The 'Type C' cylinder head significantly increased power on the 140 engine. This 140SE OTS was photographed by Rowan Isaac for Original Jaguar XK

XK 140 Engine

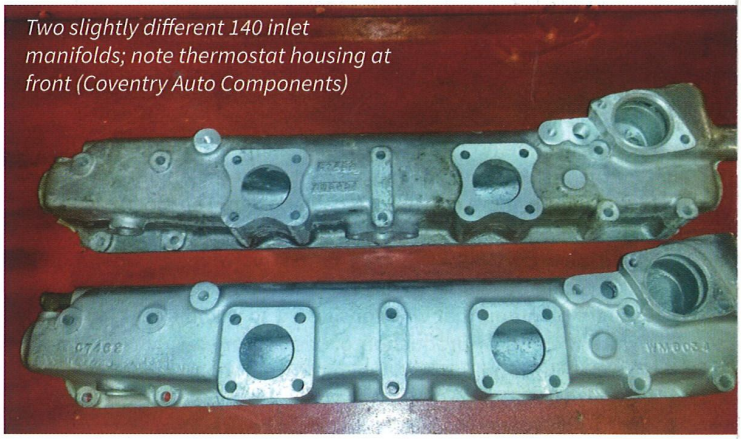
by Stuart MacNeill

The XK 120's introduction to the mass production market was of course due to Jaguar's wins in prestigious events such as the Le Mans 24 Hour Race. Before this point, Jaguar was just one of the multitude of small marques that had developed in Coventry prior to the Second World War.

The evolution of the highly successful XK 120 into the XK 140 was a very simple and clever restructure (now known in the motor industry as a 'Facelift') mainly to cater to the American market. A few simple steps were implemented to improve any shortcomings of the, by now, highly revered XK 120. This market was just developing its post-war lust for cost-effective or bang-for-buck power which, of course, the Jaguar supplied aplenty, with the added benefit of being wrapped in a beautiful and classy body. Ford and General Motors would take another 10 years to eventually follow Jaguar's lead with their 'Win on Sunday, Sell on Monday' philosophy that saw the birth of America's Muscle Car Era in the 1960s.

At the start of production, the XK 140 engine had the same C6733 head and later C4820 block as the 120, that Jaguar still had large stocks of, but it had been physically moved forwards in the engine bay to allow more usable leg room and 'passenger' seats in the rear. This engine was now designated as a 'G' prefix for the 140. At a cursory glance, the most distinctive change was a new design inlet manifold that had simply moved the thermostat housing chamber from the rear of the 120's radiator header tank end of the top hose, to a position within the new aluminium manifold itself.

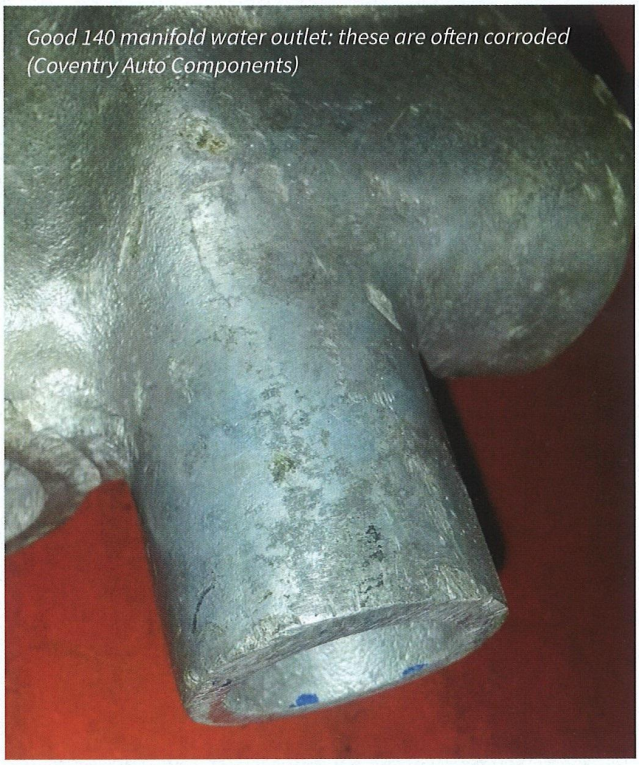
NOTE: It is always wise to inspect the front-facing bypass outlet neck on this manifold design, as these can often corrode very badly, from the outside, hose-sealing face, not from the inside as you would normally expect!

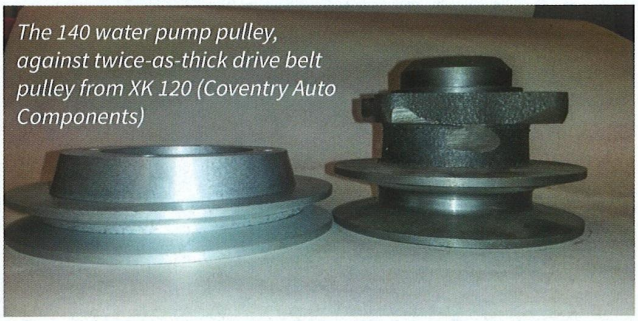


Two slightly different 140 inlet manifolds; note thermostat housing at front (Coventry Auto Components)

The timing gear still utilised the bow/blade and spring tensioner system. Strangely the oil pump was revised to an unusual design that retained twin gears but saw the oil pressure valve moved from the filter head into the actual pump body, deep inside the block. You can see at a glance that this pump is fitted, due to the absence of the brass double nut valve body in the head of the Tecalemit filter head housing. This removed the ability to easily boost oil pressure by winding down the valve spring adjuster! Later revisions did see this useful feature re-introduced to the XK 140 and 150 engines.

The early XK 140 engines were said to carry over the aluminium sump from the XK 120. If so, this is not mentioned in the Jaguar Parts Book and these were soon replaced with a high capacity (deep) steel sump instead. It is worth noting that a common (but incorrect) period way of jacking the car up was from the sump, so it is worth always checking that the sump has not suffered


Good 140 manifold water outlet: these are often corroded (Coventry Auto Components)


The 140 water pump pulley, against twice-as-thick drive belt pulley from XK 120 (Coventry Auto Components)


A new design for the 140: the water pump C7618 **Part No. 8347**

damage in this way, or it will require repair or replacement. There are only the two steel sumps listed in the Jaguar XK 140 Parts Book, and references are to a redesigned front seal lip housing with the later engine revamp.

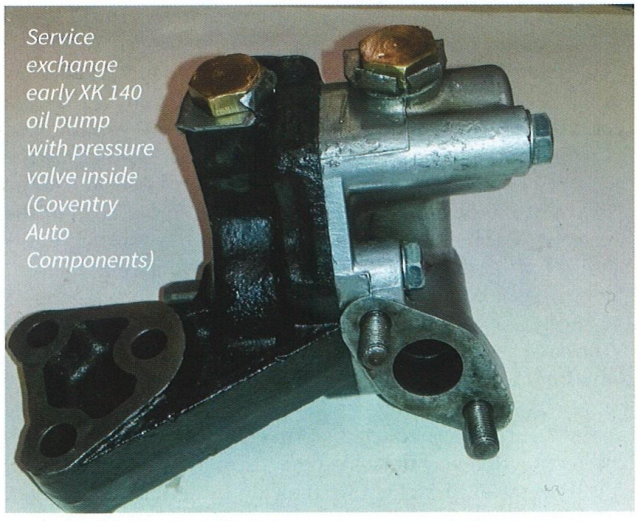
The other noticeable changes were all at the front, with a new-design water pump (which carried over to the XK 150), an eight-blade fan replacing the 120's eccentric 6-blade version and all motivated by a modern-type, 10mm (50% thinner than the XK 120) fanbelt and pulley system. A slimmer crankshaft damper was also slipped behind the crank pulley, all presumably to reduce the overall front profile.

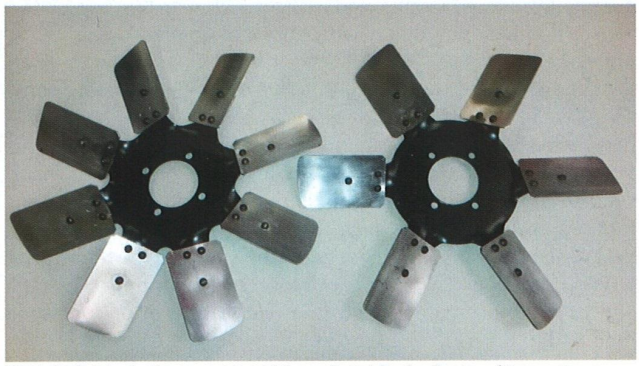
There were no more noticeable changes until after the fitment of the first 907 engine units; at that point the engine was treated to a slightly more radical internal redesign. The block casting was altered to the C8610 design, with different outer engine position and also dynamo mounting lugs. This redesign also featured the racing-developed hydraulic chain tensioner system and the rotary oil pump that was considered so reliable that it was used until the end of production of the XK-series engine in the XJ-S range – with only a marginal increase in bore size for the whole of its lifetime!

The XK 140-series engine's evolution would probably have been far slower if it were not for the raging success of the racing C-type Jaguars in competition. Here it had been proven that quite simple modifications could dramatically increase the performance of the XK's 'A-series' head. The now hallowed 'C-type head' was born (casting numbers should read C.7707 or C.7707/1). This head was a simple cost-effective option available to the XK range under the Special Equipment order system and can often be found retro-fitted to XK 120s too, as the 'Crowning Glory' of modifications.

The art of 'Less is More', popular now and proven by the dynamometer, was understood in those days. This combined with the reality that Jaguar did not have a massive racing budget, means that the clever racing chaps came up with a revised head design, using some smart inlet port re-work, a new angle cut to the inlet valves and bigger exhaust valves (to reduce back pressure). This proved to be a resounding success, producing more torque, power and fuel efficiency. This new head, when made available for production vehicles, was (unlike the racing version) endowed with a proudly-cast, raised 'C' logo set upon a raised rectangular plinth rising from the centre of the V-section between No.3 and No.4 spark plugs. The finishing coat of bright red paint made this head stand out from the standard unit (and quite probably increased bhp too!).

These rare heads now command a premium, but it should be noted that for many years the original-type valves with correct angular cut were unavailable, so any 'Fully Rebuilt' heads for sale must, in reality, have had the correct valves replaced by others.


Service exchange early XK 140 oil pump with pressure valve inside (Coventry Auto Components)


XK 140 8-blade fan next to 120 early 6-blade design (Coventry Auto Components)

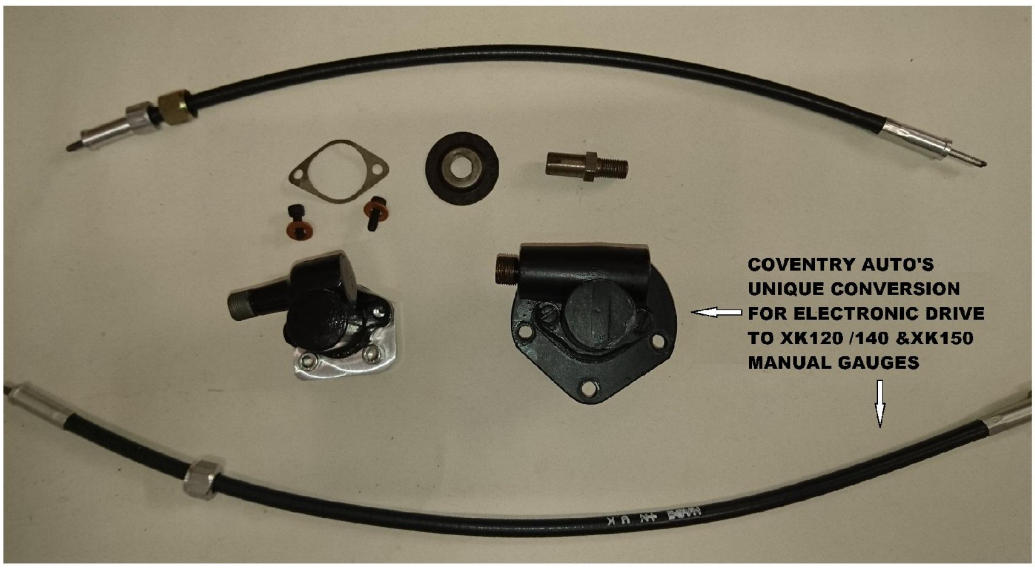
Later 140-onwards rotary oil pump; can be fitted to early engines with some extensive mods (Coventry Auto Components)

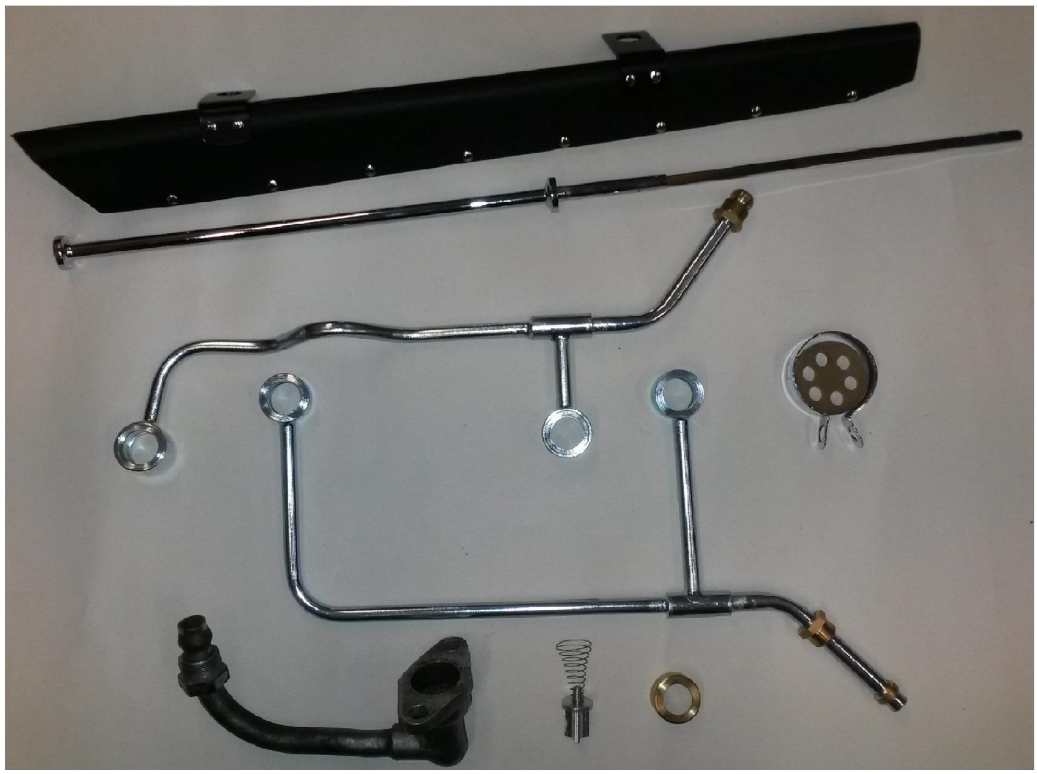
This always posed the question, that if it was rebuilt without the 'magic valves' was it in fact a true correct 'C-type head' and worth the exorbitant price asked? This is no longer a problem, as the correct valves are once again available, and as a bit of a surprise, I am also informed that brand-new cast 'C-type heads' will also be available for sale in the near future.

I have seen many fake heads, with the 'C' mounted to the head in body filler (scratch off the shiny paint to reveal!) or even let in on an aluminium plate; sometimes they are even mounted with the 'C' facing the correct way! The correct casting numbers should also be on the underside, and are easier to examine (with a mirror if on an engine) as they should be unpainted. So, please do your homework and research what an actual original head *really* looks like before parting with any money! In reality the later XK 150 heads offer superior improvement at far cheaper cost.

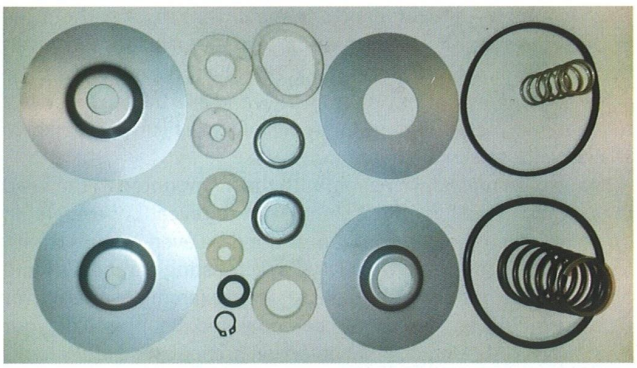
The XK-fitted 'C-type Head' also came embellished with a pair of cam cover badges which are centrally mounted, stating in large text "JAGUAR" and below it in slightly smaller text "TYPE C". These badges are available as chrome-plated, bolt-on, reproductions, but originals were just in plain aluminium, to match the cam cover's finish. The background was inlaid with red paint to match the head.

Just a lateral step here, but take note that on the actual racing 'C-type' (XK 120C), the cam covers were equipped with either a single, bolt-on, oil breather chimney, off one cam cover (opposite the oil cap) in factory-ordered SU carb spec, or one off the back of each





Afull range of essential and also dress up items from The XK Specialists.



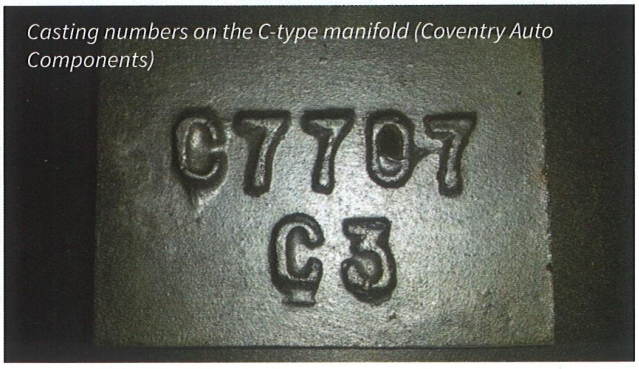
CAC has made the internal parts for all four types of oil filter housing on 120 & 140, inc the rare early 120 heavy conical spring (part 2740). The indented dish is often inadvertently discarded with the filter

Rear oil seal conversion for the steel sump C19687/1

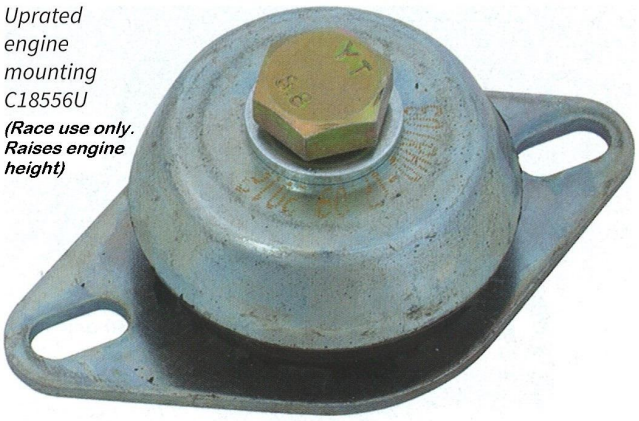
cam cover in Weber carb-equipped spec (as reliably informed by Nick Finburgh). They DID NOT display 'Type-C' badges on the cam covers, to match the unmarked nature of the true, first-build, racing-developed XK 120C heads. The standard breather housing outlet in the head sported a plain blanking plate.

I once wasted two days watching an advertised 'original pair of C-type cam covers' on eBay before realising that they could not be 'Genuine Originals' with twin breathers *and* badges fitted, it is either one or the other, depending on their origins.

The XK 140 'C-type head' was normally aspirated by the standard SU H6 (1¾in) twin carburettors. The H8 (2in) 'sand cast' carburettors were only supplied for racing-spec 140s, as refined idling and tractability on the road were sacrificed for the performance gains at high revs (there was also no auto-choke starter system). These carbs were also renowned for poor sealing and some later-manufactured reproductions for poor linkages that bend out of shape, losing motion/performance. If you do fancy fitting a pair of 2in carbs to your XK, there is ample choice of later, evolved SU carbs available from your local scrapyard that



Casting numbers on the C-type manifold (Coventry Auto Components)



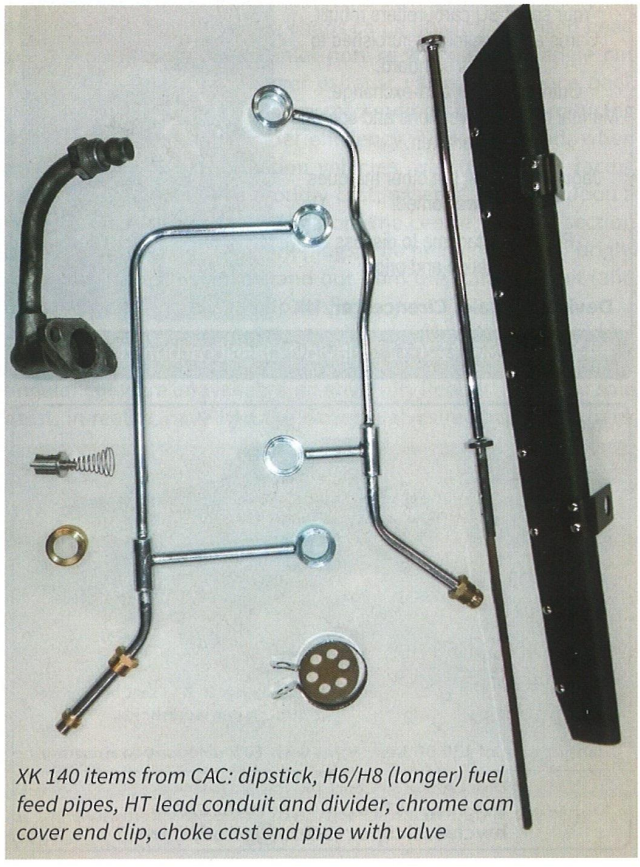
Uprated engine mounting C18556U
(Race use only. Raises engine height)

will do a better job. It is also worth mentioning that as standard, H6 carbs are so 'agricultural' that I would recommend reading up on the work of the brilliant David Vizard, to reveal many simple tricks to make a pair of H6s perform like or even better than their bigger brothers.

The H8 carburettors were fitted in conjunction with a standard-looking XK 140 inlet manifold, but the inlet ports were bored out to match the 2in carbs and the C7462 (in relief) cast number was ground off and the new designation of C8479 was stamped into the modified manifold, so look out for this original feature.

It could be imagined that without the birth of the 'C-type' head, the XK 140 might have faded into the background, but instead it added a glorious, new chapter to Jaguar's ongoing establishment of affordable performance.

In conclusion, I must stress that there are often 'tells' as to the supposed provenance of genuine original Special Equipment engine parts, so do your homework before parting with too much money for an advertised 'genuine C-type' part or engine. Do also bear in mind that there are still some great, cost-effective, modifications to standard engines that will put a smile on your face for a reasonable investment in your own time and perhaps some good, old-fashioned, elbow grease.



XK 140 items from CAC: dipstick, H6/H8 (longer) fuel feed pipes, HT lead conduit and divider, chrome cam cover end clip, choke cast end pipe with valve