

An Apprentice's Story

In 1968 I joined Ford Motor Company as a Student Apprentice, on a four year course leading to a BSc in Mechanical Engineering. After six months' basic training at the Apprentice Training School in Harold Hill, near Romford, I was given the choice of attending either Rugby College of Engineering Technology or Widnes Technical College. I chose the former as it was both closer to home and also not in a large conurbation, I had grown up in East London so wanted to escape into the countryside.

I went up to Rugby in January 1969, and as part of the course we were taken to visit an open day in early 1970 at the Motor Industry Research Association (MIRA) proving ground near Atherstone. Amongst all of the indoor and outdoor testing, we were shown their Off-Road Capability course. A variety of vehicles were available for the students to be chauffeured around in, and my mate Colin (not his real name) and I chose one of the two vehicles that we were not

familiar with. One was blue and had VELAR on the bonnet, and the other was a sort of off-white colour, and had RANGE ROVER on the bonnet. We bagged the RANGE ROVER as someone else was already in the VELAR. The Land Rover rep that was driving us explained that this was a pre-production vehicle from LR, and the other one was a prototype, the name of which was the project code name, and which stood for Vee Eight LAnd Rover. After a hair raising ride around the off road sections, ably driven by the demonstrator, we each posed for photos with the car. Unfortunately, we never got around to swapping photos, so I have a photo of Colin, and he presumably still has



This is the picture of Colin with YBV 165 H after our trip

a photo of me. I said to Colin "One day I'm going to have one of these", to which he replied "What, on an apprentice's wage?"

The years elapsed, we all graduated and went on to spend many years working in industry, and soon lost touch with each other. I left Ford and went to work for GEC in Rugby, where I met and married a local girl. We had several cars, two houses, two kids, and a caravan. Thoughts of owning a Range Rover subsided into the background, but we got on with life.

Then disaster struck, my wife contracted Cancer, and I had to take early retirement in order to nurse her through her final five years. After her death I had a nervous breakdown, and after two and a half years' Psychiatric treatment, I was once again able to emerge into the real world. Thinking back to my student days, I realised that I could now afford the car I had always wanted, so I scoured the internet and eventually found a 1990 Vogue 3.9 which needed a fair bit of work to get it roadworthy.



H767 GUE on arrival at home in February 2009

I immediately transferred my Cherished Mark, 345 ARC, onto it, and started to overhaul and upgrade it, quite a lot of welding was required, and I replaced every nut, bolt, and washer that I removed with a stainless steel one, and also made several stainless steel brackets to hold (for instance) the bumper extensions and the LPG filler nozzle. I applied to the DVLA for information regarding its previous owners and its MOT history, and was rewarded with a thick dossier of microfiche printouts detailing its complete history. Apparently it was at one time owned by the late Bert Millichip, CEO of Tyndalwood and Millichip Solicitors, and chairman of the FA. I used this car daily from 2009 until early 2016, when a leaking head gasket was filling the sump with water, so I decided to strip the engine and rebuild it. Unfortunately, during this rebuild, the building society had other ideas, and I was forced to sell it as an incomplete project before selling the house to pay off the mortgage. I transferred the Mark to a Retention Certificate awaiting transfer onto another vehicle.

I decided that I did not want to stay in Rugby as I had only settled down there because Ford had not had sufficient vacancies for all of its graduated apprentices in 1972. I went looking for rented accommodation elsewhere. I stuck a pin in Rugby on the map and drew a 100 mile radius circle around it. The line passed very close to the town of Welshpool, amongst other places, and as there is a steam railway there (Welshpool and Llanfair Light Railway), I concentrated my search in that area. Eventually I came across a bungalow in Llyncllys, close to Oswestry, and coincidentally, there is a preserved railway there too (Cambrian Heritage Railway). I suppose you could say that I aimed for Wales, but missed by about two miles.

When I had settled down again, I decided to look for another Range Rover, only this time I did a lot more research, eventually plumping for the vehicle I should have gone after the first time. I found a 1994 (1995 Model Year) LSE 4.2 litre Soft Dash on an auction site, and bought it. Unfortunately, it was not roadworthy, having been barn stored since 2009, so I had to employ a haulage firm to collect it on a trailer and bring it to my new home (almost) in Wales. As this is a Coventry registration mark, and the dealership and 1000 mile service were located in Allesley, near Solihull, I wondered whether this was a Land Rover fleet vehicle, or perhaps it has some other claim to fame. If anyone can enlighten me, I would be much obliged. I applied to the DVLA for information on its previous owners and MOTs, but the rules have changed since my previous application (in 2009), and they are no longer willing to supply any details. I am still following up some leads as to organisations or people who might be able to supply any information about this vehicle.

Iain Purvis - member 7164



L878 YDU upon collection, November 2017

An Apprentice's Tale – Part 2



L878 YDU upon collection, November 2017

As soon as I got YDU home, I started having a good look at her. As I bought her sight unseen off flea bay, I was prepared for her to be a bit rough, but as it happened, she was not actually falling to pieces. I was able to drive her up and down on the private road where I live, and most things appeared to work, although she was extremely noisy due to the huge hole in the silencer. However, disaster struck a few days later, the starter motor ceased to function, and in the middle of November, I didn't fancy grovelling about underneath, my old bones wouldn't have stood for it at the time.

I decided to get a professional opinion on what needed doing, so I arranged with the local Land Rover dealers (who had collected her for me in the first place) to collect her on their trailer, replace the starter motor, and give her an MOT. All for the sum of less than £200, can't be bad. What was bad, though, was the list of 15 Fails on the MOT, plus another 5 Advisories. Oh, dear! But at least I now knew what was ahead of me. I

therefore made a huge list of parts that I would need to buy, and started collecting stuff together. At least I could still enjoy driving up and down the private road, as long as I didn't venture off the estate.

The months went by, the Beast from the East arrived in February and built a scale model of the Matterhorn in my front yard, so I shelved any further work until the weather improved.

Once the arctic weather had departed, it was time to start work on the worst of the Fails on the MOT. The rear axle had suffered rather badly. At some point in its history, it had been sprayed with a thick coat of what looked rather like bitumen, I presume it was intended as some form of underseal, but



The scale model of the Matterhorn – courtesy of the Beast from the East.

whoever did it forgot to remove the rust first. The resultant growth of the iron worms inside their protective cocoon exploded the underseal coating, which now hung off in large patches. Several of the axle attachment points had also been eaten through, so the whole axle was in danger of detaching itself from the suspension arms. How was I going to remove a very heavy axle on my own without dropping it and damaging it (or myself) in the process? After jacking the rear of the car up and supporting her on axle stands under the chassis outriggers, I used some Fitters' Stock perforated channel ("borrowed" from my last but one employers) to make a pair of brackets to bolt onto the ends of the axle tube, and by adding a set of heavy duty casters, was able to manoeuvre the whole assembly out from under.



Fitters' Stock Bogies bolted to axle tube



And it's out (sorry about the mess, should have cleared up before photo)

Sounds easy, doesn't it? Unfortunately, one of the through bolts securing the upper control arm ball joint casting to the arms was rusted solid, and took three days to free. This was eventually achieved by cutting the head off with a cutting disc in the angle grinder, then pilot drilling, and finally drilling out to the full 1/2" using two pistol drills, to allow one to cool off while



the other was getting overheated. Not easy whilst scrunched up underneath the car. *(Note the swarf in the picture above)*



The next problem was the corroded suspension pickup points on the axle casing *(left)*. The shock absorber lower mount has huge holes where there should be metal, and the lower radius arm bracket isn't much better. Unseen from this view, the anti-roll bar mounts behind the axle were also pretty bad.

The axle was then trundled into the garage and suspended from the engine crane to drain the last of the oil out (*pictured right*). The spreader bar is to move the suspension point to above the centre of gravity, so it hangs roughly vertical. The axle was left to dangle for a couple of days to drain all the oil.

Then it was just a matter of removing the diff, cutting off the rusty brackets and preparing for the new bits to be welded on. Unfortunately, whilst wire brushing the tin rear cover on the diff, I went through it, so that had to come off as well, an additional expense I hadn't bargained for.



One of the new shock absorber mounts before welding on.

When all the necessary welding was finished, I took the complete axle tube assembly (less diff) to the local Monumental Mason's to have it sand blasted, then gave it a coat of Phosphoric Acid Etch Primer, and finally a couple of coats of that well known brand of smooth black paint.



Axle painted and back in position. New brake pipes and wiring.

Then it was just a matter of refitting the differential carrier and putting it all back, so, on with the two bogies, and trundle it under the car.

Of course, I had taken time to sand blast, etch, and paint the rear half of the chassis, so it all looks nice and clean and new. New discs, callipers, and brake pipes were added, and a new ABS sensor loom, because I had to destroy the old sensors to get them out, they

were so badly corroded they were impossible to remove.

The old air springs were badly perished, although they didn't appear to leak, so I fitted a complete new set of four. Every bolt I took out was measured and discarded, to be replaced by a stainless steel equivalent. Almost the only exceptions to this were the four special 12 point, fine thread, M12 x 1.25 bolts attaching the callipers, I haven't yet found a source of supply for them, but I will later. The upper ball joint nut was another impossible find.



Showing new discs and callipers, new air springs and refurbished shocks.



Top Ball Joint. Unfortunately, not a stainless nut as it also has a funny thread.

The new top ball joint was pressed back into the casting by a local truck maintenance firm, my 6 ton hydraulic press was nowhere near powerful enough to do the job, it took 25 tons to get it seated. As mentioned previously, the taper joint also has a stupid thread, M22 x 1.5 in this case, so I couldn't get a stainless replacement, hope the layers of paint are sufficient to preserve it. The two 6½ inch long ½" UNF through bolts attaching the ball joint casting to the two upper control arms had to be made by threading two 7" lengths of ½" diameter stainless steel round bar at both ends and fitting two Nyloc nuts on each, as seen in the photo.

Iain Purvis - member 7164

To be continued.....

An Apprentice's Tale - part 3

I had a bit of fun with the Upper Control Arms, I removed the old Metalastic bushes and fitted new Polybushes. As the original pivot bolts had had to be cut out using a cutting disc in the angle grinder, I fitted new stainless steel bolts in their place. Unfortunately, I couldn't get $\frac{3}{4}$ " UNF stainless bolts, so 20mm would have to do. This meant opening up the holes in the chassis brackets, so a 20mm cone drill was used to enlarge them and keep them concentric. I also replaced the plated steel $\frac{3}{4}$ " bore centre tubes of the Polybushes with stainless steel ones with a 20mm inside diameter.

While she was up in the air, I fitted a new exhaust system, because



Upper control arm to chassis mount



Holey silencer, no wonder she was noisy

the old one was more holey than righteous, and removing the silencer resulted in the destruction of just about all of the rest of the old system.

When it came to disconnecting the old air springs, the text in the workshop manual mentions peeling back the rubber boot and depressing the collet to allow the air pipe to be removed, then replacing it after the new connection is made. The illustration also shows this rubber boot, but they were both missing from the rear springs on this car, so the collets were jammed up with road dirt and impossible to depress. This meant that I had to cut the pipes as close to the collets as possible, then remove the pipe fitting and clean it out, so that I could extract the stub end of the pipe and refit the slightly shortened pipe. The Parts Manual, however, does not show or list these rubber boots, so I took the ones from the front springs to put on the back, because the front springs are not exposed to road dirt in the same way as the rear, and therefore not subject to getting bunged up. I have since determined that they are actually valve stem oil seals, but I don't know what engine they are from (yet).



The elusive rubber boot/valve stem oil seal on top of the rear air spring

When I first took delivery of her, the air suspension was working perfectly, it went up and down as necessary, and I thought no more about

it, there were more pressing problems to address first. However, the first Fail on the MOT, done by the local Land Rover dealership, was "Air suspension low and not responsive". There were also four more Fails concerning the fact that there was insufficient clearance between the axle tubes and the front bump stops or the rear chassis, as the rear bump stops were missing (but they were only Advisories!). It seems that they "forgot" to press the "Suspension Freeze" switch before they jacked her up on a two post lift, so the axles dropped out to full rebound, causing the suspension ECU to have a panic attack, deflate the air system, and put itself into "Limp Home" mode. As soon as I received her back home, I plugged in the laptop to the air suspension ECU, cleared the faults, and reset the ride height, and the compressor started up and raised her to Normal ride height. I have since discovered that some of the other settings appear to have been corrupted, so she doesn't sit level on other than Normal ride height. Someday I will get around to reprogramming them (using the excellent EAS Unlock software from RSW Solutions), but I need to find a perfectly flat and level surface for a datum, where I live is on the side of a hill.

Of course, in order to connect the laptop to the air suspension ECU, I had to make up a special cable, but the five way Rist's TTS plug is no longer available. After a bit of head scratching, I bought a 9 way TTS plug, cut it into three pieces, discarded the middle part, and glued the two outer parts together to form a new 5 way plug. The serial port plug on the other end of the cable has to have a couple of electronic components inside the shell to interface the laptop with the suspension ECU.



9 way TTS shell



modified to 5 way

The TTS shell had to be cut between the first and second, and between the third and fourth sockets on the top row, which resulted in the second and fourth sockets on the bottom row being cut in half. It also meant that the spring latches were on the discarded centre portion, but as it only has to stay in place whilst being used to reprogram the ECU, that's not really important. Gluing the two outer halves together, and binding with twine before impregnating the twine with Superglue resulted in a robust assembly, ready to be populated with the necessary contact sleeves.

I did a bit of cleaning and painting on the front suspension, and fitted new discs, pads, and air springs there as well, and with a few electrical repairs, some new headlamp units and side repeater lamps, she passed her MOT with flying colours. Insured, taxed, and Cherished Registration Mark transferred onto her, and she's ready to go. I have since found out from various sources that she was originally registered L878 YDU, but has since borne cherished marks A11 NWR and JIJ 518, before the most recent addition of mine, 345 ARC.



Ian Purvis - member 7164


Back on the road proudly displaying her new Registration Mark

An Apprentice's Tale – Part 3(a)

You may remember in Part 3, that I couldn't find any reference in the Range Rover Parts List to the rubber dust cover for the air pipes connected to the air springs on my LSE Soft Dash. I surmised that it was some sort of valve stem oil seal from an unspecified engine, but it turns out that I was wrong.



As you can see, each of the air pipes (in the picture at left), is supplied complete with its own dust cover, so they do not need a separate part number. The corollary of this is that in order to purchase a replacement dust cover, one is forced to shell out for a complete pipe assembly. I looked up the price of the front pipe (ANR1740), it is £44.95 +VAT.



2520

DUST COVER		
PART NUMBER	TUBE OD	PRICE
Z67084	4 mm	£0.40
Z67085	5 mm	£0.40
Z67086	6 mm	£0.40
Z67088	8 mm	£0.40
Z670810	10 mm	£0.40
Z670812	12 mm	£0.45
Z670814	14 mm	£0.45

During Lockdown, while I was self-isolating and therefore had nothing much to do, I was idly leafing through an old Parkair catalogue, when the image at left jumped out at me. There, on page 380 (of 1180) was the very thing. As you can see, Z67086 is the 6mm version, which is exactly what I had been looking for.

This dust cover, made by Camozzi, is actually supplied by Parkair to fit on the push fit pipe connectors from the same company, which is what is used by Land Rover on the top of each of their air suspension units.

The list price in 2018 was £0.40 each, plus VAT brings it to 48p, but as Parkair have a Minimum Order Quantity (MOQ) of 10 pieces, plus they charge £8.95 for Post and Packing, the minimum you could get them for would be £13.85, or £1.38½ each. I therefore contacted a local Pneumatics and Hydraulics parts supplier (Quality Maintenance Services in Oswestry), and they kindly added some to their next bulk order and only charged me 50p each for the four I needed.

The next project on this car is the reinstallation of the LPG cylinder. As it was originally mounted crossways behind the rear seats, it obstructed access to the spare wheel, so I had to remove the tank before I could use the spare to support the car while I dealt with a left front rim leak. I now intend to mount the tank on some sort of slide arrangement, similar to those found on filing cabinet drawers (only stronger), so that the rear seats can be folded forwards to allow the tank to be slid forwards when access to the spare wheel is required, and slid back and locked in place, and the seats put upright again for travelling.

For Sale – Rare 1994 Range Rover LSE Soft Dash



As a result of a bout of Covid-19 and the subsequent effects of Long Covid, I am now in the unenviable position of no longer being fit enough to give her the care and attention that she deserves. Added to that, the ongoing deterioration in my Kidney Function has led to the prognosis that, by Easter, I will be on Dialysis, and at 74 years old, I have decided to part with the car of my dreams. But enough of my woes, please read on...

She is one of only 800 built during 1994 and 1995, being built on the 9th March 1994. According to the DVLA, there are only 230 left, 49 of which are on the road, and 181 on SORN. She is MOT'd until 16th October 2022, and is currently taxed and insured.

She was rebuilt in 2008, but not returned to the road, being dry stored in King's Lynn until 2016, when she was rescued by a collector in Bradford. She was then bought by myself in November 2017 and extensive work carried out on the rear axle and suspension, which had deteriorated during storage, as detailed in my previous articles.

The car is for sale, complete with the Cherished Registration Mark, plus the Nominet Registration for the web address www.345ARC.co.uk. The asking price for the whole package, car, VRM, and web URL is £12,000. I would hope that the new owner would provide her with the care she needs and deserves, and enjoy owning and driving her.

Although there are the usual corrosion problems, the car runs and drives well, having just passed the MOT with four Advisories, namely "Corrosion within 30cm of a body mount". This corrosion will need attention within the validity of the present MOT. There are, however, corrosion problems with previous body repairs, notably the passenger's and driver's footwells, which should also receive attention within that time frame, and also other problems, such as with the upper tailgate frame could do with replacing, and the rainwater ingress under the dash, which wets the driver's carpet, needs fixing.

Please contact Iain on 07940 722160 if interested, the car is located at Llynclys, near Oswestry, Shropshire SY10 8AQ. (Google Glyndwr Drive Oswestry to see where I am).