



Fastback dream realised

PART TWO OF A LOOK AT **MATT COOK'S** '68 MUSTANG FASTBACK AS MORE PARTS ARE STRIPPED FOR REPAIR

I STARTED doing lots of research, I'm more of a reader and a book worm than someone who will ask questions and rely on other people. That way I can make my own mind and judgements up on things. Plus my faith in "people" has gone through the floor following countless bad experiences of people cutting corners and not doing their jobs properly. I vowed from that day forwards that no "mechanic" or anyone else would see/touch my car ever again!

Upon further inspection I learned that the brakes had been converted to discs on the front, but the brake master cylinder is from a car with front drums! After some more reading and research I found that the disc-brake master cylinder has a completely different specification to deliver more fluid to the front brake callipers than is required with the wheel cylinders on drum



The modern Ford paint colour enhances the shape of this Fastback

brake cars. So the front brake callipers weren't being actuated properly but the rears were, causing the car to want to swap ends!

I chose to restore the car completely, but obviously doing all of the work myself would be somewhat of a challenge. I had

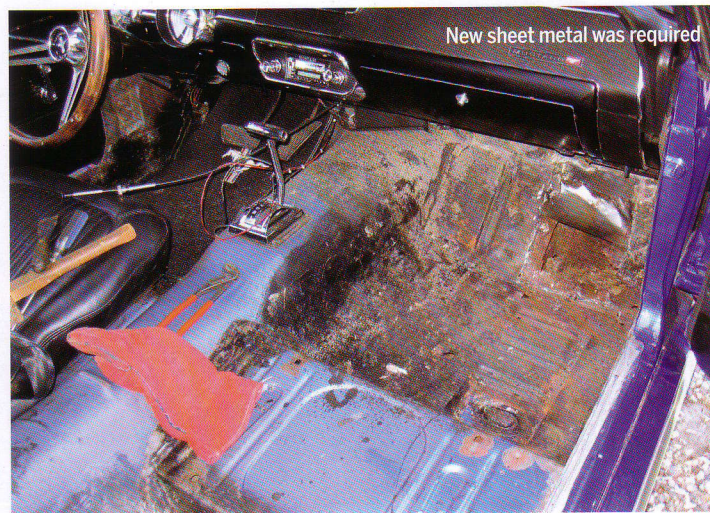
a lot of new skills to learn, new tools to buy and not to mention parts. Lots of parts!

I approached the restoration in a number of stages: Disassemble, strip, clean, paint and seal the floors from the underside while pulling out the axle, rear suspension,

brakes and fuel tank. Then to reassemble it all with new or newly refurbished parts. I ordered a huge consignment of parts from NPD in Florida, who have been very helpful and had almost everything I needed to get the job done and done right. I also started to make



Floor repairs were badly needed.



New sheet metal was required



some very useful motor trade contacts via family members, so I could get access to trade consumable products such as the very good Wurth branded sealants, sprays, lubricants etc. With the rear suspension rebuilt the car drove like a completely different animal ... now onto that welding that needs sorting before it was MOT time again ...

The interior was stripped out, the only parts remaining being the dash, column and gauges. Some rather horrific welding had been done on the floors and was indiscreetly "caked" in horrible sticky bitumen-based underseal. I used almost five litres of solvent to wipe it from the floors and interior panels. I then realised the welding would cost me a fortune in labour to get repaired due to the intricate nature and sheer amount of work ahead. So I decided to do what any rational person would do, to repair it myself having never welded anything before in my life!

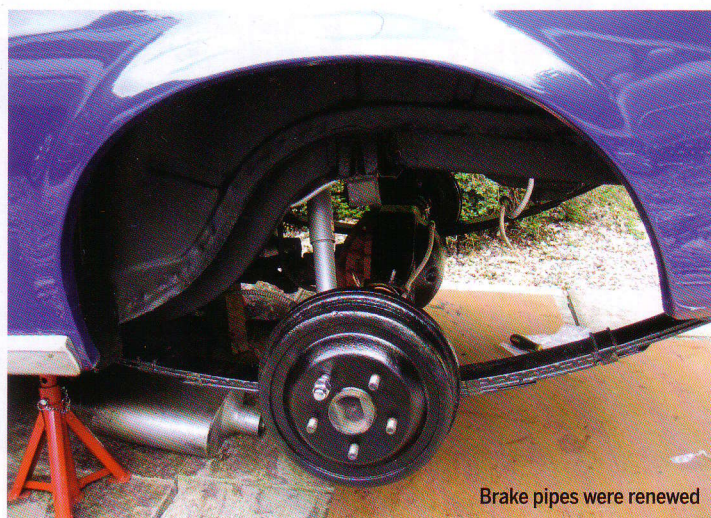
So I bought a welder and proceeded to grab any pieces of steel to practice on. To say I'm good at it is a bit of a stretch, but adequate maybe. My welding isn't the prettiest, but it's strong and done to Mr. MOT man's requirements and, to me, that's what counts. Once repaired, the floors were fully seam sealed (I reckon the car

would float it's sealed so well) and then given two good coats of zinc primer and topcoat. At the same time the whole interior was stripped back, cleaned, repaired where needed and repainted in satin black. Whoever prepared the interior panels previously used 60 grit paper to sand them back and painted straight on them, as you could see scratches all over the fibreglass panels.

In order to finish off the interior the doors needed some attention. A common fault with early Mustangs is poorly adjusted window regulator mechanisms, this one was no different. The doors were fully stripped, all glass and seals removed, the doors were protected inside and then reassembled with refurbished parts, new trim and renewed seals throughout.



Rebuilt axle and new exhaust being attached - rear drums brakes were renewed



Finally onto the last stage, the big-daddy ... the engine bay, front suspension, steering, engine and transmission.

The engine and transmission were removed in a couple of days. It's surprisingly easy to remove an engine and gearbox with the right equipment and a little basic know-how. Yet more tools I've had to buy, but having the right tool for the job is a godsend.

The original 302 4V "J-code" engine was built at the Windsor engine plant in Ontario, Canada, in December 1968. Luckily, all of the main pieces were still there for me to work with, most importantly the 302 4V castings marked "C80E-F" indicating they had the smaller combustion chambers to yield the higher 10:1 compression ratio. It's these cylinder heads which allowed the factory

engine power rating of the 302ci "J-code" to be 230hp versus the 210hp of the more common 302ci 2V "F-code" version.

Upon teardown, the engine showed evidence of being previously rebored to +0.030" with some aftermarket bits and pieces thrown in, which included lightweight valve-spring caps, which had huge grooves worn into them by the high-tension double valve springs which needed replacement. Obviously, combined with the Crane Cams flat-tappet camshaft which had also seen better days, the wear patterns on the lifters and camshaft itself were horrendous and unfortunately meant a deeper level rebuild than I had anticipated.

A few tweaks and tricks went into the cylinder heads for improved performance and to work more harmoniously with the slightly more aggressive camshaft. All of the valves were replaced with longer stem items to allow the required install-height for the dual valve-spring package I'd chosen. The inlet manifold is a 70s era reproduction of the original GT350 hi-rise dual-plane design and, unusually it's lettered "SHELBY" instead of the usual "COBRA". It's also been tweaked in places to allow better



performance in conjunction with the cylinder heads. Induction/fuelling is taken care of by an Edelbrock performer (600cfm) carburettor which has recently been rebuilt with all new gaskets, needles and seats. Some minor metering, rod tuning and jetting changes have been carried out, but there's more testing required in my opinion to achieve the optimum tune.

The ignition system is based around an original Ford distributor, but has been mildly re-curved in order to allow the mechanical advance to come in sooner. The distributor runs a Crane-Cams XRi ignition module with built in soft-cut rev-limiter to keep tabs on my over enthusiastic right foot. This, combined with a low-impedance ballasted high-voltage ignition coil, gives a much stronger spark than the OE points and coil system while retaining the benefits of vacuum advance for cruising efficiency.

The cylinder heads, block and oil pan have all been painted in blue engine enamel and the whole lot was put together by me (the first engine I've ever built) and amazingly, it runs!

The C4 transmission rebuild was entrusted to a long-time colleague of my father who "cut his teeth" on these gearboxes back in the '80s and builds autos for a few locally-based drag racers. As well as fitting complete new clutches, bands, seals, a new planetary gearset was also needed due to the original showing some wear. We also added a B&M shift kit for good measure to make the shifts a little firmer as well. I also added a nice oil pan that has a removable drain plug. This makes changing the trans fluid and filters a much cleaner job! This was the only part of the restoration that was passed out



to a third party.

At the same time as rebuilding the engine, the whole engine bay was paint stripped back to bare metal, some minor welding was required underneath the battery tray, which is another classic Mustang weak point. Following my now normal tradition of fully seam sealing, priming and repainting, the engine bay was refinished with the factory satin black finish.

The braking system also saw some further attention and upgrades, as did the steering system and front suspension. The braking system was upgraded with a retrofit factory style power brake master cylinder and vacuum servo in order to bring the braking feel and performance in-line with modern standards. New brake pipes were installed, completing the work started at the rear of the car several months prior.

The original factory style power steering system in a classic Mustang is, in my opinion, certainly a component of the car that could benefit from a bit of modern thinking. Although probably poorly maintained, like the rest of the car, the power steering system leaked like a sieve and was as vague as a politician on *Question Time*. After doing lots of reading and research I chose the Randalls Rack conversion,

adding the optional modern power steering pump at the same time. While expensive, in my opinion the improved road feel and precision was worth the extra effort and expense.

Lastly, the front suspension system upgrades were all carefully thought out with the intention of improving the handling, but without moving too far away from the original design and components. The changes included adding new 1" lower 550lb/in rate coil springs, polyurethane suspension bushes throughout (except for the front strut-rods), rollerised spring perches, relocated upper control arm mountings (commonly known as the Shelby drop, or Arning drop named after the original Ford suspension design engineer Klaus Arning), larger diameter anti-roll bar, Monte Carlo bar and export brace (similar to strut-tower braces for you modern Mustang guys) and finally Global West subframe connectors. All of which have worked to transform this old pony into a much more rigid and precise platform which is pleasurable to drive but without becoming too stiff or harsh in the process.

Since completion of the major rebuild phase, we've been out to a few local shows where the car gets a lot of attention, and took first place in

the "People's Choice" award at the Highclere Castle Mustang Show (see last issue), which was very gratifying, especially knowing that I have nurtured a used and abused pony back to health. I'm pleased to say she's still going strong at the age of 43, and 11 years my senior.

I don't know much about the history of the car in the US, but I can confirm it probably spent most of its life cruising around Illinois, near Chicago. The one tell-tale piece of evidence is the McHenry County College parking permit from 1977, which is still on the rear window! I couldn't bring myself to remove this old sticker.

A good friend of mine from the US was in the UK, and was very interested to see "my new toy", but the first thing he said was "I don't believe it! McHenry College is only five minutes from my house in the US!" It was only then that it dawned on me that the DSO code on the data plate riveted to the door was 41, signifying the Chicago dealer district. In 2009 George and I visited our friend in Chicago and made a point of visiting McHenry College, bizarre to think that some 32 years later we were standing where my car was once parked when it was used by a student, nearly 4000 miles from its current home.

All I can say is, this old piece of motoring history has become more than just a part of the family, it's a part of me and I like to think a part of me is reflected in it. But probably the best thing is that not only has this car given me many life lessons, it also has given me great pleasure and hopefully will continue to do so for the foreseeable future, as well as continuing to introduce me to many new, like minded enthusiasts and friends. Now onto the next project!