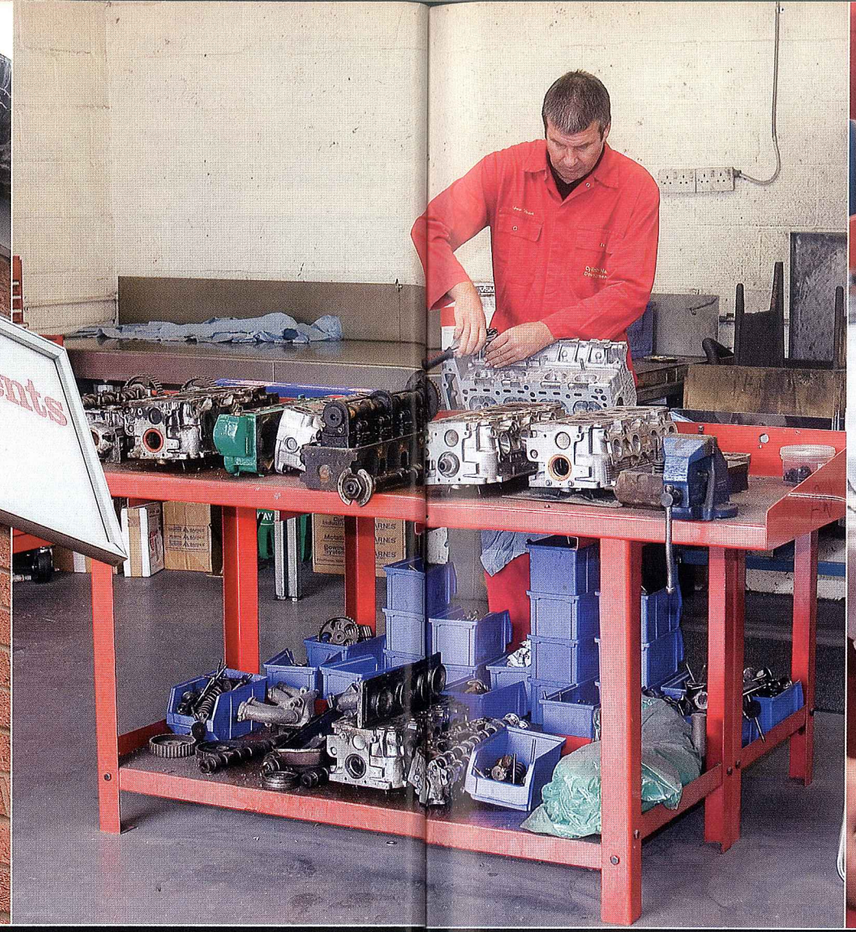
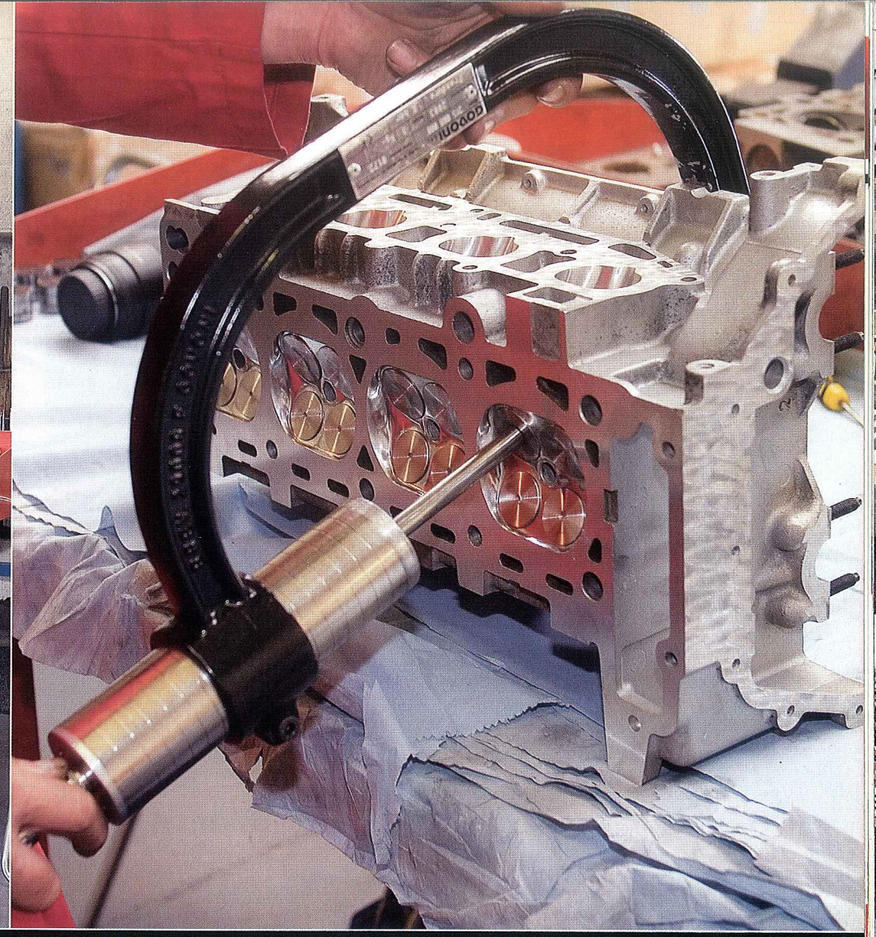
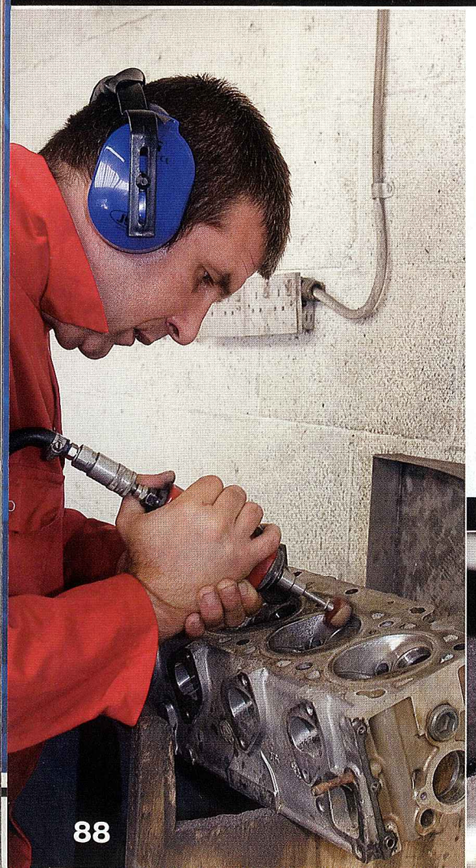




Below left: Andrew polishes the combustion chambers on a BMW six-cylinder engine bound for the Nürburgring. Rather him than us I reckon!

Above right: Cool hydraulic valve spring compressor means no mucking about, and it also means you get your head back much quicker!



Head Case

** Ported cylinder heads are a good thing, and Cylinder Head Developments is a company devoted to the art.** *Words:* Ben B *Pics:* Mark Bass

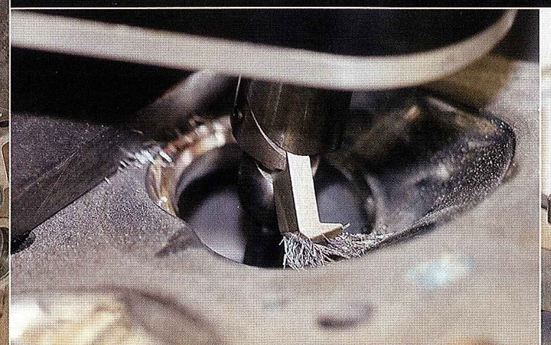
"Some people say I'm old-skool", laughs Andrew Weston, "I've been doing this since 1977 so I suppose they're right… but the whole thing about getting results from heads is experience." If you haven't guessed already, Andrew *is* Cylinder Head Developments, and what he said is pretty much spot on when it comes to his chosen profession.

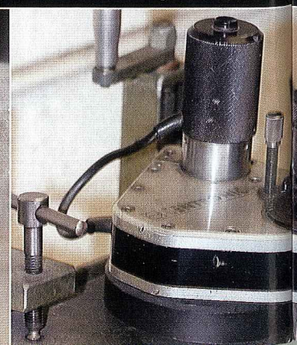
Most people know you can get extra power from working your head, but many don't realise just how much power can be unlocked, and what you have to do to unlock it. Andrew's learnt both through extensive trial and error, having worked for companies involved in motorsport and fast road cars before the opportunity came to go for it by himself six years ago. "It was always my dream to set up shop," he smiles, "so I bought the equipment and got this unit in Bromsgrove." The workshop is impressively clean, and features a Robbi milling machine used for skimming heads, loads of hand die grinding tools for porting work, a trick Mira Centronic which makes sure you cut valve seats, bore cam follower bores and valve seat inserts perfectly central, and an assembly bench in the middle. Andrew does all of the work himself, from stripping the customer's head to packaging it all up again and sending it out!

But it's the bit in the middle we're really interested in – what can Andrew do and what gains will you see? "Most of my work comes from the Ford scene," he explains, "it used to be all Pintos but now it's a mix with old-skool Ford heads and more modern stuff like Zetecs." Of course, Andrew has vast experience of modifying pretty much every Ford head – the popularity of the Pinto still surprises him, and he does a lot of Twin Cams too. "My bread-and-butter head is what I call Fast Road spec," continues Andrew, "and the work involved consists of opening out, enlarging and flowing both the inlet and exhaust ports, modifying the valve throat areas, cutting three-angle valve seats, and polishing and checking the combustion chambers to make sure they're all the same – changing the shape of them as needs be to get this right." Typically, you'll see gains of 20bhp with a Kent FR32 cam… so it's handy Andrew is a Kent Cams dealer! "Over the years I've really found out what works," he says, "if I'm doing the head work and the customer buys the cam from me I'll even fit it free of charge!" But what if you're looking for something that's not 'off-the-shelf'?

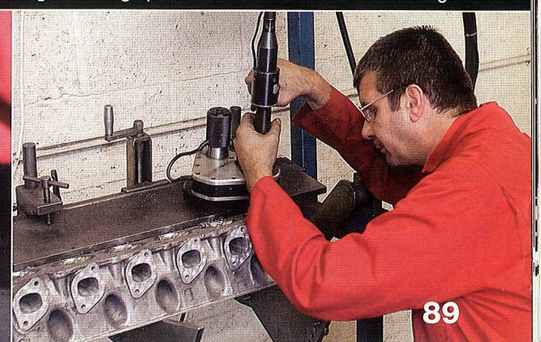
"Well, having done heads for road and

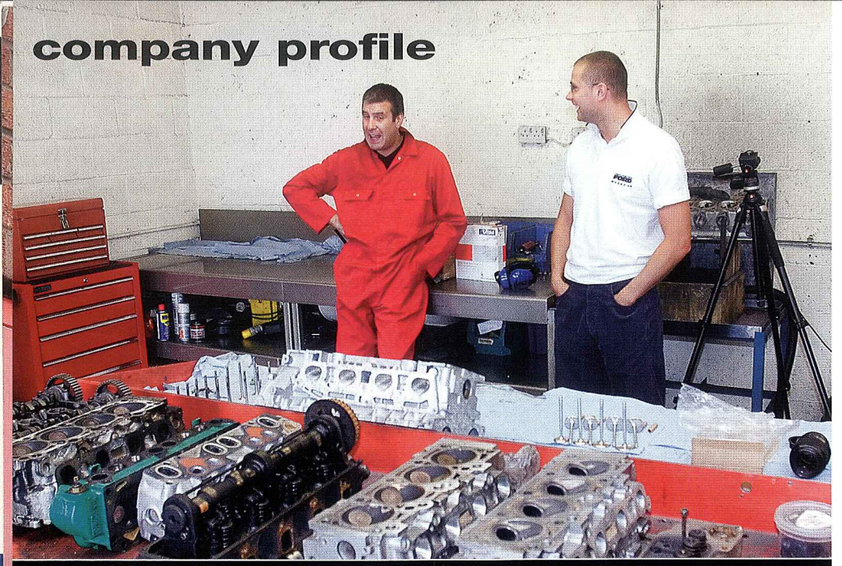
Below: Trick Mira Centronic machine ensures perfect three-angle valve seats and guides



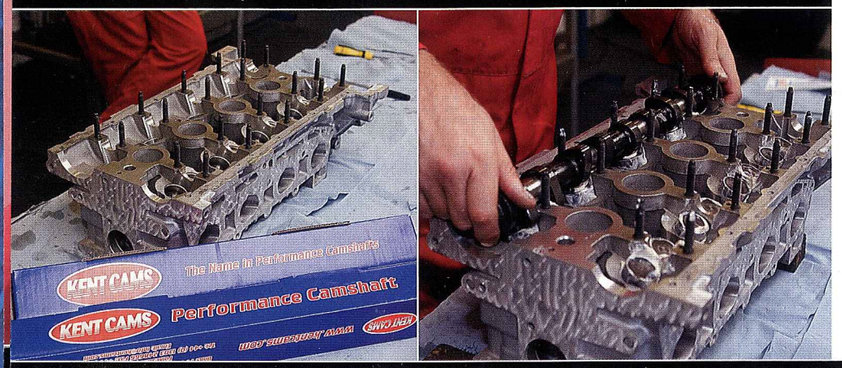


Below left: 'Old-skool' alert! There's no substitute for valve lapping by hand, eh?! Below right: Setting up the Centronic for valve seat cutting

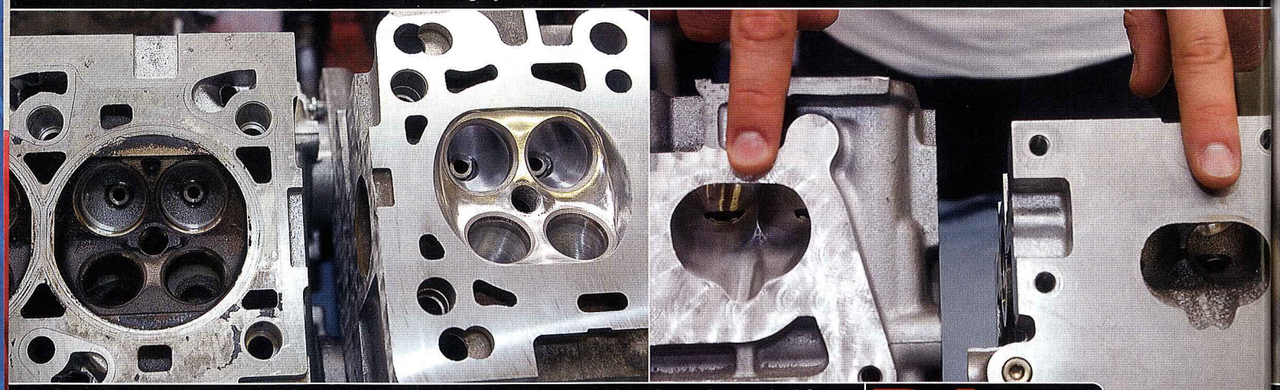




Ben offers to build up a customer's head. Andrew laughs for a while, then politely declines!



Andrew's a Kent Cams dealer, and can fit the naughty sticks into his worked heads. Below: Standard vs CHD combustion chambers and ports



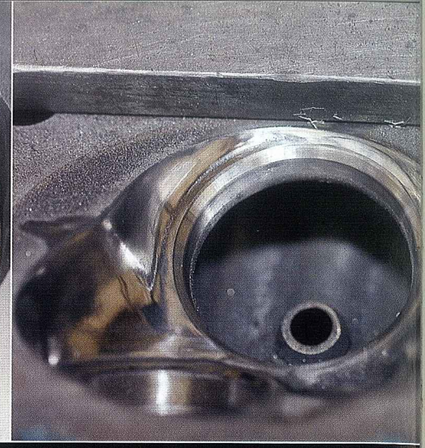
CHD only uses top quality REC valves and pukka bronze guides. Lovely porting work eh?

competition I can tailor the head to suit the customers needs," he explains. "I always ask for full details of the customer's engine – from capacity to compression ratio etc, and spec the head and cams from that information." So full race heads aren't a problem? "No, I really enjoy getting my teeth into jobs like that," Andrew enthuses. "I do Group 1-spec Pintos for lots of rally teams, I can do big-valve Crossflows with stainless valves, bronze or steel guides and valve springs to suit the right cam, and I do a lot of Twin Cams from fast road right up to FIA Historic Touring Cars, so there's no limitation to the head work I offer road car owners and race teams." Obviously the more serious the head spec is, the longer it will take Andrew to do, so a normal fast road head might take one and a half days whereas a full race Cosworth (Andrew does naturally aspirated and turbocharged versions) would take more like three to four. So where does all that time go? "Well, my race heads have much bigger ports," he explains, "and then there's stuff like machining the spring seats, and shimming it all up with solid lifters which can take a while to get spot on."

As you can tell, Andrew's a bit of a perfectionist, but the quality of his work and the results he gets shows that being anything but just wouldn't be good enough. When quizzed on the current hype surrounding CNC-machined heads he says passionately, "I think head work is very personal – every one is different and every result has to be that way to get what the customer wants... I'll be sticking to what I know and do well." Old-skool? Yes. *Retro Ford* recommended? Definitely ◆

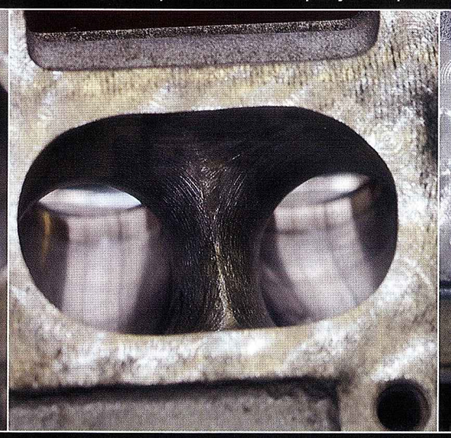
Price Guide

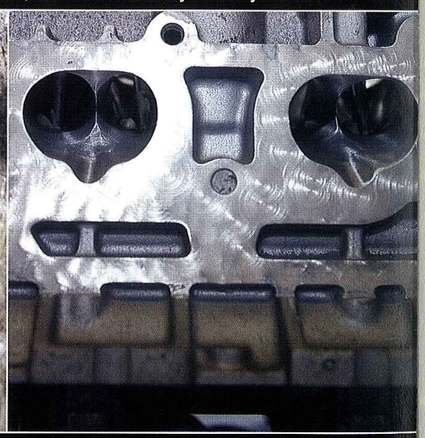
"Fast road" Pinto	£465
"Group 1" Pinto	from £699
"Fast road" Crossflow	£345
"Race big valve" Crossflow	from £580
Twin Cam	£POA
"Fast road" Cologne V6 (A real pain but great results!)	£699
"Fast road" Essex V6	£580
"Fast road" Zetec/ Cosworth YB	from £465



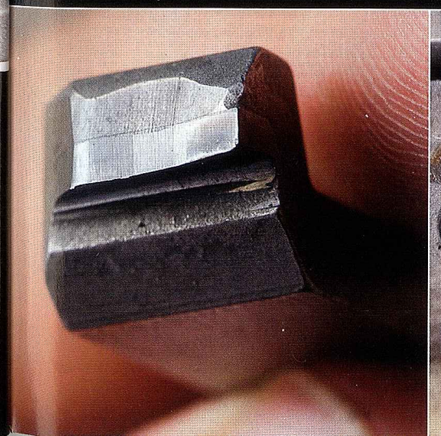
Andrew balances all the combustion chambers so they're the same 'capacity', then polishes for a wicked finish and flow. Three-angle valve seats

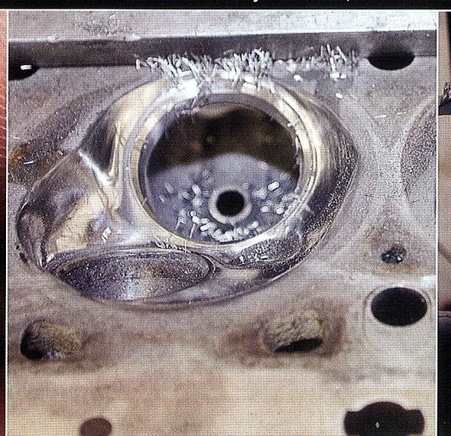
CHD's porting is beautiful, both on the inlet and exhaust sides. Shape and size are equally as important, and it's all done by hand by Andrew

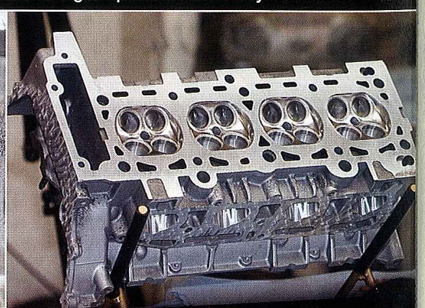




Aside from the ports, Andrew does a lot of work on the valve throat area. Usually restrictive, this aids flow and gas speed considerably. Call him...







Contact

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