

Barry builds a real beauty

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AS so many things do, this project started with a phone call. My good friend Mike Parry phoned to invite me to look at a bike he was building.

I soon found myself admiring an engine loosely supported in a modified frame.

He had bought a Honda CR500RG rolling chassis and a Honda XL500RC 4 stroke trail bike engine.

Having borrowed an engine blank he had some radical frame surgery carried out by a road racing engineer in deepest Wiltshire.

Mike had a pained look upon his face, making statements like 'I've got to modify the rear brake pedal, build an exhaust system and find some way of fixing a side stand. Then of course there is the speedo, lights and tank.'

He could see my eyes light up and as he was not looking forward to all the hassle we struck a deal.

Ability

The next day chassis and engine were duly delivered and I am sure Mike breathed a sigh of relief.

Both Mike and I like the characteristics of four stroke engines for off road use.

I am 6'3" and 13 and half stone with pretty average off road ability. The result being that a big four stroke suits my size and riding style.

I have had a few of the standard trail bikes, including a Honda XL500S, Yamaha XT500 and XT550 and a Honda Transalp.

I have always found these to be great fun on the road, but not so good off road, with the result that I have spent years trying to find or build the best compromise machine.

As I have been riding with light 250cc trail and enduro bikes, my ideal machine had to be light, quick handling and have bags of torque.

My first project was to put an XL500S engine into a 1970's CR250 motocross frame.

This bike handled well but suffered from

pretty bad vibes through the bars and footpegs.

During one MCC long distance trial, this hybrid reduced my fingers and feet to agonising pain. All the same, I wished I hadn't sold it.

This time, Mike Parry had put an XL250 engine into a '79 Maico frame and despite having a dodgy engine, this un-depowered formula worked quite well.

Several years later that same Maico frame came back into my hands and I decided to build a XT500 engine into the frame. I was not totally satisfied with the end result.

I hadn't finished the machine as well as I would have liked and the chassis was somewhat dated.

However, another mate, Chris Pullen, took this bike on and he is very happy with it. It runs well and is ideal for MCC long distance trials.

I was now looking forward to working on this latest hybrid.

Mike's monoshock CR500RG frame had been quite radically altered to take the XL engine, based on the principle employed by some of the racing four stroke special builders that the engine is slung under a cradle. The engine provided frame stiffening. The CR front down tube was cut off, together with the bottom tubes.

The new cradle was then constructed using Reynolds tube, brazed into position.

Unfortunately, the frame was constructed without having the exhaust system available.

However, impending problems with the exhaust pipes were not apparent at this early stage.

The first task was to sort out the rear brake pedal. The stock allow pedal would not fit around the XL engine and had to be discarded.

A new lever was fabricated from a reshaped Maico pedal with the bearing and pivot welded to the rear of the foot peg position and the rear

SOMETHING SPECIAL

wheel torque arm was separately secured.

As all trail riders know, a side stand is essential to prop up the bike for a gate opening, etc.

The side stand came from my local off road dealer - Ford and Ellis's scrap bin.

The stand's pivot block was altered in shape and angle before being welded into position on the frame.

Inevitable

The exhaust system had been ordered by Mike from Micron and was supposed to be unchromed ready for the inevitable cutting and shaping.

When the exhaust pipe and silencer arrived, the system was all chromed except for the two front down pipes!

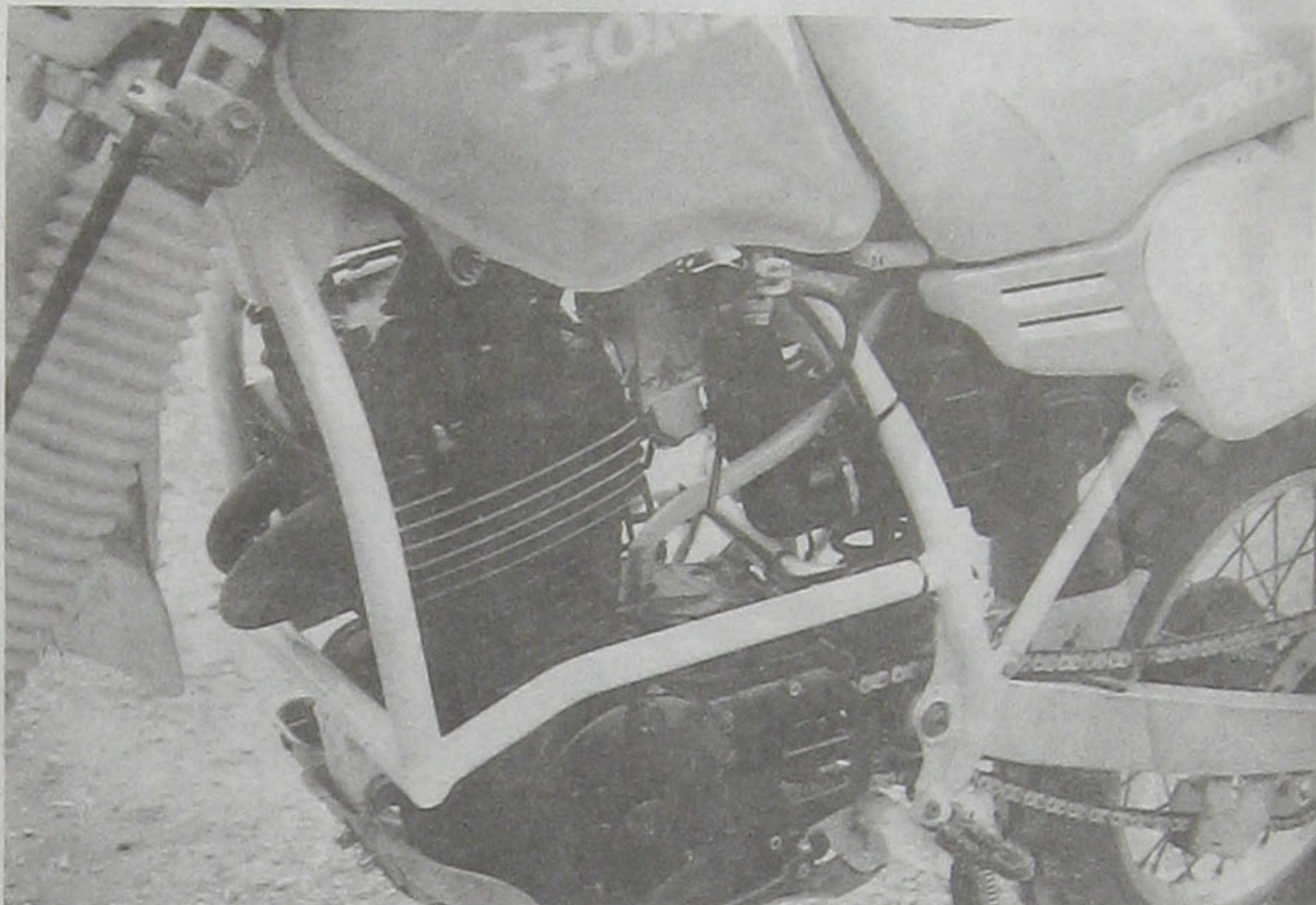
Major cutting and reshaping was necessary to the pipework in order to fit the frame.

Most I did myself, but the welding of the chromed sections I could not manage. The exhaust went to and from a specialist welder several times before a satisfactory fit was made.

The bend around the front down tube was very tight and very close in tolerance. Now it's done, it looks really neat.

As the bike was to be registered for the road, a speedometer was required. A bicycle computer provided speeds up to 99 mph, an odometer, lap time, average speed, etc. all in a very small and light package with a small wire down to a sensor secured on to the front fork and magnet built into the front hub.

The carburettor Mike supplied with the engine was a new flat slide Mikuni. Mike bought it through a private ad. The previous owner claimed it was for a Honda XR500. Not true. It was off a RM Suzuki 2 stroke. This was not suitable for the engine.



A close up shot of the engine on the new hybrid bike.

There is a great deal of work involved in converting a 2 stroke carb to suit a 4 stroke, including the filing of spray tube, filling the slide cut away, needle changes and jet changes.

I managed to get the engine to run reasonably well on the Suzuki carb, however, the flat slide is designed to be lubricated by the oil in a 2 stroke mixture.

In a 4 stroke application the oil is not present with the result that the slide stuck, usually wide open. Not good for the peace of mind.

Exciting

I had to invest in an Amal smooth bore and found the advice and service from Amal to be excellent. When fitting the Amal, the only change required was to drop the needle.

The performance of this mildly tuned engine, with the Amal in place, is very exciting, yet well behaved at tickover and low revs.

The original CR petrol tank was not

suitable so an XT350 tank was located which required very little alteration to fit. Appropriate lugs were welded on to the frame and tank.

It all sounds easy, but a lot of time is spent checking on a wide variety of stock parts before the right one can be found.

Electrics were standard XL500. The handlebar switch controls required were lights on/off, pilot and headlight, high and low beam and engine cut out.

All this switching was built into one unit using internals from several different switches.

Now I could look forward to the easier parts of the job. The plastic bits and lights were 'off the shelf' and a seat cover was purchased to sharpen up this styling.

The whole machine was stripped down and the frame, sent away for sand blasting and stove enamelling in yellow.

I sent two frames to the enamellers, one was to be yellow, the other black.

Murphy's law dictates that the frame to be yellow should be black and the frame to be black should be yellow.

This is exactly what happened. I returned the frames for re-enamelling and I was in luck. The frames returned correctly coloured.

Vibration is a common problem of heavy 4 strokes in light 2 stroke frames.

In order to soak up any tangles, I filled the frame with expanded foam, purchased in a spray can from the local builders' merchant. It virtually eliminated the vibration problem.

After many hours careful reassembly, the day finally came when the machine was

wheeled out of the shed for the first test ride.

After months of hard work I was very excited and a little apprehensive.

One good prod at the kick start resulted in a backfire and a shattered kick start pivot. What a disappointment.

A replacement kickstart was ordered and after a frustrating wait it was delivered. I promptly sent it back after being presented with a bill for £52.00 for a totally unsuitable item.

Friend Chris Pullen came to the rescue by adapting the old Honda spline and pivot to suit a Yamaha kick start arm, a much stronger and more satisfactory arrangement than the original. I remember that the kick starts on our original XL500 Hondas were never the most robust of items.

The relationship between the kick start and foot peg was a problem I had encountered before.

On a trail bike the foot rests are a long way forward with the result that the kick start easily clears.

Trepidation

On a motocrosser the foot rests are much further back. I did not want to reposition the rests as this would clearly spoil the balance of the machine.

The solution was to make a mechanism, operated by a handlebar lever through a cable to a lifting arm, to lift the foot rest clear of the kickstart. Depress the lever and the foot rest simply folds up out of the way.

With the new kick start fitted, the machine was fired up and ridden with trepidation around a field. Nothing fell off!! Not

even me. In fact the bike felt really good.

Longer and faster rides confirmed that the machine was reliable, powerful and vibration free.

The handling was reassuringly stable in a straight line and controlled slides around the relatively flat field were a joy.

As to performance, the machine has not as yet been ridden in anger as I am going through the lengthy process of road registration. Time will tell.

The engine has had some tuning work, comprising a Honda 810 camshaft, mild gas flow ports, shot peened con-rod and gears and, of course, the Amal smooth bore carb.

The engine characteristics remind me of the HL 500 Yamaha 4 stroke motocrosser I once owned and registered for the road.

The Honda power is more easily managed and slightly less savage than the HL. Without doubt, it is more powerful than the standard Honda and, combined with the much lighter chassis, is a more impressive machine.

My riding ability never did do the HL justice, particularly off road. It really was an animal. The Honda promises to be much more fun.

These days I get as much satisfaction out of building the machines as I do from riding them. There is always the unknown element and the anticipation of the first ride, which tells you if all your work has been successful or in vain.

I look forward to the next phone call. Who knows, Mike may be finding my next project now. How about an LC350 engine in a 125 motocross chassis?



Involved in the project were - from left to right: Chris Pullen, Barry Shakespeare and Mike Parry.