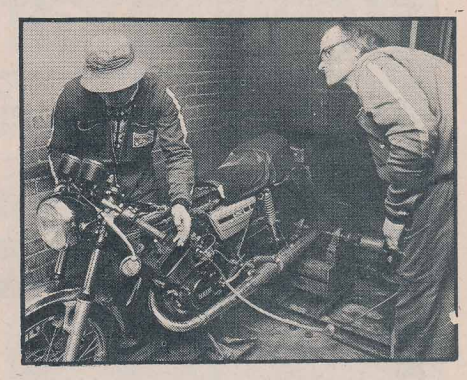
This gave a peak power output of 27.5bhp with a useful 27.2 at 8,000 — where standard it had only produced 25.5. Up to 6,000rpm the power remained about the same.

For the first stage of tuning I decided to stick with the inlet and see if any further gains could be had from cross-porting the manifolds. On the RD400 the two rubber inlet manifolds are linked with a half inch diameter tube which is often referred to as a "balance pipe".

I fitted this set up to the 250 with the view that the individual cylinders might use the link tube to "see" its neighbour's carb — it was Leon Moss's theory and he's usually right about such things. This would mean that each pot would be drawing mixture from *both* carbs, or at least its own and part of the one next-door.

On starting up it was obvious that the tube was doing something — the idle speed was up by just over 1,200rpm. The

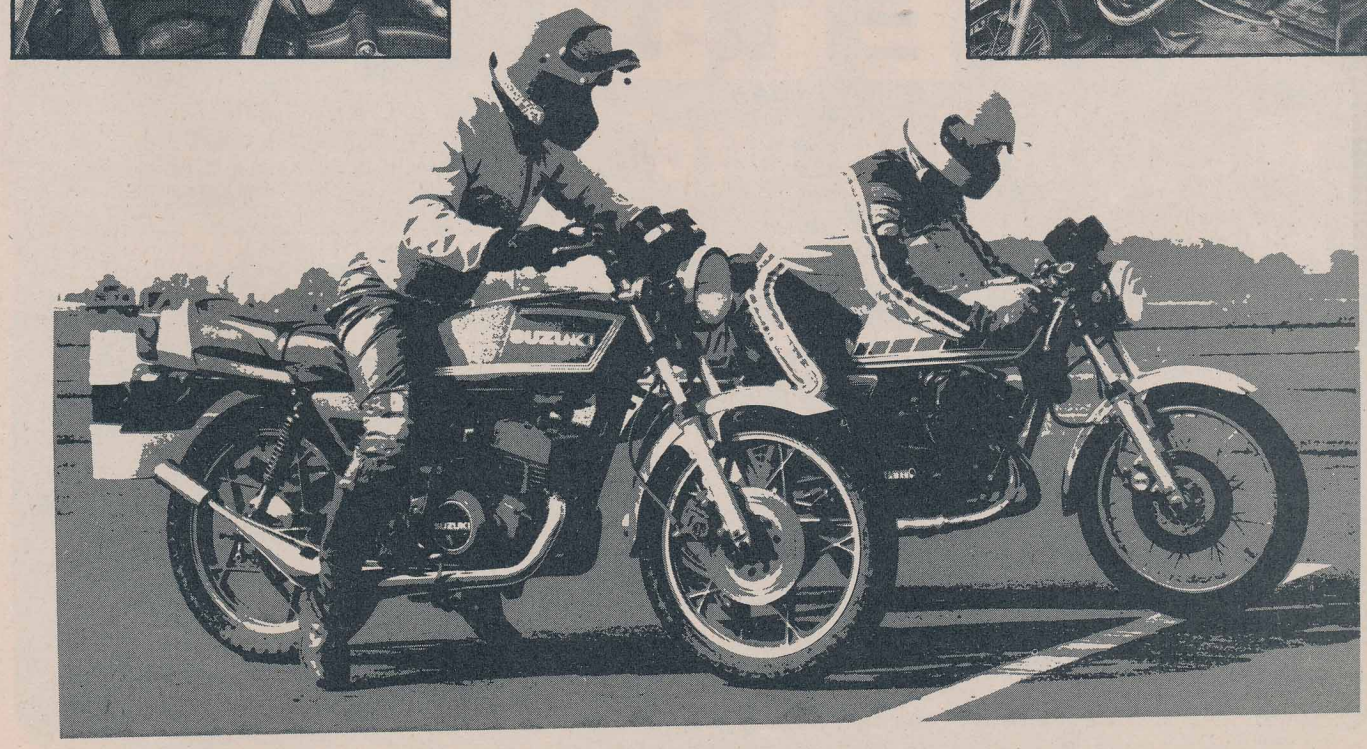




Left: K&N air filters on the Suzuki are non-restrictive to airflow.

Right: Dave Walker (left) and Leon Moss get to work with the Yamaha on the dyno.

Below: Acceleration shoot-out. At present the Suzuki is winning hands-down.



250 SHOOT-OUT!

throttle stops were used to regain the correct tickover and a power curve taken. At the lower end of the scale power remained the same but from 5 to 6000rpm there was a slight increase.

Once the motor came "on song" it gained nearly a whole horsepower leading up to the peak where it levelled off with a .3hp increase. The interesting thing is that after the engine had "gone over the top" the pipe stopped the power dropping away to the tune of one brake horse.

It would seem that the balance pipe does increase the effective intake area, but in its present state of tune the motor doesn't need a big increase — later on it will be a different story.

The main jets flowed the same amount of fuel with and without the balance pipe So it was obviously increasing the quality of mixture flow and not the rate. Checking the flow rate showed that the 140 mains were drawing off the same amount of fuel as the standard 115's plus air filter combination.

Since we were getting an increase in power for the same amount of fuel used we checked out the amount of power commensurate with a correct mixture and found that it was still running a fraction weak. However, since 140 mains were the largest to hand we had to be content with this for the time being.

While checking out the fuel flow we did come across one interesting point. With the balance pipe removed there was a strange increase in fuel flow at 6,500, just when the motor was coming into its real power band. With the balance pipe fitted the natural flow pattern was restored. This means that the balance pipe not only helps power spread it also saves petrol!

At the moment the Suzuki is winning on the engine brake, but power alone does not produce speed — and ultimately this is what the shoot-out is all about.

For the first track session the gearing of both machines was to remain standard and I knew that the Suzuki's power just evaporated after its peak at 9,000rpm. This meant that the top speed would be limited to whatever the gearing dictated at 9,000.

The Yamaha held on to a fair lump of its poke after peak revs and I was hoping that by reducing the air and rolling resistance I could get the bike to over-rev in top and hence go faster. To this effect I spent a long time lining up the wheels, balancing them and checking the chain adjustment and alignment. I also increased the tyre pressures to 30 psi to give a smaller contact patch.

To reduce the wind resistance I fitted tight clip-on bars and cut the seat away to lower the riding position. With rear set footrests I could tuck right in behind the clocks and the indicators were junked to further reduce drag.

At the circuit the narrow riding position and high tyre pressures gave the bike a knife-edge feel, even though I had changed the fork oil for Bel-Ray 30 grade and set the rear dampers to their mid-way position.

Coming off the banking, I tucked right in and peered between the clocks with one eye, as my full face lid vibrated against the fuel filler. The tacho swept around to 8500, already 500rpm over the peak, and began to edge further up the scale.

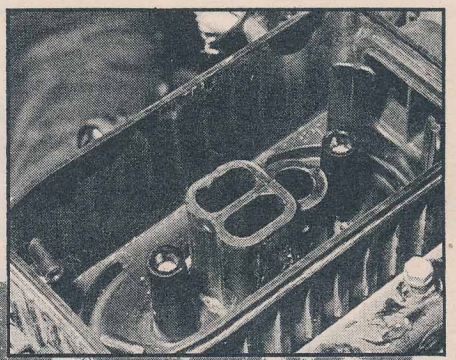
At the timing lights it was wavering between 8,750 and 9,000! At this state of over-revving the bike was doing 95.25mph — only three miles-per-hour slower than the Suzuki.

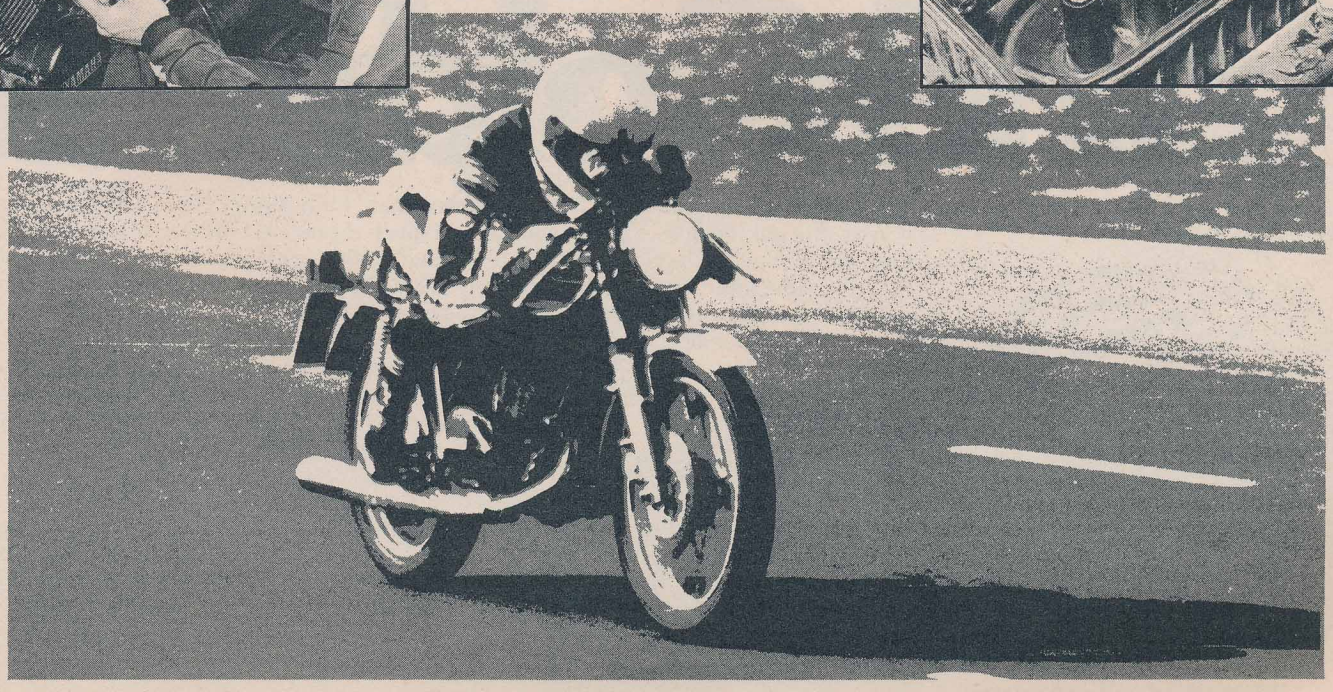
On the standing quarter it was a different story. The extra power of the Suzuki's expansion chambers, combined with the big weight advantage that it had, meant over a full second at the other end of the strip.

The Yamaha recorded a best time of 15.47 at 85.49mph. I'm not complaining about the Suzuki's light weight, but it is a bit unfair when its pilot also weighs two stone less than me.

For round two I have got to find a lot more steam — and go on a diet!

Dave Walker





Left: Changing main jets on the Yamaha.

Right: The airbox had to go.

Below: Clip-ons and cut down seat give bike and rider a sleeker profile.