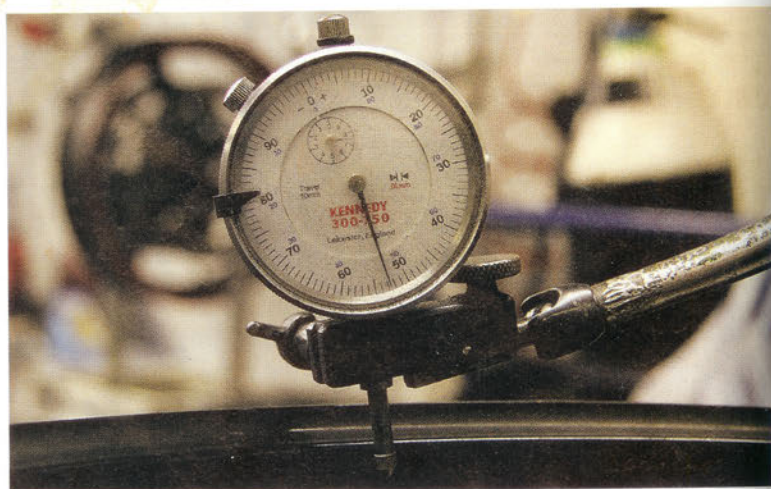


The Dirt

THE LOWDOWN ON
BUYING, SELLING
AND IMPROVING
YOUR CLASSIC

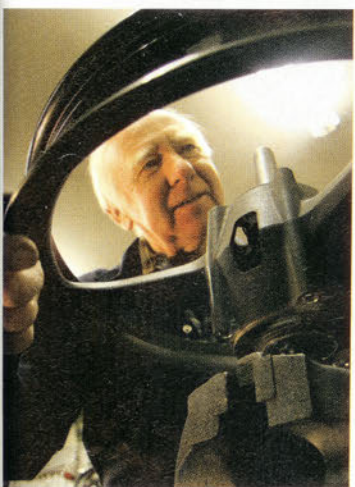
THIS MONTH:

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MAKE REARSETS
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Nine pages of shiny and rusty, running and wrecked classic bikes for sale. Now, where's the housekeeping money?



Very close tolerances can be achieved with a dial gauge

A BMW R60 frame is wrapped in the Motoliner jig's embrace. Tom Palmer applies the pressure



Casting an eye over it - Ray Palmer

EXPERT ON...

FRAME STRAIGHTENING

Maidstone Motoliner have been unbending motorcycle chassis, straightening forks and pressing the kinks from cast wheels for over thirty years. **Ray Palmer** explains what can be done to get a bike back on the straight and narrow...

Interview & Photography **Danny DeFazio**

Often owners simply don't notice that their frame is bent. It might be just minor damage. Sometimes it's not until someone else rides the bike, someone unfamiliar with it, that the problem comes to light. But usually, you'll know soon after a bump that there's something wrong. You should 'sight' the bike carefully all round and look for obvious buckling or fractures. The human eye is fairly good at spotting small angular changes. But if you can't see any damage and still have doubts, try turning the forks from side to side and looking and listening. Things might have tightened, or loosened. Paint might have flaked off. Brackets may no longer line up. Owners can try and measure a few angles and dimensions, but not many people will have the right equipment. If you've got serious suspicions, it's best to take it to a specialist and have it checked out properly.

Our main repair job is bent forks - which often bend the chassis too. Usually, the damage is around the yokes and headstock. But impact damage can migrate anywhere, so we check everything as a matter of course. If the stanchions haven't been creased, we can usually straighten them. Creasing will generally reveal itself as an indent in the tube, usually where the back of the yoke has been driven down into the stanchion tubing. It's pointless, and it can be dangerous, to try and repair a crease like that. And in any case, replacement stanchions are almost as cheap. Straightening a stanchion is generally a matter of putting the fork tube on vee-blocks and using a hydraulic press to true them. We use a dial test indicator to check the run out and we work to manufacturer tolerances, or better.

We begin by talking to customers and asking for details of what's bent and how it happened, and then we give advice on remedies. We do discuss creasing on the phone, but we really need to see the bike before we can confirm the extent of the damage. It's not always clear until we take a look.

The Motoliner itself is a jig. You attach the motorcycle primarily by using the swinging arm pivot points. If it hasn't got such points, perhaps

because it's a rigid frame or plunger bike, we have to pick up on symmetrical frame points on either side. If we can't get that, we have to improvise. It can get quite tricky. Once the rolling chassis is attached, you can measure the rake and trail, the headstock angle, and the wheel alignment. Not all motorcycles have the front and rear wheels in line, by the way. Some shaft driven bikes are out of line a few millimeters or so. We're never sure why that is despite asking manufacturers and experts. There's no clear answer.

With the measurements taken, the bike is clamped into the jig. Then, using mandrels, the headstock is either pushed or pulled hydraulically to the correct angle and the correct positioning, and carefully re-trued to the centreline of the chassis. Steel and ally are very plastic materials and will generally yield to the right pressure without much difficulty. The trick is to keep the bike secure and constantly recheck angles and measurements; something that would be very difficult to do at home unless you have a suitable jig or fixture. We can also straighten subframes and swinging arms in much the same way.

We do sometimes have to cut and repair a frame. One bike that we're working on at the moment has a frame that's quite badly damaged because it was heated up by the owner and hammered into place. The job wasn't very well done and it left a lot of damage that can't simply be pressed out. We've fitted new tubes made from good quality steel stock and cut and re-welded, taking care to internally sleeve the tubing to avoid a circular breaking point. Welds will be ground and smoothed and finished, and when it's done you won't know that it's been repaired. It will be as good as, or better, than new.

Aluminium is a bit more tricky to work with than steel, and the design of Delta-box type alloy frames means that it takes more time to set up the various hydraulic jigs and presses that we use. But we do offer a ride-in service that needs to be booked. With that, we offer same day frame straightening which is useful for anyone who has



Alignment is everywhere at Motoliner. Never mind forks – just look at those spanners

to travel any great distance. If it's a steel frame, the cost is usually £150-£200. Aluminium alloy frame repairs are in the region of £200-£250.

We want the cosmetics taken off a bike before we start work – all the plastic, the seat, the fuel tank, headlight, front mudguard, exhausts and carburettors. Basically, all we want is an engine bolted in correctly at all mounting points with little else around it. The bike ideally needs to be on its wheels, with swinging arm, rear wheel, shock absorbers and forks. But we can handle a frame, engine and rear wheel without the forks.

Some frames can be bent inches out of line.

Others you can't even begin to look at because they're too badly damaged. But overall, there's not many that come in to us that we can't repair. I can count on one hand the number of frames in a year that we've been unable to fix.

Headstocks are, as you'd expect, a critical area.

If there's any serious damage there, you need a new frame. We don't make or fit new headstocks, although we have the skills and experience to do that. We concentrate on repairs rather than refabrication of major frame components. Frames with lugs present no special problems, and neither do brazed frames. MIG welding, TIG welding or gas welding, it's all the same to us. We'll happily rebraze if need be, and we can replace lugs providing we can get the lugs. Beam or delta box type frames, meanwhile, are trickier to repair. We can press and squeeze them back into shape after a shunt or a crash. But we can't replace anything on those. If the break is directly on a weld, we can usually re-weld it. But if it breaks where there wasn't originally a weld, we won't put one in. We won't weld-in repair plates either. With these types of chassis, you just can't afford to play around with the natural stresses. They've all been carefully worked out by

the manufacturer, and it doesn't make sense to second guess them.

Ducati trellis-type frames are another type of chassis that we work on. These frames are very tough in service, and once again we can replace basic tube damage (they're normally all straight tubes). But we won't rebuild headstocks or other critical components.

Turn around for frame work is usually the same day. The work usually takes about five hours, and visitors often take themselves off into Maidstone while we get on with the work. We don't work for insurance companies, by the way. Roughly half our work comes direct from customers, the other half from the trade.

Yokes are often bent even after a relatively mild shunt. The usual charge to straighten a pair of yokes is £50, and we offer a postal service for that. They can be turned around within a day or so.

Repairs to cast wheels cost between £55 and £65.

The typical damage is due to a pot hole bending and buckling the rim. We can usually press out the damage, and it's a safe repair. We have crack detection equipment if we have any doubt. About three or four per cent of alloy cast wheels can't be repaired and we won't re-weld cracks or broken spokes. We only handle repairs to cosmetic damage. Cast wheel can snap in a crash – if that happens, they're write offs. There's no way they can be repaired, and you should ignore anyone who says they can.

CONTACT

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RAY PALMER



DIAL GAUGE

Essential for establishing the 'run-out' on wheels before and after rebuilding. We work to close tolerances, often just thousandths of an inch – a dial gauge is the only way to achieve this.

PRICE £46, plus £78.52 for the adjustable stand (plus VAT).

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BLACKHAWK PORTA-POWER

A four-ton hydraulic ram that we use in conjunction with the Motoliner jig. It's supplied with attachments. We generally use at least two of these rams to push bent frames back into shape, but we have four rams in total for more complicated alignment jobs. This tool is the business.

PRICE £109 (\$179)

CONTACT www.toolcentral.com



BOSCH DIGITAL SPIRIT LEVEL

Used for checking steering head angles when frames come in after a shunt. It's an expensive German item that we've cut down to suit our needs – it's precise, easy to read and saves a lot of time. We use a high-tech elastic band to secure it. It gets used everywhere.

PRICE £99.95 (inc VAT)

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