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WORDS: **NIK** PIX: **NIK & PIGLET**

EXILE PART ELEVEN

There comes a time in every project when you've got to take a look at the vehicle's forks (well, unless you're using some form of funky front end – leading links or hub-centre-steering or summat equally as off-the-wall) to check whether they're actually any good or not.

Problems with forks can vary from the easily fixable (seals) to the not-very-fixable-at-all (bent and/or pitted tubes). If your forks are bent then, pretty much, the rule of thumb is that if they're just bent, they're straightenable – if they're actually creased, they're Donalded and you might as well throw them away now and buy a complete new set or, if you're lucky, new tubes.

If, however, they're pitted (and, let's face it, most forks over about ten years old will be suffering from some form of pitting by now), it's a whole different ball game. Pitted forks, be they right-way-uppies or upside-downies, can be repaired no matter how badly they've rotted ... within reason, of course. I've yet to hear of anyone whose forks were so bad that they couldn't be repaired, but there's bound to be someone out there ...

So, your forks are pitted – what do you do about it? Well, if they're only lightly pitted you could do the old rat bike trick of filling the pits with superglue and gently sanding them back, but it generally doesn't last that long and, of course, if you're building something nice this isn't really an option. No, what you'll need to do is get them re-chromed. Don't fret, it's nowhere near as complicated a process as you might've been lead to believe, in fact it's relatively painless. We'll use the fork tubes from my Mastiff supermoto to illustrate the point because, despite being only a 1997 bike, after some four years or so of journalistic abuse and neglect they were absolutely bollixed to put it very mildly. Fork seals would pop the moment they were taken anywhere near the bike (let along be fitted to them) and, given the fact that a replacement set of tubes would cost about the same amount as a small semi-detached house in Bradford, re-chroming was the only option. The forks were pulled out of the bike and, after some enquiries on the 'Net and at mates' bike shops, this lot were recommended – AM Philpot in Luton. They've been re-chroming forks for years and years and years and no one I've spoken has a bad word to say about them.

You can either take your forks down to them or they will arrange collection and delivery (I took mine down there so that I could have a nosy round the place) and, once there, this is what happens. Upon receipt of your forks Philpot's book them onto a process list and etch them with your name so that there is full traceability on them at all times. They need to do this because, as you can probably appreciate,

The rust fairies have really been at this poor thing, haven't they? You'd hardly believe it was only a few years old.

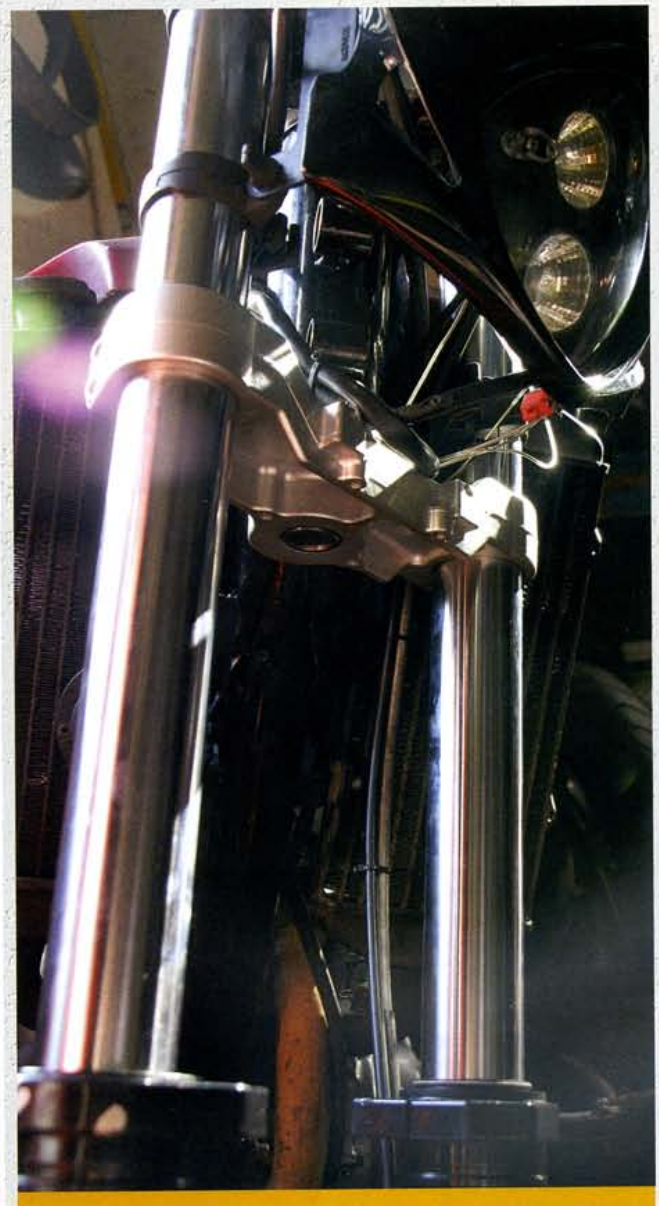
There's more oil in the Exxon Valdez than in those forks ...

once they've been stripped to their component parts, all motorcycle fork legs look pretty much the same. They're then measured on an unworn section and the size is noted and confirmed (normally a nominal metric size) with the manufacturer's specifications.

Next, they're checked for straightness and, if necessary, they're straightened - most forks, you see, wear in a bent fashion as a result of heavy braking and flexing. They're then pre-chrome ground on a centreless grinder to remove all the crud and rust before being prepared for hard chroming - the amount ground off depends on the wall thickness of the tube and the severity of the pitting/damage, but usually 0.025" is sufficient to remove all damage.

In case you didn't know, there are three types of chrome plating: Hard chrome plating, decorative chrome plating and triple chrome plating (also known as quadruple plating or double nickel-chrome). Hard chrome plating is that which has been applied as a fairly heavy coating (usually measured in thousandths of an inch) for wear resistance, lubricity, oil retention, and other wear purposes – on hydraulic cylinder rods, rollers, piston rings, mold surfaces, thread guides, gun bores and, of course, motorcycle forks. It's called hard chrome not because it's really harder than other chrome plating, but because it's thick enough that a hardness measurement can be performed on it and the chrome hardness can be measured - thinner plating will break like an eggshell if a hardness test is conducted, so its hardness can't really be measured directly. Hard chrome is almost always applied to items that are made of steel, usually hardened steel, and it is metallic in appearance but not particularly reflective or decorative – it's not the sort of a finish that you'd want on your exhausts or other shiny bits. Decorative chrome plating is sometimes called nickel-chrome plating because it always involves electroplating nickel onto the object before plating the chrome (it sometimes involves electroplating copper on the object before the nickel too). The nickel plating provides the smoothness, much of the corrosion resistance and most of the reflectivity, and the chrome plating is exceptionally thin, measured in millionths of an inch rather than in thousandths. When you look at a decorative chromium plated surface, such as an exhaust or something similar, most of what you are seeing is actually the effects of the nickel plating. The chrome adds a bluish cast (compared to the somewhat yellowish cast of nickel), protects the nickel against tarnishing, minimizes scratching and

More blown seals than a gay Eskimo's bedroom ...



And here're the same fork legs after the re-chroming.

symbiotically contributes to corrosion resistance. The point is, though, that without the brilliant levelled nickel undercoating, you would not have a reflective, decorative surface.

Triple chrome plating (or quadruple plating or double nickel-chrome) is an even higher quality process where there is a minimum of two layers of nickel (there may also be a layer or two of copper underneath the nickel too, and if the parts are plastic, there will be a layer of electroless nickel under that. If the parts are aluminium, there will be a zincate layer first). The most important issue for quality chrome plating (for outdoor exposure such as on a vehicle) is that it MUST have at least two layers of nickel-plating before the chrome: namely semi-bright nickel followed by bright nickel. The reason for this involves galvanic corrosion issues - the bright nickel is anodic to the semi-bright nickel, sacrificially protecting it, spreading corrosion forces laterally instead of allowing them to penetrate to the steel. Back to our forks – next they're prepared for the hard chrome. This involves the masking up of all internal bushes and valves with a special wax coating to prevent the chemicals/process involved from damaging anything it shouldn't. Now comes the hard chroming process itself – the stripping off of the original chrome and the nickel, the polishing out of all the scratches and blemishes (which can't be plated over), and then the electroplating of the new layers back on again. This process is done in concentrated (about 32 oz./gal) chromic acid (H_2CrO_4 - hexavalent chromium, the stuff that made Erin Brockovich a household name) and it's very, very unpleasant indeed. Factories that use this stuff require exhaust ventilation and they require fume suppressants that are monitored every day, and the workers require medical surveillance (frequent blood tests for absorbed chromium) too. The process can take up to twenty-four hours (and sometimes longer) depending on the amount of deposit required. The forks are then removed from the plating vats and measured to ensure that there is sufficient thickness of chrome to allow them to be ground back down to their original size. They are then inspected for pinholes or imperfections in the hard-chroming deposit, cleaned in preparation for grinding and then ground to the correct size - within 0.0005 of an inch usually. A further inspection is then made to ensure no imperfections are evident in the hard chrome, and the forks are polished to help the seals bed in and last longer. They're then passed to a dispatch area for a final inspection and subsequently packed into special tubes in order to eliminate any damage in transit back to you. You can either just take them your bare tubes for them to re-plate or you can give them your forks complete and they'll dismantle them, clean and inspect them, rep-plate them and then reassemble them with new seals and new oil. And this goes for both right-way-uppies and upside-downies too.

Next issue: *Errm, stuff… honest!*

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Transformed, aren't they?

Not a spec of rust in sight … nice job, guys!