

Hejira — it's Arabic for whirling dervish, or something of that nature. Danny explained it to me once but I didn't fully understand it even then. Suffice to say it's middle-eastern, mysterious and has absolutely nothing to do with motorcycles.

They — that is Danny Wilson and Derek Chittenden — are engineers to the race bike industry. They make all sorts of things and play with even more. Some of the projects are a bit futuristic, others are right down to earth and plain useful.

They make frames, steel frames because, unlike aluminium alloys, steel will not fatigue as long as it isn't over-stressed. The steel frame is, they claim, only 3lb heavier than a typical alloy frame and their real trick is to make it look just as neat as polished alloy.

Their own suspension linkage is very tailorable, and the rear strut is a Spax unit, built to Hejira's specification. Front forks are modified Marzocchi and there is a lot of thoughtful details attention around the design, like bolt-on footrest hangers and subframes. It makes it easy for the rider to make small adjustments to suit himself and to repair the inevitable crash damage. It adds up to a very practical — and cheap — package.

Hejira also make or supply a bewildering range of useful bits, pieces and gadgets. Ranging from electronic rev counters through to spherical joints and linkages, they seem to have all the things you forget about until the last minute when you discover you haven't got them!

We were impressed enough to make a few tentative enquiries. Maybe Project GP100+ would benefit from some trick chassis . . . The opening conversation was suitably vague:

"What can you do with a GP100?"

"Dunno. What do you want to do with it?"

"About 100mph."

"Oh."

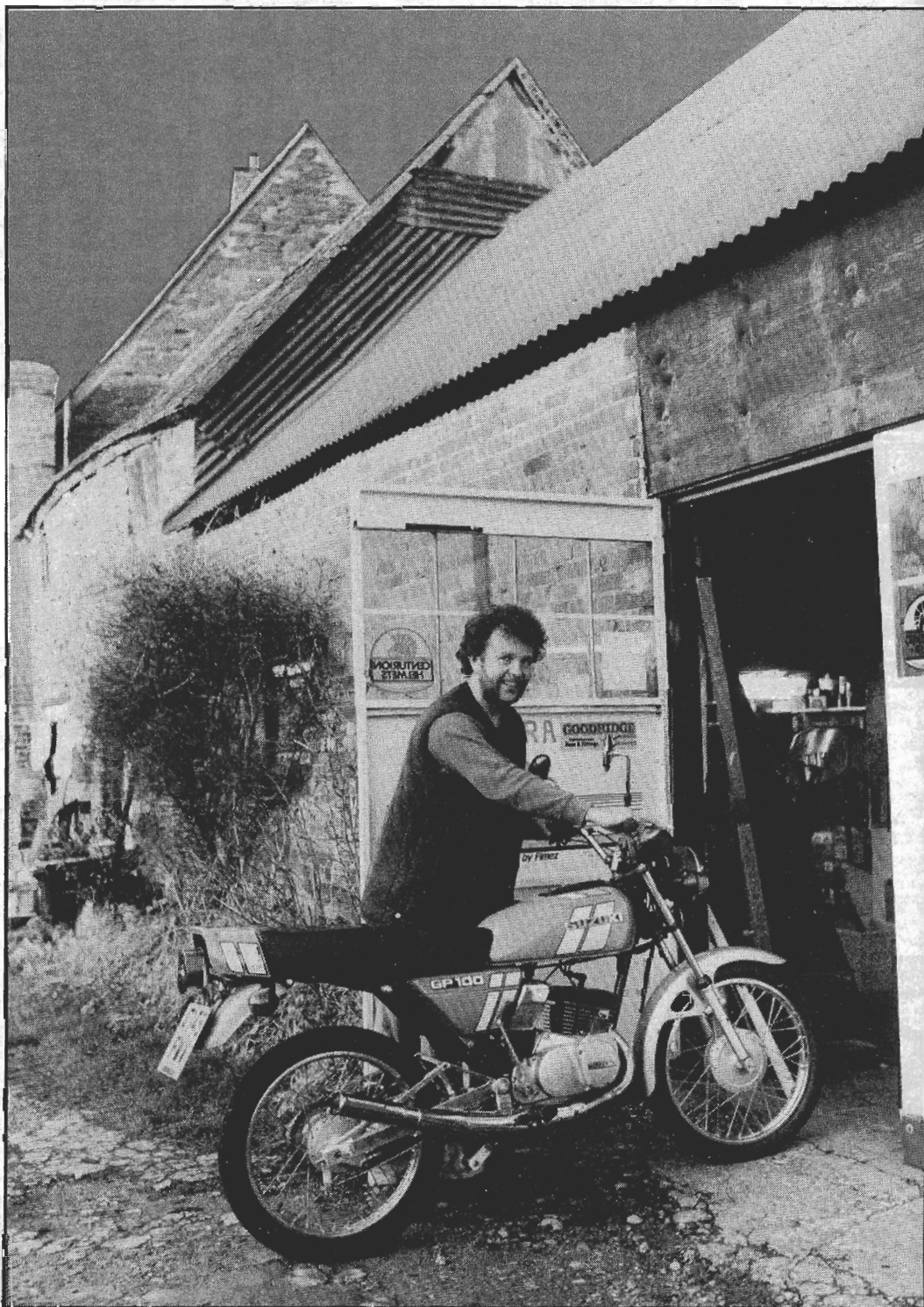
We finally confessed our ambitions to stiffen up the GP's front end, using 125LC forks, wider wheels and tyres, plus something both functional and cosmetic to match it at the back. On the grounds that it would make a change from their regular diet of Rotax racers, we were invited to take the GP over to the Stony Stratford workshop to see what could be done.

What actually was done was so impressive it stopped us all in our tracks for a collective double take the next time we saw the bike. But that's a few weeks later, although you can pause now and study the pics to see what I mean.

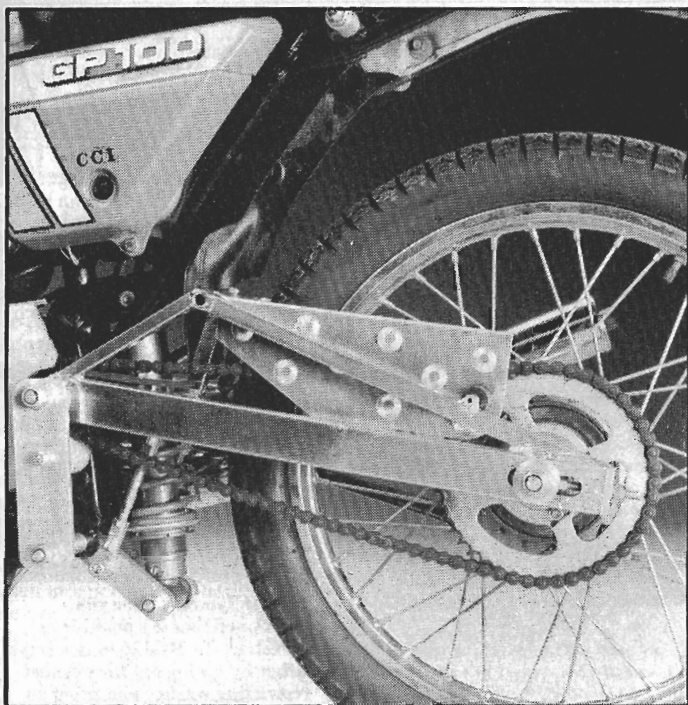
When I first showed the bike to Derek, the brief was left as open as possible. Can we monoshock it? If necessary, we can do without the oil tank or the air box; we need somewhere to mount rearset footrests; keep the same wheelbase but give us enough

UNSPRUNG HEROES

Hejira Racing work out a monoshock conversion for our project Suzuki.



Derek Chittenden wheels GP100+ out of the Hejira workshop: transformations a speciality of the house.



Adjustable shackles control the linkage to the Spax shock unit. The chain guard is a neat street-legal touch.

ride-height adjustment to get the right sort of steering castor when the forks are changed.

As you can see, Derek fitted their 125 race swing arm and suspension linkage, with a vertical Spax shock, and got it all in without disturbing the bike's original airbox, oil tank or battery compartment. It meets all the other requirements and, although the standard footrests are still in place, Derek has made up some plates which will bolt on, once we have decided where the seat and handlebars are going to be.

One big advantage of their set-up (and the basic design) is that it is so adaptable. We can now concentrate on the superstructure knowing that we can move the footrests around to get the best riding position.

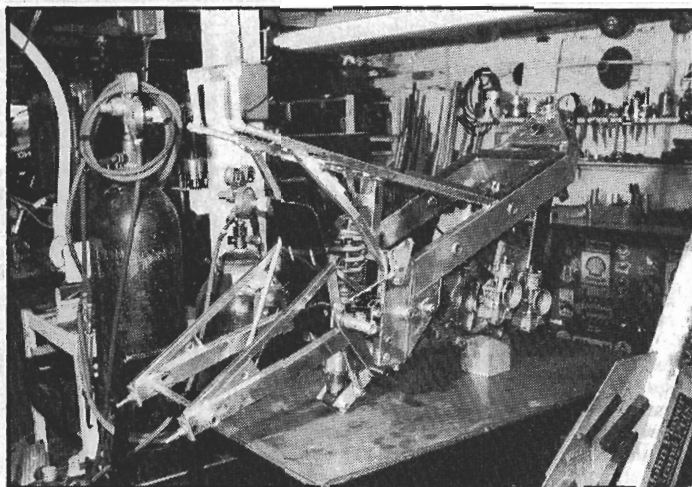
The leverage ratio in the rear linkage is 2:1, giving us 5 inches of rear wheel travel for 2.5 inches of shock travel. Rear wheel travel is only 3.4 inches with the stock arrangement.

The Spax unit has a 200 lb/in spring and has oil damping, kept under pressure by a Freon gas cell to discourage aeration in the oil. There are 14 settings for rebound damping and, while there is no provision to change compression damping separately, it is altered slightly by the rebound adjustments. The next step is to sort out wheels and brakes to build up a full rolling chassis. We have an interesting option at the rear brake because the swing arm arrangement gives us a choice of mounting for the brake's torque arm. It can be carried on the swing arm itself, or, it can be attached to the sprung part of the frame. In the last case, loading brake torque into the frame will make it react with the suspension; it can be used

to load up the rear spring, making the suspension compress. This is called **pro-squat** and it has a couple of advantages. First it complements movement at the front suspension, so although the front still compresses under weight transfer, the bike doesn't pitch forward but stays more or less level.

Second, because the whole machine is lowered, more braking force can be used before the bike stands up on its nose. Hejira are all in favour of this system and usually build it into their race frames.

The main reason for the chassis changes is that the GP100 has even narrower tyres than the 125 which



Hejira's main business: race frames, Rotax engines and all the linkages and spherical joints that a racer or special-builder is likely to need.

itself tends to be a bit twitchy at high speed. Add fairly bouncy suspension and we have reason to believe that the cycle parts will not keep up with the tuned engine.

The plan is to stiffen it up front and rear, but keep the quick-reacting steering geometry. The Hejira tail is the first step and we hope to match it with the complete front end from an **RD125LC**, mainly because this is known to work well at more than 100mph.

Negotiations are under way and with any luck we'll be grafting the Yamaha forks on to the Suzuki frame in time for the next instalment. There should be enough adjustability in Derek's design to make the rear suspension match the new forks, both for steering geometry and damping characteristics.

We'll also be changing the wheels for wider rims (which will give us a better choice of tyres), before moving on to some racy cycle parts and a decent fairing.

Naturally we're hoping that all these changes will give good handling plus some extra top end performance but at the same time we want to make some big cosmetic changes.

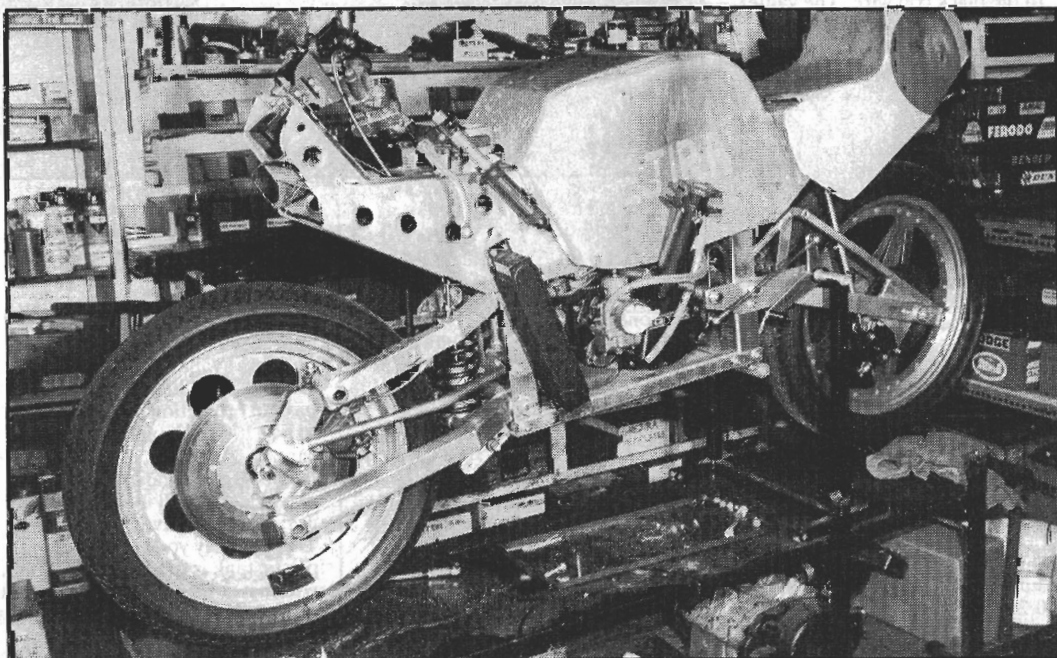
This was the most surprising aspect of the monoshock conversion. Despite the fact that the GP looked a totally standard, mundane, commuter bike (with an Allspeed exhaust), the Hejira swing arm has completely altered its appearance.

With no other changes at all, it now looks like a real flyer, which brings us back to Hejira; we are assured that the word is Arabic for flight, specifically Mohammed's flight from Mecca. Maybe it's not so far-fetched after all.

John Robinson

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Experimental work includes this hub-centre steered racer, plus aerodynamics and streamlining.