



**When your girlfriend's feet don't touch the ground and she falls off once too often trying to turn round in the road, the search for a quiet life can take you to extremes. Like redesigning the Yamaha LC350 chassis . . .**



# From the Crad

It's funny how events can concentrate the mind . . . Watching my girlfriend roll away from her prone RD350F was just such an event for me. Moments before, we had been shuffling forward in time-honoured fashion in the queue for the Isle of Man ferry, on our way to the 1990 TT races. It wasn't something to which I paid much heed. I simply accepted it as part of the routine attached to the TT. But then I'm male, 5ft 10ins tall, with long legs and can comfortably get both feet flat on the floor on most motorcycles. Cetra (my girlfriend) is a whisker over 5ft 2ins small (but perfectly formed) and can just get both feet down on a 125. Some difference.

It came as a rude and unpleasant surprise to realise that a simple, single action of the sort that I take for granted, can under the wrong circumstances, dump her in the road. I had blithely assumed that Cetra's 'margin for error' on her bike was about the same as mine on my bike. I was wrong. I hadn't considered just how easily machine weight, seat height and uneven ground can conspire to unseat a rider shorter and lighter than average.

It got worse. I was especially mortified after asking Cet to compile a list of 'problem areas' when it comes to bike design. The list was long and severe. Colour me stupid, colour me ignorant, but I just wasn't aware of the extent of the problem for short, female riders. Areas of difficulty included the following:

Stopping on uneven ground or unfavourable camber,

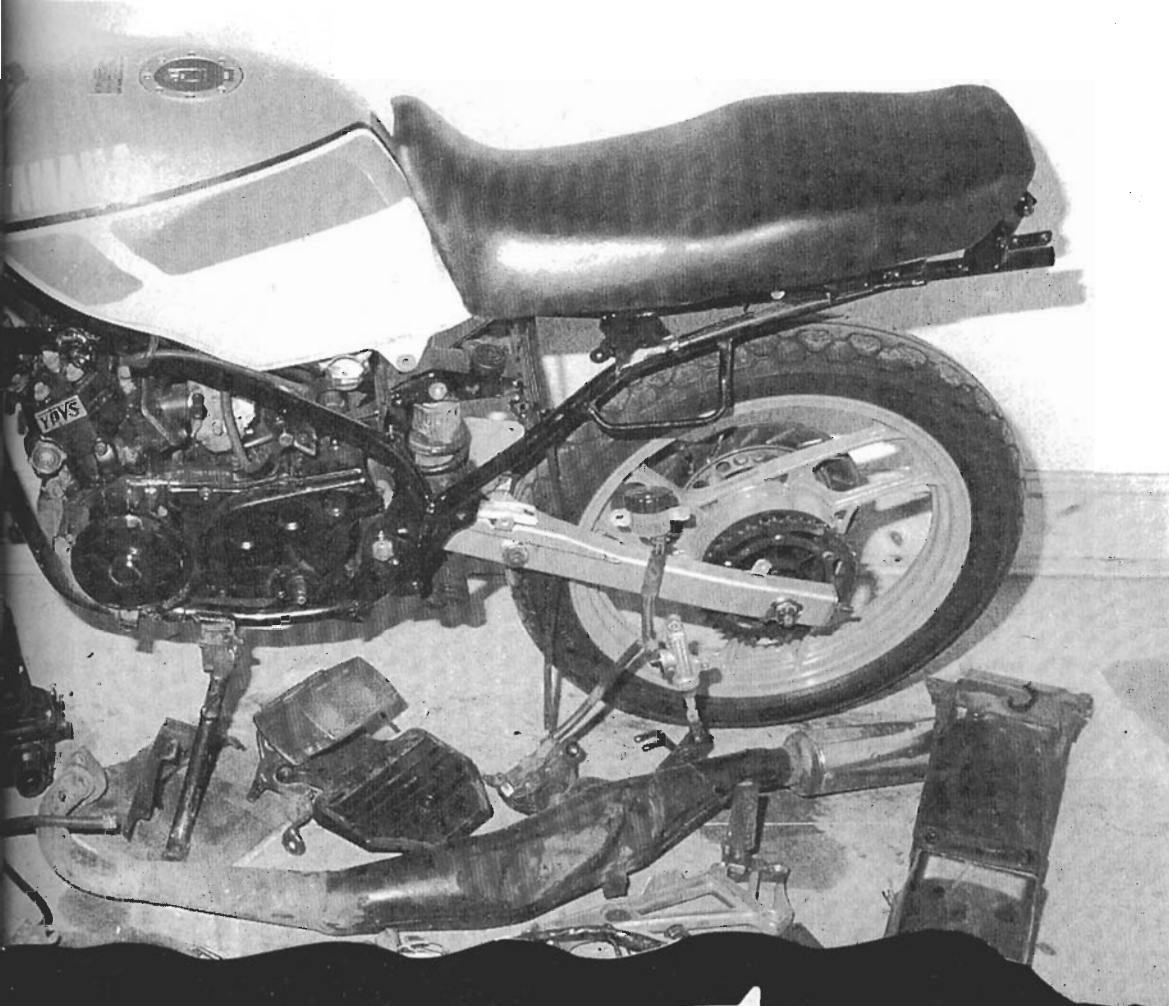
for example. With the problem made much worse when surfaces are wet or slippery. Chuck in a full tank of fuel (making the bike nicely top-heavy) and wave goodbye to balance.

Riding with a full tank-bag is impossible. As the bike had been bought specifically to enable us to tour Spain and Portugal, this came as something of a blow. Try to balance on tip-toe while at full stretch around a tank bag, and see what I mean. Then try and turn the bars. Then pick yourself up off the road.

Everyday actions like wheeling the bike around, and parking (especially in tight spaces) induced fear and loathing. It also made public transport a much rosier prospect.

If you're balancing precariously on tiptoes, you don't even have the option of 'paddling' the bike about; something that I would be completely lost without. And after all that, you still have to put the bike on its centre stand. Fine, if you have height, weight and leverage on your side. Bad news if you don't.

The relationship between A) seat height, B) inside leg measurement and C) static machine control is not difficult to figure out. If A is greater than B, loss of C is never far away. Besides the inevitable cost to indicators, mirrors, fairing panels etc., the damage to one's ego also has to be taken into account. In my experience this tends to be less of a problem for girls than for us men, but whatever the sex of the rider, self-confidence suffers as a result of every



# to the Rave

*Above: Before and during. You'll have to wait for after.*

*Right: Hejira. That's the noise Sumo wrestlers utter when they pick each other up by the underpants. Or the grunt Derek Chittenden makes when he displays his naked sylph-like frame*

embarrassing, low-speed spill. Plain bad news.

The other major bugbear is that of machine weight. As with seat height, this is more of a problem when the bike is not being ridden (when it's fallen on the rider, for instance, and a hot exhaust pipe is melting their oversuit). My theory (which is mine etc) is that problems start to occur when the ratio of machine weight to the rider's body weight exceeds 3:1. As an example, I am comfortable pushing and parking a VFR750 under reasonable-to-good conditions. A VFR750F-K weighs 446lbs dry; I weigh a skinny 147lbs or 10½ stone wringing wet. Manhandling a friend's ZX10 convinced me that any more was too much. The problem is exacerbated when the rider is shorter than average, as a bit of extra height gives a useful increase in leverage.

It must be said that these considerations (keeping machine weight and seat height within manageable limits) don't appear to unduly trouble the minds of modern motorcycle designers, most (if not all) of whom will be male. A quick glance at the spec sheet of any average bike will prove the point. The average four-stroke of 500cc or above will weigh 400lbs or more and have a seat height of 31-32 inches. A smaller capacity bike will weigh less and may have a lower seat, but why should girls be restricted to boring, gutless tackle?

Paradoxically, the only bikes which (literally) fit the bill are race replica 250 two-strokes, which have lower



seat heights (29–30ins) and weight (approx 300lbs).

The downside of course, is the knife-edge nature of their power delivery); either the most fun you can have with your leathers on when you're in the mood, or a sustained pain in the bottom when you're not. Cetra had a brief spin on a KR1-S at last year's TT and was mightily impressed with the lack of weight and seating arrangement, but not so sure she could live with the motor on a more mundane everyday basis, let alone go continental touring on it. The only other option is a 'custom' bike, but only a braver man than me would suggest that she gets one of those . . .

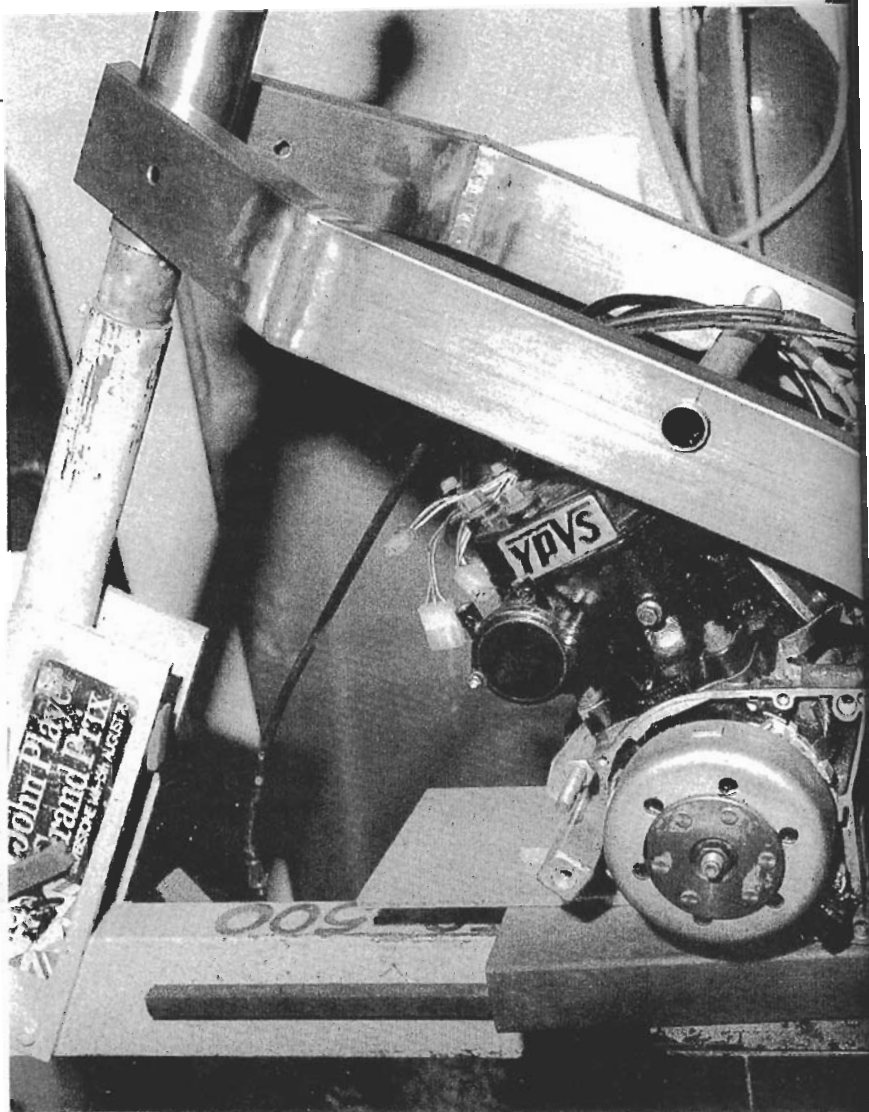
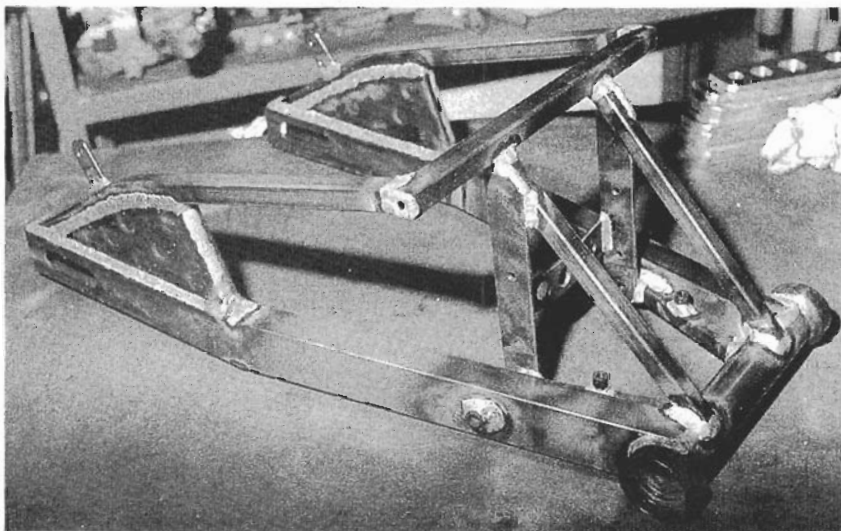
So; a neat little dilemma, *n'est ce pas?* One of the reasons we'd gone for the RD350F as a suitable bike for Cetra was because it combined a reasonably tractable motor with comparatively light weight and snappy performance. It's also great fun, looks good and has street cred. Unfortunately the seat height is too tall, even with a chunk carved out of the foam. At 350lbs dry, the bike's weight is also on the high side for Cetra's 98lbs body weight.

Which brings us (at last?) to the subject of this particular article – a Hejira-YPVS 350. To anybody with more than a superficial interest in road racing, Derek Chittenden (Hejira by another name) will need little introduction. At all levels below the insane money world of the GP's, Derek's bikes have numerous successes and championships to their credit, most recently with single cylinder, four-stroke Rotax engines, but also with two-stroke Rotax and Yamaha motors. Derek is a frame and chassis builder. Simplicity, common sense and first-class engineering skills are his strong suits. Bullshit and inflated prices are refreshingly absent. He is also an exceptionally nice bloke.

I first heard about Hejira when it became apparent that a better rear monoshock was available for my own, old RD350LC. Like a lot of other people I bought a Spax shock from Derek and was impressed by the difference it made. He later grafted a pair of 35mm Marzocchis onto the front end, and built a superbly rigid, box-section steel swingarm for the back. The workmanship was immaculate, the cost was reasonable in the extreme, and the handling was transformed.

So when The Plan to equip Cetra with a new bike was first mooted, it was a foregone conclusion who was going to get my business. The Plan ran as follows:

1. Get hold of a 'damaged repairable' low mileage YPVS. Keep the engine and ancillaries, electrics, dual seat, switches and locks and sell anything that's surplus and in one piece.



*Bracing and gusseting at its finest. The frame design is not unlike that you might see around a Grand Prix pit if you didn't get a door slammed in your face first — and all it's got to deal with is a weedy Powervalve*

*Serious swingarm or what? If Cetra doesn't get her knee down first time out without falling off, Graham Stewart has sworn he'll eat it (her knee that is)*

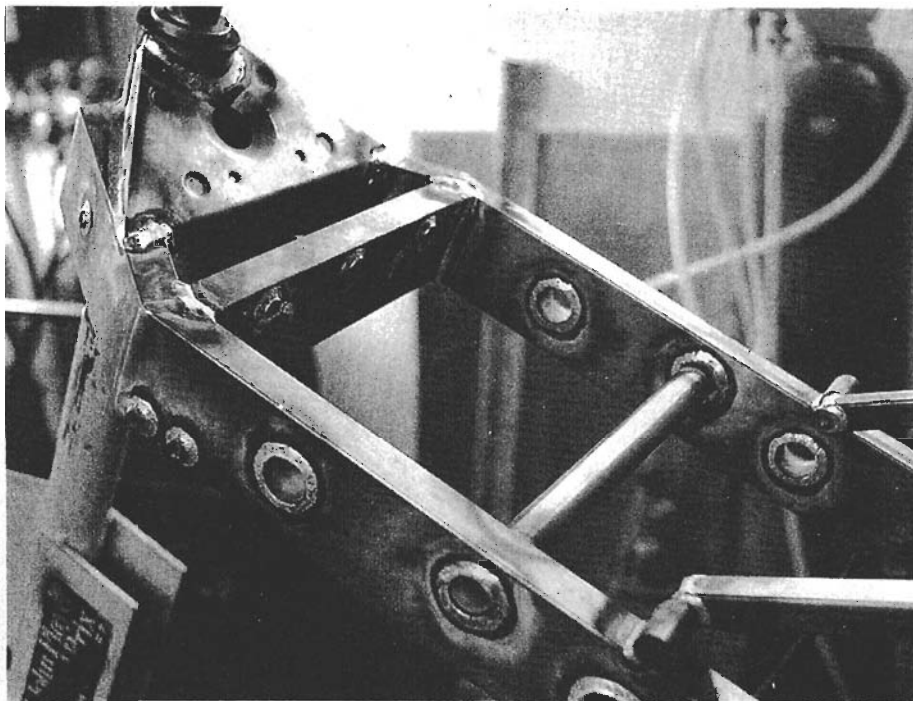
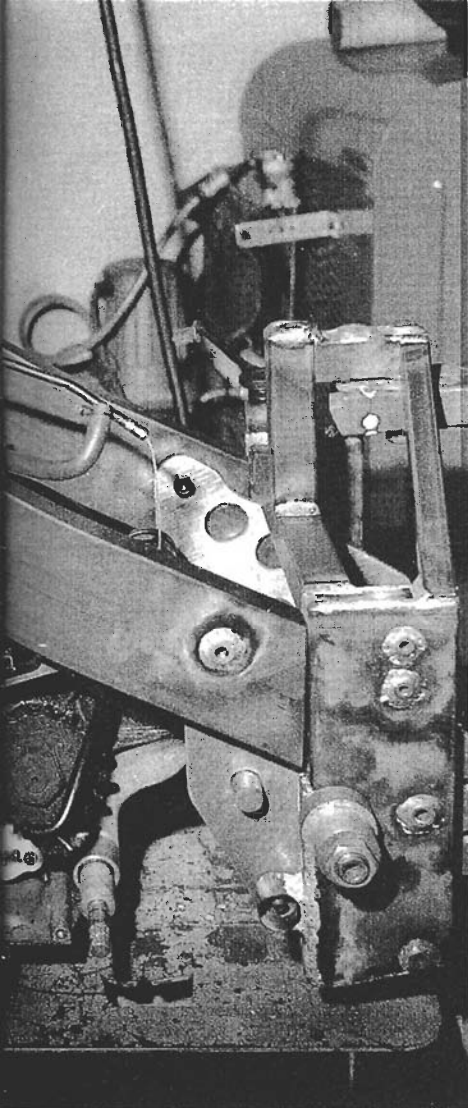
2. Replace the standard Yamaha wheels, brakes, suspension and tyres with superior (and lighter) tackle.
3. Cart the whole lot down to Derek and ask him to hang it all on a suitably modified (ie lower and street-legal) racing frame.
4. Paint it pretty. Wrap it up in a big pink ribbon.

The first step was to get hold of a suitable wreck. This turned up in the shape of a 'stolen recovered' 1989 F-reg YPVS. Cash to the tune of £750 bought me a red and white F2 from Bridge Street Motorcycles of Wednesbury with 5500 miles on its smashed clock. The good news was that the frame, wheels and forks were undamaged and saleable. The bad news was no compression when turning the motor over. A rebore and new pistons soon solved that and meant that Our Ron (Wylie & Holland's ace spannerman) could give the engine internals the once-over and pronounce on its health (or not). Pretty soon, Ron presented me with a newly-restored lump and pronounced it a runner.

The fairing had been comprehensively trashed, not one panel escaping unscathed. But it still yielded up a treasure-trove of grommets, anti-vibration mountings, brackets and fasteners, all of which could be used. It served to illustrate just how many components, insignificant on their own, help to make up a modern motorcycle. Buying all these individual, fiddly bits would cost a fortune and be a nightmare to order. The 'donor bike' approach is really the only way to go.

Virtually all the rolling chassis parts have been uprated; the only F2 parts re-used are the fork yokes and rear brake master cylinder and caliper. The forks are my old 35mm Marzocchis (upside-downers would be nice, but are too expensive), and rear suspension is courtesy of multi-adjustable Spax monoshock. An ISR 4-pot caliper and 320mm fully floating cast iron disc





take care of braking duties at the sharp end. All brake lines are of stainless steel braided hose. Front brake and clutch levers are dog-legged to cater for dainty digits.

The wheels are Astralite, 3.5in rim front and 4.5in rear, with Michelin Hi-Sport Radials in 120/60, and 150/70 ZR17 section. There's room to fit a 160/60 ZR17 if necessary. The frame and swingarm are of unfashionable box-section steel, but with half the weight and several times the rigidity of the Yamaha originals. The main offside frame spar is blanked off at both ends and doubles as the oil tank, saving space and weight. The workmanship is at once exquisite and immensely strong.

The bracing and gusseting around the steering head is worthy of special mention; this baby could stop a charging rhino and emerge straight and true. The forethought and attention to detail displayed in the frame construction is exceptional. The major frame spars are strengthened at regular intervals by cutting out circular sections and brazing in lengths of round-section tubing. This has the additional advantage of suppressing ringing in otherwise large, unsupported wall sections, and it also provides holes through which wiring, cables etc can be neatly routed. Elegant, simple and effective.

The frame is identical in all major respects to those Derek sells to his racing customers, but with a modified subframe to take the standard F2 dual seat, tail-lights and sidepanels. The alloy tank is some four inches shorter than the racing version and incorporates the F2 flush-locking filler cap. A sidestand, grab-rail and all the mounting points for the Yamaha electrics/powervalue bits and pieces are also provided. The problem with the RD350F's centrestand has been deftly overcome; the Hejira-YPVS doesn't have one (it gets in the way of the

monoshock). Who needs a centre stand anyway?

While it may be specified like a racer, this bike stands or falls (quite literally) by how it copes with the mundane activities of the daily grind. It must be equally at home touring and scratching; as manageable in the High Street as on the TT course. A bike for all reasons. Right now the bike is in that stage where much is expected, but nothing can be demonstrated. We tried to shrink the bike in every direction, but is that seat going to be low enough? And will it be ready to take to next year's TT?

The answer is yes. At the time of writing, the frame had just emerged from the jig and was about to be powder coated, along with the swingarm and other bits and pieces. What colour will it be? How much did it all cost? Where did all the components come from? Who (besides Derek) did all the work? When does Derek Chittenden become the next Pope? The answer to all these and many more questions will be available next month in part two of this riveting tale. *From The Grave To The Cradle And Beyond.*

Words and pics by Graham Stewart



**Top: Jiggery pokery. The YPVS motor during its first fitting. Derek the frame man shuns the use of alloy for his frames. It's only a passing fad anyway. This is seriously strong box-section steel and still half the weight of the original Yam's frame. Above: This bike will be so special it'll have two alloy petrol tanks. Actually Cetra's will be the one on the left, four inches shorter than the Hejira racing job on the right**