

➔ **INSIDE: WIN ONE OF THREE FAB ITALIAN JOB PC GAME PACKS**

THE ORIGINAL AND GREATEST MAGAZINE FOR THE MINI

MiniWorld

- ➔ WELL LANE 12-CAR DYNO DAY OUT
- ➔ VERY COOL 1340 RETRO Mk1
- ➔ BRILLIANT RESTO PICK-UP
- ➔ LOADED ERA-STYLE SALOON
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TOPGUN

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Cosworth injectors,
T3 turbo, intercooler,
MED head... nutter**



ERA-style outside, big luxury inside



World class resto 1981 998 Pick-up



Quaint little Mk1 Noe, mad 1340

AOL Keyword: MiniWorld



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FITTING RESULT

MiniWorld's 90bhp conversion competition winner has been a Mini enthusiast since the 1960s, and he was actually saving up for the conversion when he heard that he had won. We went along to John Cooper Works for the fitting

INTRO

The original 1275cc Cooper Ss of the 1960s and '70s produced 75bhp at the flywheel, and the Cooper 997/8 produced 55bhp. That's perhaps not a lot by today's standards, but it actually wasn't at all bad back then, particularly for such a small car, and particularly for one that handled well, too. When the Cooper made its return in 1990, it was excellent news for all Mini enthusiasts everywhere, but perhaps the only disappointment was that the 1275cc engine produced just 61bhp. Even the MG Metro from which the new Cooper engine had been derived had produced 72bhp. Evolution continued through the 1990s, fuelled mainly by emissions regulations, and along came fuel injection, firstly single-point and then twin-point – the power output of these engines was 63bhp. Fun yes, but Minis being Minis meant that much more was possible, and perhaps the best way to achieve this is with a conversion by John Cooper Works. The *MiniWorld* competition offered just this – the very latest Cooper 90bhp conversion – for one lucky reader, and the winner was Stuart Chapman from Telford.

Stuart has been into Minis for a long time. Back in the 1960s his first car was an 850cc Mini, the registration number he proudly remembers was WNV828. He enjoyed it but, after a while, found it to be a little on the slow side so he upgraded to a 998 Cooper. Stuart kept the 998 for a while but, as time went on, most of his friends had graduated to a Cooper S and so did Stuart. His S was fitted with a half race engine and it served Stuart well until he got married and had children. Family needs dictated that the Mini just had to go, as it was not large enough, so sadly Stuart dropped out of the Mini scene.

Ironically, the family that had caused Stuart to leave the Mini scene was also to bring about his return. Many years later, in 1999 to be precise, he started teaching his son Martin to drive. Remembering the days when he himself was learning, Stuart suggested to Martin that he should get a Mini and Martin agreed. So they started by going to a few Mini shows, with the result that Martin became an enthusiast, which, in turn, rubbed off on Stuart and his interest was rekindled. Martin acquired a Mini and, in September 1999, Stuart bought his own current Cooper, a demonstrator with just 600 miles on the clock from All Electric Garages. He traded in his SWB Toyota RAV4. "It was a sort of 50th birthday present," he says.

Not surprisingly, he was delighted with the Cooper, but he had been driving modern cars for a long time and he found the performance a bit poor. Let's just say he looked around and started saving for a 90bhp conversion. Then he decided to get another everyday car and keep the Mini back for weekend enjoyment. So he bought a new BMW Mini Cooper, which meant that the conversion had to go on hold for a while to let the finances recover. In the meantime, he bought a new numberplate for the Rover Cooper – appropriately, T90BHP. Luck was very much on his side, as a few days later, out of the blue, we called to say that he had won our competition... ■



1

Delighted competition winner Stuart Chapman, pictured with his immaculate 1999 Sports Pack Cooper

90BHP COOPER S WORKS SPECIFICATION

Cooper Stage Three modified performance cylinder head – fully polished, ported and gas-flowed
35mm inlet valves
Increased 1.5:1 compression ratio
Alloy billet roller tip rocker assembly
Up-rated 3.5-bar fuel pressure relief valve
Polished and ported inlet manifold
Larger intake S Works airbox with standard Unipart air filter element
Janspeed LCB exhaust manifold
Janspeed DTM exhaust system
Payen head gasket set
NGK BPR6EVX performance spark plugs

Full kit price: £1910.89 inc VAT and fitting

MiniWorld would like to thank John Cooper Works, North Lane, East Preston, West Sussex BN16 1BN Tel: 01903 784784, fax 01903 787722. E-mail: works@johncooper.co.uk Website: www.johncooper.co.uk

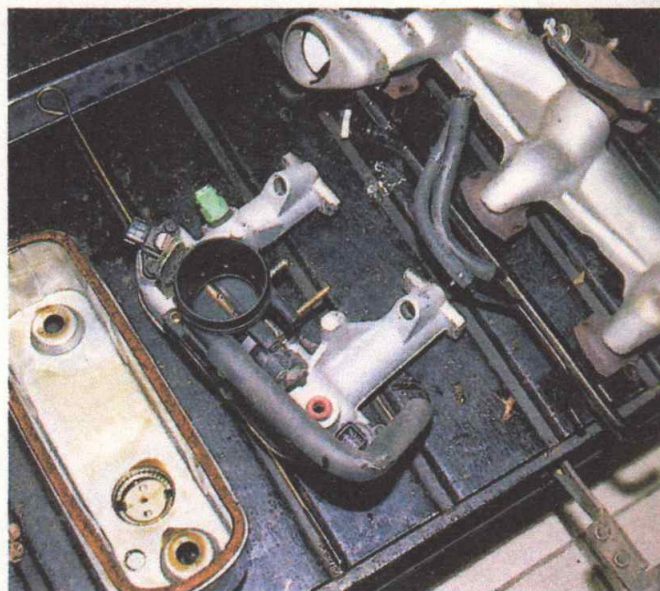
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This is the John Cooper Works 90bhp tuning kit for twin-point Coopers. It took around four hours to fit to Stuart's Rover Cooper, which was originally around 63bhp (PS)



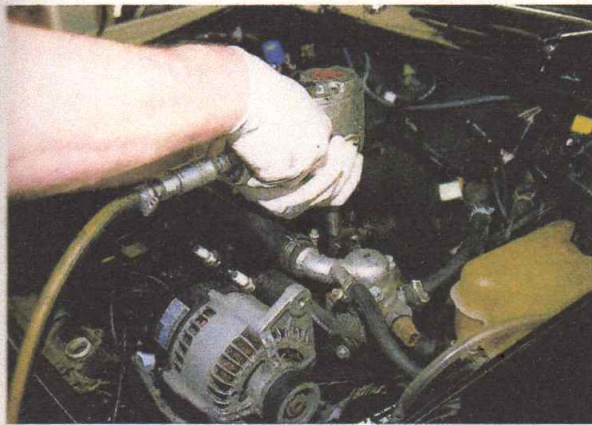
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First off the Mini was driven on to the ramp in the workshop. The cooling system was drained and the air filter assembly, the injection system and the exhaust were taken off and put to one side



4

Attention then turned to the removal of the cylinder head, and the first item to be removed was the thermostat housing, after first disconnecting the radiator hoses. The head itself did not come off easily – one stud was well and truly seized. Luckily, after some persuasion it did eventually free off. Once the head was off, the remaining studs were taken out



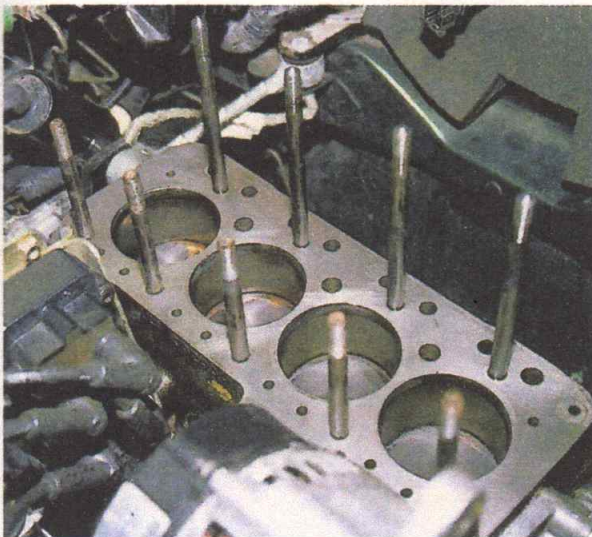
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The modified head is supplied on an exchange basis, so with the original head on the bench...



5

The block face was then thoroughly cleaned and the studs replaced. The stud that had been seized was replaced with a new one



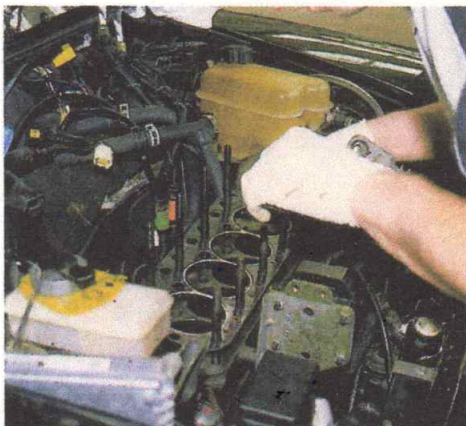
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...all the fittings and rocker studs were transferred to the new head



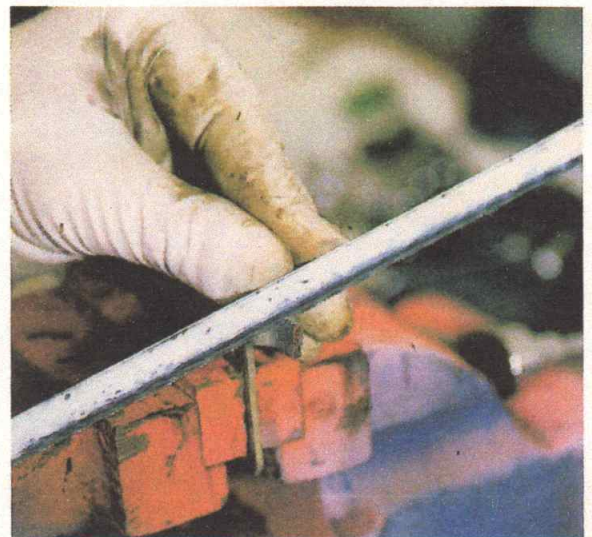
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The new head gasket was placed in position, ready for fitting the updated head



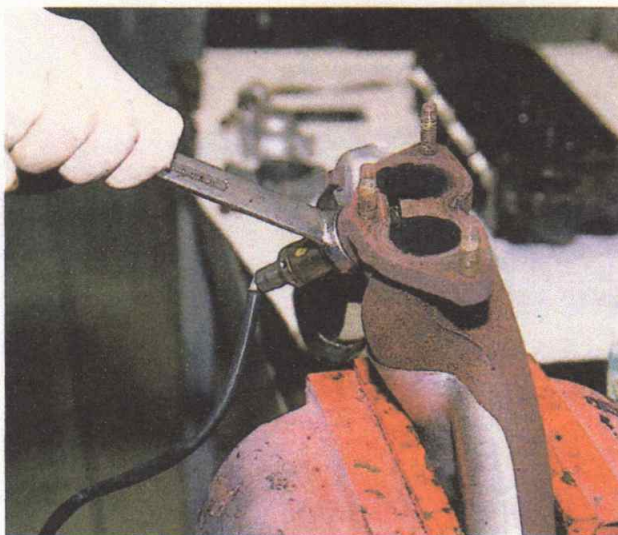
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Still on the bench, the throttle stop was modified to ensure it would fully open...



10

...and the Lambda sensor was removed from the standard exhaust manifold. When the sensor has been in situ for a while, it can prove hard to remove due to the temperatures reached in this area when the engine is running. This one was no exception



11

With all components transferred, the new head was given a thorough final inspection before fitting. In this case it was a good job, as one of the collets was missing. A replacement was found and fitted, and a note made to complain to the engineering shop



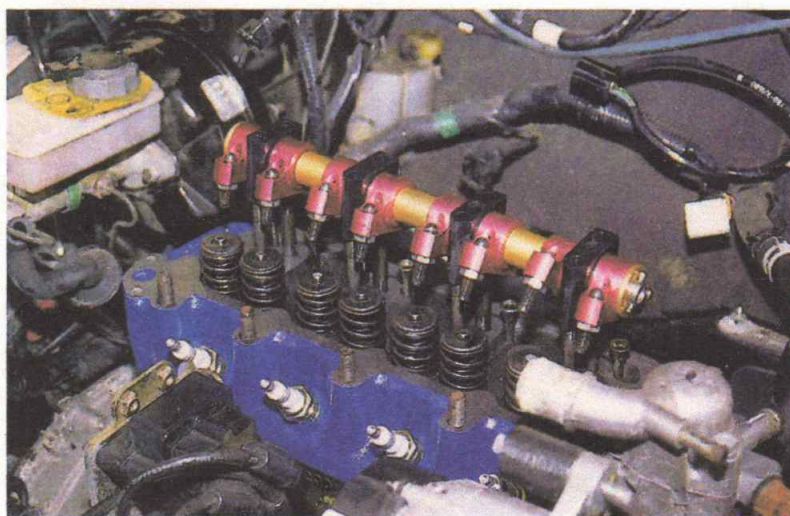
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The head then went on and the ancillaries, such as the thermostat housing, followed



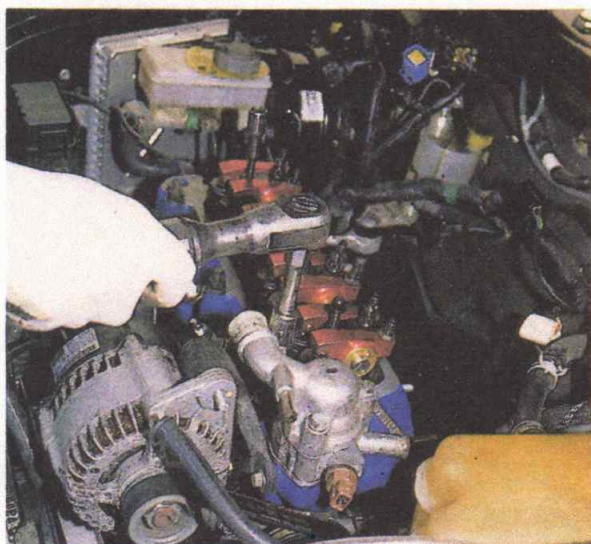
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The 1.5:1-ratio roller tip rocker assembly. The fit of the assembly is often quite tight with high-ratio rockers, and a little adjustment is sometimes required to get them to go on



14

The head was then correctly torqued down



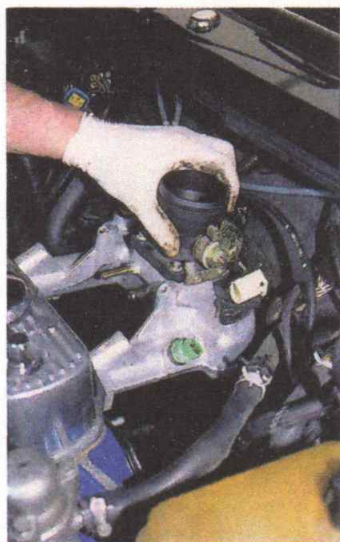
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The LCB was fitted next...



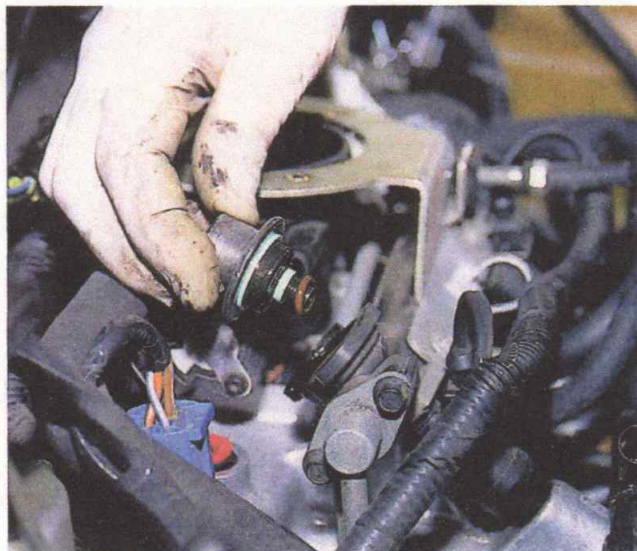
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...followed immediately by the new inlet manifold. The standard manifold is not exactly the best design from a flow point of view. With this in mind, the Cooper inlet is fully gas-flowed as plenty of casting leftovers can be removed from the alloy factory item



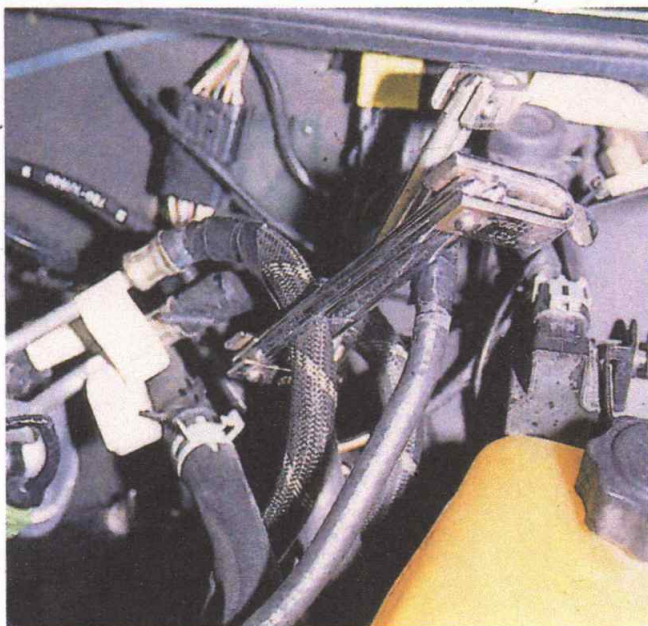
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The valve being fitted into position



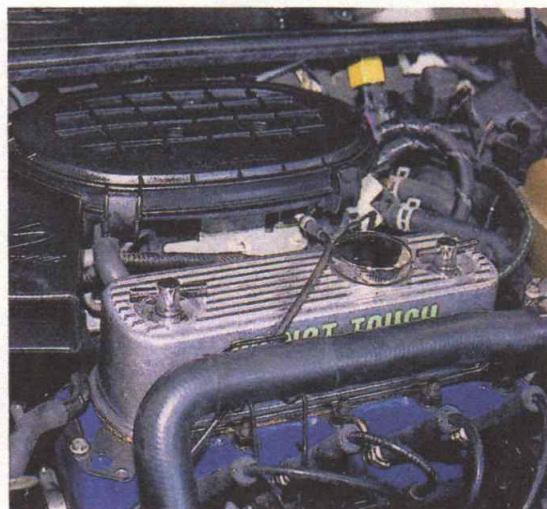
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A modified and uprated fuel pressure relief valve comes with the kit. To enable it to be fitted, the fuel pipes must first be clamped



20

Last to go on under the bonnet was the standard air filter and the new uprated Cooper S Works airbox. The tappets were set and the rocker cover replaced



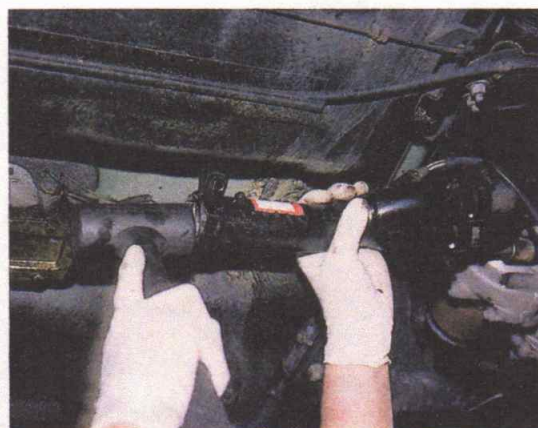
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The modified 3.5-bar valve (right) compared to the standard 3.0-bar. It is the change in shape which alters the pressure rating



21

Under the car, the LCB Y-piece was fitted



22

The rest of the exhaust system followed, starting with the pipe from the Y-piece to the catalytic converter. This has a tendency to move on some cars, so a hole was drilled through the Y-piece...



23

...and a self-tapping bolt was used to hold the two sections together



24

Wire was used for the same purpose between the Y-piece and the downpipes



25

Back on went the cat, then the centre box...



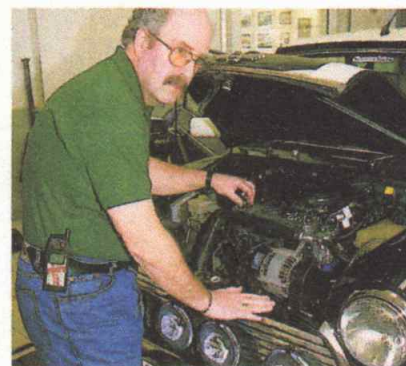
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...and finally the backbox with those exceptionally nice twin upswept tailpipes



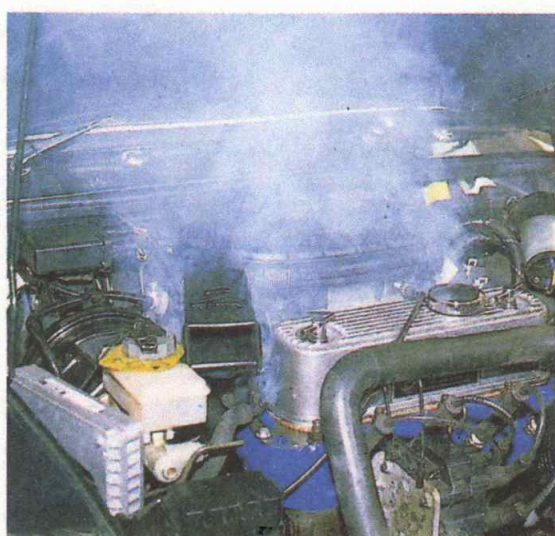
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Throughout the fitting Stuart had kept a close eye on things. Here he is making a final inspection prior to starting the engine. At this point, the cooling system was filled with fresh water and antifreeze and the ECU was reset by pumping the accelerator pedal 10 times with the ignition switched on. While the work was carried out, Stuart also opted to have an oil and filter change



28

The engine is fired up. The smoke is due to paint burning off the exhaust manifold. After the engine's initial run, the head was re-torqued and the valve clearances checked and reset. The latter needed to be done several times during initial running



29

The truth on a plate. Stuart offers up his new T90BHP numberplates - a complete conversion

