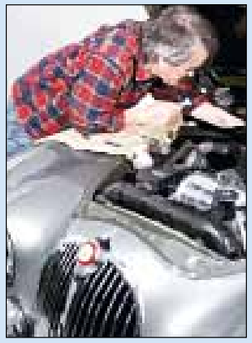


Fitting an upgraded heater to an XK 120 and Mk 2: part 1

Cursed by ineffective heating, we discover how to bring XK 120 and Mk 2 owners in from the cold this winter with a Clayton heater upgrade…

Words and pictures: **Jim Patten**

What an emotive subject Jaguar's heaters are. Unfortunately, because the performance of the Mk 2 heater is generally poor, most other models' heaters are derided too, but many are good! I've never had any complaints about E-type heaters; even the open cars pump out the degrees in winter.

The original circular heater on the XK 120 was okay for its time while the Mk 1's item was not bad, but something went wrong when the Mk 2 came on the scene. They seem to be borderline when everything is in tip-top condition but struggle if just one part of the system is below par.

Over the years people have strived to come up with ideas with some fairly radical solutions. Clayton Heaters has been around a while and understands the workings of things developing heat (and cold as it offers an impressive range of air-con systems too). For the XK 120/140 Clayton can supply the original circular heater or a modern design direct replacement, hidden to the world beneath the dash. The XK 150 is sorted too. For the Mk 2, one problem encountered with the heater box was the air diverter flap. In a perfect world this flap opens one way to let cool air pass, arriving through the open bulkhead flap. Then, when operated to close off the direction of the cold air, the new intake of air flows over the heater matrix, the incoming blast being warmed and sent into the car. Simple! What actually happens is the sponge seal on the flap deteriorates so that when it is closed, cold air still blasts past the flap and arrives ahead of the now decidedly lukewarm air.

The solution is a compromise as most are. The cold/warm air flap is sealed closed so that when any air enters the heater box it will be forced over the matrix and can't help but get warmed. If the heater function is not required then the bulkhead flap should be closed and the temperature setting put to cold. This in effect closes the water valve on the side of the heater, stopping the hot water supply flowing through the matrix. But the heater cannot rely on forced air alone, it needs mechanical assistance – a heater motor. The original is a bit on the lethargic side so Clayton provides a faster motor along with a bigger fan.

Most heater boxes will be in bad shape, even on low mileage, hardly used cars. They may look bright on the outside and the motor may even spin up on request. But take that box off and peak inside and you see decay, crumbling sponge and probably debris that's come in through the bulkhead flap. Clayton can either supply a fully assembled upgraded heater box on an exchange basis (your old box has to be serviceable), or the components and instructions to carry out the work on your existing box. That's the route we're taking here. It is vital that all hoses are in good condition – if in doubt replace. Also look at the heater valve, which should be in top condition. As these are readily available replacement should be a consideration. If originality is not your thing then Clayton markets an in-line valve of greater efficiency. Also make sure the seals between the heater and the bulkhead are perfect, as any deficiency here will allow air to escape.

So roll up your sleeves and get ready to remove the heater box. We're starting with replacing the original circular XK 120 unit with a Clayton modern replacement and, to make it more interesting, it is another ex-Jim Patten car, formerly MRW 420, now HOT 120 belonging to Martin Richardson. We did the job together. Then we start the job of upgrading the Mk 2.

XK 120 heater replacement


1

Remove the hoses from the heater valve situated on the bulkhead


2

Remove the three nuts supporting the heater to the heater box. One will pass through the heater valve bracket. The circular heater can now be lowered from inside the car. Take care, as coolant is likely to spill


3

A final nut and bolt holds the water valve bracket. Note: As there will be insufficient room to replace these fasteners on reassembly it will be necessary to fix a nut beneath the hole. Ideally it should be tack-weld or brazed in place. An alternative is to use JB Weld to 'glue' the nut in place. As it takes 24 hours to go off, surround the nut with the mix and then hold in place with the bolt from above. Leave overnight to harden before removing the bolt. Then when the bracket is refitted the bolt will be an easy fit


4

The original circular heater (left) alongside the modern and more angular replacement


5

The new heater motor has three speeds. For switching a three position (plus off) switch can be used. The diagram on the motor shows the codes. Should the original rheostat be retained then use just the orange wire. Note: This motor is negative earth. Always use a new rheostat switch as the older type invariably burn out. Fit the wires before offering up the heater in place, it is easier to connect with the loom this way


6

It is very tricky to get the outlet pipes fed up from beneath the dash. Martin Richardson worked from above using a pencil to guide the pipe through. It took several tries, often tweaking the pipes to suit before they both were fully through


7

Ideally make a mark where the heater brackets fall and drill holes later. The motor is so light that self-tapping screws are sufficient, although it is possible to use 2BA screws and nuts. However, due to the time in fitting the heater, we supported the heater and then drilled through the brackets before securing with self-tapping screws. One was used to tuck an earth lead beneath


8

From above the heater valve is now fitted to one pipe while the return hose goes to the other pipe. The coolant can now be replenished and the system checked for leaks

9

Fully fitted all that remains is to connect the screen vent hoses


10

The 1952 original has seen better days and now remains as a trophy…of sorts!

Mk 2 Removing the heater

It is easier to remove the air cleaner assembly before starting on the heater. Then release the control cable on the water valve and ease out of the clamp

Ease the control wire away from the heater flap

Pull the wires out of the snap connector from the loom to the heater motor

Slacken the clips securing the two hoses to the pipes and ease the hoses off – damage is likely

Inspect all hoses and pipes. All of the rigid pipes can be replaced in either stainless steel or aluminium – both are available from the specialists

Remove the three nuts and two bolts holding the heater to the bulkhead. As the nuts are fitted to a bobbing type stud, the rubber may break

Remove the heater unit from the car

Stripping the heater

The first job is to coax the heater valve away from the heater box. This one is clearly scrap but they are available new. It's a 2BA thread, these have been replaced on this car by screws. One came out okay – the other did not. Even the mole grips failed and the screw sheered. We'll come to that later

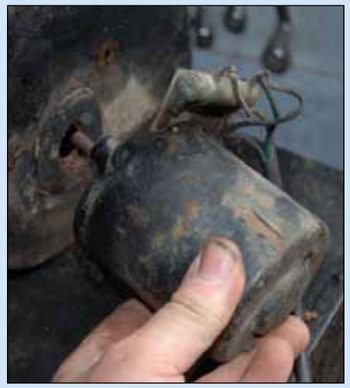
The scrap heater valve was persuaded to depart before the joint gland was retrieved. Amazingly these can be mostly reused

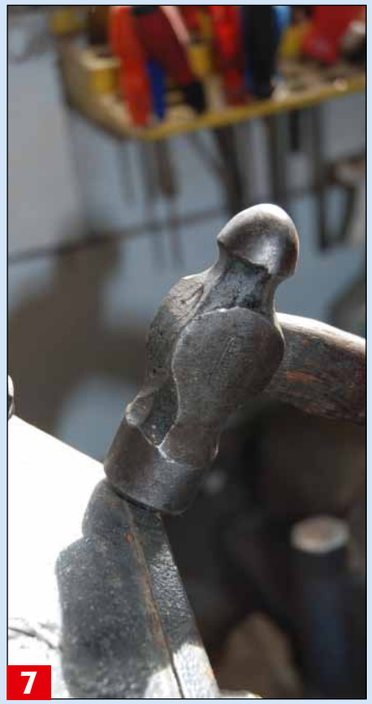
Prior to removing the blower motor the earth lead is undone by releasing the self-tapping screw

Unfortunately, to get to the slot side of the screws retaining the blower motor, the fan has to be removed first. A deep $^{9}/_{16}$th AF socket is needed but the fan rotor has to be held secured to allow the union nut to be removed. As this rotor is being replaced it could be wedged

The rotor was stuck fast on the shaft so plenty of releasing fluid was used followed by a pair of flat-blade screwdrivers to rock/lever the rotor off the shaft. This shows the union nut and rotor

Thoroughly clean the threads with a wire brush and then soak in freeing oil before attempting to undo the motor retaining screws. Then, with a screwdriver on the inside and a 2BA spanner the other, release the three retaining screws and withdraw the motor. This is being replaced





Before undoing the casing screws, give each one a light tap with a small hammer. This shock should aid removal later on

The casing screws rarely give trouble and even these gave up the struggle and were soon removed

There may be some wrestling needed to get the cover past the matrix pipe where the water valve lived as decay and rust will hold it fast

Lift out the heater matrix. Note the foam used to cushion the ends. A replacement matrix comes in the kit

The inside looks a mess. Clayton has the casings blasted and painted

Back to that broken stud. Using a welding torch the base is heated until cherry red. If you do not have welding gear, have a word with your local garage or specialist for help

Grips are used to clench on the stud as it should now release with ease. Take care as this area will be glowing hot, even if the cherry red colour has dissipated somewhat

The threads are simply cleaned up by running a 2BA tap down the length

Contacts
Clayton heaters,
Tel: 02476 691969, Website: www.claytoncc.co.uk

Parts prices (inc VAT)
XK 120 heaters

Replacement circular:	£260.00
Modern replacement:	£229.99
Refurbish original circular element:	£170.77
Heater motor:	£52.00

Next month:
Finishing off the Mk 2 heater and looking at the E-type

See technical disclaimer on page 129