A club member's story on the restoration project of his

1972 Jarama S

Part 1

Dissecting a frog

I have been asked to write an account of the few weeks leading up to the Silverstone Classic 2013. I'm not a novelist nor am I trained in mechanics but I do have a stubborn determination when I set my mind to something. First things first, I couldn't have done this without valuable advice from many people including Derek Hopkins, Dave Eaton, John Britain and lots of contributors on the Vintage Lamborghini Garage web site. So here goes…..

A few have called me brave but most have said I'm mad. I'm talking about taking apart a Lamborghini 4 litre V12 and rebuilding it in my own garage. And when I say 'garage' I don't mean a commercial outfit, I mean my 'man cave' which I also have to share with the kids bicycles, some garden furniture and other stuff that the wife won't have in the house.

The engine belongs in Kermit and he is a 1972 Jarama S (yes, I call my car a 'he' as Kermit can only be masculine. Just ask Miss Piggy). The Jarama is probably the least well known model to come out of Sant'Agata Bolognese and certainly not a fan-favourite but nonetheless it is a high revving Bizzarrini cloaked by Bertone (actually Bertone only designed and pressed the panels, assembly of the shell was by Marazzi).

Why am I doing this myself? I didn't intentionally set out to buy a Lamborghini. I was looking for a classic car to while away my time and tinker with. Whatever I finally got was going to be maintained by myself. A Triumph Spitfire or an MGB would probably have been a wiser choice but with hindsight I have actually made the perfect choice as this is the most fantastic of engines not only to drive but also to work on. So here we go on the journey.

Years of inactivity prior to my purchase in 2012 had taken a heavy toll on the engine. Crankcase pressure was so high you could inflate a balloon on the dipstick tube. The coolant pressure was also blowing water out of the overflow. A simple 30 mile drive required stopping half way through and topping up the radiator.

Kermit required that thing that scares the hell out of one's wallet. An engine overhaul.

Dave Hutton will attest to the state of Kermit's health as here we are leaving Brooklands in May on Kermit's last journey before I ripped him apart. And before we got to High Wycombe roughly 30 miles away we had to stop and top up the coolant.

Due to limited space in the cave and the constraints of working alone it is not practical to lift the whole engine out in one. Normally the engine and gearbox would be lifted out as one unit but this does require some ceiling height because it has to be angled out of the car.

Look at the size of that thing! This was taken last year to replace the water pump and clutch. As one unit it is about 6 feet long.

Even though it is made mostly out of light alloy there is still a lot of it and due to the height restriction in my garage it must come apart bit by bit.

Strip down

I'm going to rush through the disassembly and provide more detail when it comes to reassembly so excuse the brevity of this section.

After draining oil and coolant here is a quick list of what is disconnected or comes off (I think this is roughly the right order). This is the easy bit and pretty much all you need is a 10mm, 13mm , 17mm socket, a screwdriver and bowl for nuts ,washers, etc.

Throttle cable and linkages, fuel lines, air filter boxes (2), servo vacuum hose, carburettors (6), HT cables (14), distributor, distributor mount, coolant hoses (4), water pump, air-con compressor, compressor bracket, crankcase vent, cam endplates (5) , heads to radiator coolant pipe, cam covers (4), inlet manifolds (2), timing chains (2),

camshafts (4), exhaust manifolds (4), heads (2 and heavy) , dipstick tube, alternator, oil filter, oil feed pipe, oil pump and finally the starter motor. This leaves the crankcase and sump which are lifted out with an engine hoist.

For those environmentalists who may be reading this I would like to add two things. 1: What are you doing in the Lamborghini Club? 2: Kermit's air-conditioning has not worked for many years and the system was empty so it was safe to remove the air-con compressor.

Who stole my engine?

That's quite a list and takes a good part of a week. But there is more. I need to strip out the pistons, crankshaft, timing gears and chain guides so after a day or two more work I basically have a garage full of parts that require cleaning and inspecting.

I could not get a photo of all the components together as my garage roof was not high enough and I didn't have a fisheye lens on the camera but this picture does give an idea of the scale of the rebuild. Missing from the photo (among other bits) are the carburettors, crankcase, exhaust headers, starter motor, clutch, distributor cap, HT leads, alternator, air-con compressor, compressor mount, fan belt pulley, air filters and boxes and all the nuts and bolts in various little plastic cups dotted around the cave.

Inspection and shopping list

The Lamborghini V12 is a sand cast aluminium alloy block with cast iron liners. Iron rusts and 5 of Kermit's bores were quite seriously pitted due to the rust that formed when he was sat with a blown head gasket not moving for a few years. There were also other liners that were worn. One has a massive groove running up the liner and also there were 3 broken piston rings thrown in for good measure. All this would explain the high crankcase pressure. I decided that since about 9 liners needed replacing then I might as well replace them all with new ones.

The procedure to replace the liners is to heat the block up in an oven to 140°C (that is even hotter than normal running temperature), pull the old liner out and push the new one back in. The liners then need 'trimming' so they sit proud of the crankcase by about the thickness of a sheet of paper (0.1mm to be exact). I do have oven gloves but I don't have the proper machinery to do this and Katherine refuses to let me put the block in the cooker. I have no

choice but to hand the block over to an engineering firm and let them do it. This is the only part of the job that is being outsourced. I went to visit HT Howard Engineering in Slough just as they were about to put the block in the oven prior to fitting the new liners.


Here is a picture of the block without any liners.

Having inspected all components here is a list of new parts that needed sourcing. New piston rings, liners, main bearings, big end bearings, head gaskets, oil seals and other little bits. The liners are a stock item at Westwood Liners Ltd.

Head Gaskets

I bought a gasket set off the Internet and I'm not impressed with the head gaskets in it. The cylinder rings are poorly installed with varying overthrow, the oil rings are not installed properly. In short, I'm not putting this in Kermit. And this was a Victor Reinz gasket too. They are meant to be good.

I found a company and spoke to really helpful chap, Barry, at Atlas Gaskets and we got a die made up from the old gasket so he can make me an excellent quality gasket with well installed copper crush eyelets and stainless steel cylinder rings. This is costing quite a bit for the die to be made so I'm having extra sets made. As HT Engineering will need to skim the block I'm having the gasket made 0.2mm thicker. Oh, and I get to keep the die in case I need another set made (bear that in mind if you're planning a rebuild, I have good, really good head gaskets).

Here is the result.

Bearings

Big end bearings are a bit worn;-) Time to replace methinks. This wear was pretty much similar on all bearings including the mains.

It is now the end of June and Silverstone Classic is in a little over three weeks away. Most of the parts have arrived but there isn't much to do because most things centre on having the crankcase back.