Memories and Reflections

My Years With The Allard Motor Company

By

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1932 - 2022

Part 5

Projects and Parts

Foreward

For many years up until his death, David had been writing his 'Memoirs'. When he passed away I was fortunate to be left in his Will all his Allard related documents.

This included his 'Memoirs'. Unfortunately there were multiple printed versions as well as about 30 digital copies - none of which appeared to be duplicated, each having various additions or amendments. Plus numerous pages of notes.

We have therefore cross checked every copy, paragraph by paragraph, to try to ensure we have one complete version. Whilst it was necessary to make some slight adjustments we have tried to avoid duplication and retain David's wording throughout.

Darell Allard

Contents

Drawings and Photographs have been taken from David's own collection.

Part 5 - Projects and Parts

The Steyr Allard - 'Single Seater' 1946.

The Steyr 'Single Seater' was built as a private venture by Sydney, following the success of various pre and post-war specials, for example HLF 601. The Allard Motor Company Ltd came into being in February 1945 with the announcement of new models in January 1946. The competition successes of the Allard specials and the introduction of J1 and L Types was good publicity for Sydney. However the Steyr 'single seater' was to be a private venture. It was thanks to a call from Bobby Baird that two surplus German Steyr V-8 engines were available. The potential single seater engine had not been decided, except for the unreliable over head valve US Ford conversion (not Ardun) that Sydney had used in 1945-6. While these German Steyr V-8 engines produced less than 50 BHP, it's original design was intended mainly for static generating power using very low grade fuel. The potential of a light weight air cooled V-8 with overhead valves and hemi-spherical combustion chambers was too good to dismiss. By replacing the cast iron cylinder barrels with Alfin sleeved liners, high compression pistons, 8 separate Amal carburettors with their own separate float chambers and an unmodified camshaft - 140 BHP was produced. The early thoughts for this single seater Steyr engined car was to use standard Allard parts where ever possible. The side members were standard Allard along with the leaf spring cross member, plus three 3" diameter cross tubes. To add torsional stiffness the side members were boxed, being lightened with a large number of holes, as were most brackets and webs. The front axle was based on a standard Allard assembly with parallel pivot axis, rear facing radius rods and leaf spring with Andre friction dampers, instead of the Girling lever type shock absorbers. Adamant Engineering supplied a Marles steering box with a long (14") sector shaft which was connected via a fibre type coupling to the steering wheel shaft. The front track used Ford 5.75-16" wheels and tyres. The rear axle was a narrowed L type Ford axle giving a track of 52" with twin rear tyres 5.00-18" diameter. Coil springs were the suspension medium with a central sliding peg for lateral control and single radius rods mounted on the outside of the chassis side member.

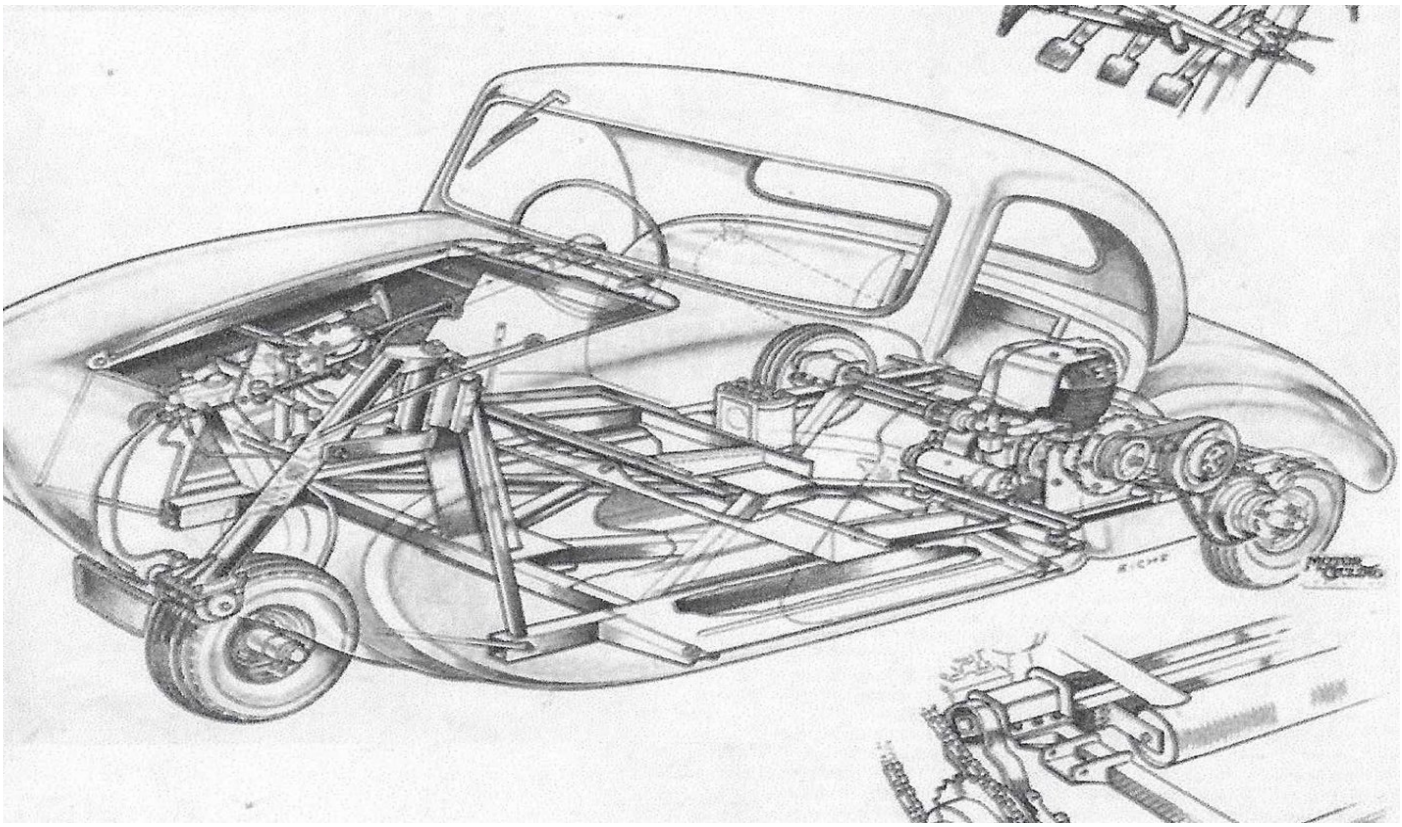
In this basic form the Steyr's first practise run was at Prescott on the 25th April, 1947, and proved to be very encouraging, being followed by FTD and hill record at Prescott in May. From this point on there were numerous developments including an increase in valve diameters, exhaust pipe stubs replaced by 4 branch manifolds and tail pipes and the 3 speed gearbox with close ratio gears. The gear lever was repositioned outboard of the body, close to the fly off hand brake. While handling was initially satisfactory there were some misgivings about the rear suspension plus it's 'dislike' of uneven track surfaces. It was felt that the problem lay in the un-sprung mass of the modified Ford rear axle. During the winter there were considerations on using an independent swing axle. However the best solution was deemed to be a De Dion type layout. Using the Ford based axle the conclusion was made to modify it to a De Dion axle design. The pros and cons for independent against De Dion was far reaching as far as production of J2, J2X, K3, and P2 were concerned. Using the Ford axle casing, shafts, differential, crown wheel and pinion it was possible to modify the differential unit in such a way that this could be bolted to the two cross tubes and still retain the torque tube, with a connected 2-3/4" diameter dead axle tube.

Allard Clipper 1953 – 1955

The concept of the Clipper three wheeled 'Mini Car' was produced by David Gottlieb of Power Drive Ltd. The Allard Motor Company were contracted to produce two prototype chassis, including a self coloured fibreglass body. While some mechanical aspects of the Clipper were viable, the single rear wheel drive coupled with the triple 'V' belt drive from the engine to gearbox, was not. The prototype Clipper was tested against two of the other UK manufactured three wheelers, the Bond and the AC Petite. From this it was agreed to proceed with the manufacture at the Encon Motors workshop site in Fulham. But at this stage, production problems with the fibreglass body were far from being resolved. This caused numerous delays which required new moulds to be made. I believe the mould damage was due to inadequate understanding of the fibreglass release agent coupled with a lack of draw angles on the steel body shell pattern. Horden and Richmond, the makers of the fibreglass body, needed to make new moulds which incurred additional costs which was not agreed to. With less than 20 cars being produced the project was cancelled.

Basic Specifications.

Engine - 346cc air cooled Villiers two-stroke.
Gearbox - Burman 3 speed with reverse.
Brakes - Lockheed hydraulic.
Suspension - trailing arm using self-damping Andre Neihart rubber suspension design.
Rear axle - 2 road wheels with single near side rear driven wheel.
Front axle - steerable single wheel.
Wheels - 4.00" x 8" diameter.
Electrical system - 12 volts, 20 amps hour battery with dynamo and starter.
Chassis - 3.5" U section 14 swg steel channel.
Body - Self-coloured, fibreglass.
Fuel consumption - 70 mpg (claimed).



The Allard Atom

The ‘Atom’ project originated from Ronnie Green, the promoter of Wimbledon Speedway, who placed an order with the Company to build a prototype 500cc JAP powered small ‘dirt track’ style car. In the 50’s speedway was beginning to lose it’s appeal due to rather processional racing with little overtaking and the winner usually being the leader after the first corner – nothing new! Ronnie Greene supplied us with a methanol tuned JAP speedway engine, along with a bike clutch assembly and the requirement that the car should use 13” diameter Ford 100E wheels and tyres. He held the view that midget racing car should look like the real thing rather than a fair ground dodgem car. Sydney produced one of his ball point pen sketches along with a requirement that the wheelbase should be as small as possible which resulted in it being 64”. Construction of the car was carried out at the Encon Motors workshop in Fulham, with the chassis based around a lightweight channel section which had previously been used for the Allard Clipper. The engine and clutch assembly mountings were part of the left-hand side member. The rear axle was a solid shaft (Go Kart style) with a removable hub on the left hand side so that sprocket size could be changed. To aid it’s cornering characteristics both front and rear axles were offset from the car’s centre line by approximately 2”. The front axle was a fabricated beam axle (Frazer Nash style) with ¼ elliptic leaf springs and radius rods. The smallest Ford stub axles (E93A) were used, with specially made lightweight hubs and the steering was a shortened Ford Burman type steering box. No brakes were fitted with the controls being accelerator and clutch pedals along with an engine ‘kill switch’.
Before the body was made, the car was taken to the Wimbledon Speedway track for Ronnie Moore to test. Once unloaded in the car park it was given a brief run on the tarmac surface to do some basic checks before being tried on the track. After one exploratory lap on the cinders, the speed was increased for a few laps, however due to ruts being left on the bends by the earlier practicing bikes the ‘Atom’ caught a rut and rolled. Ronnie Moore suffered a broken collar bone! One lesson learnt from the accident was that the cinder surface of that time, needed to be prepared for car racing. Ronnie Moore went on to become the Speedway World Champion of 1955 even though he had barely recovered from his shoulder injury. In order that I could complete my 2 years National Service in the Royal Air Force it was at this point my involvement in the project finished . A second car was built, but after strenuous efforts to develop Midget Car racing in the UK, it did not prove a success and the idea was dropped.
On the www.britishpathe.com web site there is colour film of the car, complete with body, being tested at Wimbledon Stadium by Cyril Brine. Both Sydney Allard and Ronnie Greene are also seen in this short film. During the early 80’s one of the two Atom cars could be seen outside a lockup garage in the Earlsfield area of London. However the owner was neither interested in the car or prepared to sell. John Pitney rebuilt one of the two cars, probably the one from Earlsfield and Ronnie Moore drove it in an event at Wembley in 2000. The front axle of John’s rebuild bears no relationship to the original design.

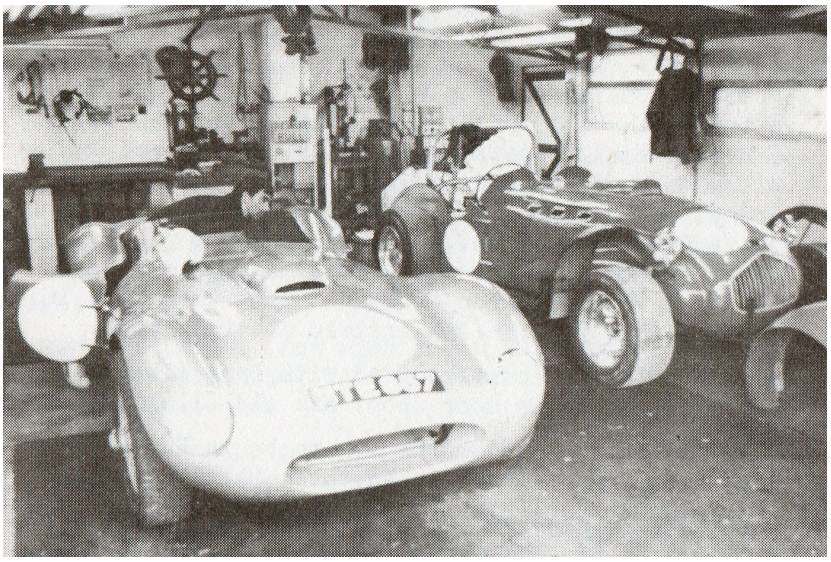
The Allard Farrallac

The Farrallac, as it is today, came about when Don Farrell decided he wanted to improve the performance of his J2, and resolve the poor pick up performance of the American Carter carburettors. The Company had fitted four dual choke Solex P11 carburettors to Rupert Larrinaga's JR, which Sydney occasionally shared with him at Prescott and Shelsley. No doubt he recognised how much better the Solex performed against the Carters. Don discovered that two sets of Solex manifolds had been made and that the second set was stored in the collection of Allard spares housed on the upper floors of the Head Office at Clapham High Street. At this time we were able to supply a ZF differential which had been designed to fit the Allard De Dion differential unit. During my discussions with Don he said his aim was to build a light weight tubular chassis and use both front and rear Allard axle assemblies and alter the car's front to rear balance by moving the engine further forward. I had been engaged in an exercise to explore a replacement for the Allard front swing axle and suggested to Don he might like to consider using this McPherson type front axle design. Having looked at this option I concluded that a better proposition would be to design a double wishbone arrangement, using as many Allard parts as possible. It was agreed with Sydney Allard that I would assist Don with his rebuild as my own project and the Company would supply materials plus manufacture any of the special parts required.

Front Suspension.
The wishbones were slightly unequal in length being tubular construction with phosphor bronze pivots for the chassis mountings and fabricated mountings for both lower and upper suspension joints. Consideration was given to use aircraft style Rose joints, however the cost was excessive. (Current 'rod end' joints were not available at that time!) The outer suspension joints were made by Automotive Products and were used on the Ford 400E light van. The uprights were a steel fabrication having the stub axle shafts bolted into the upright, allowing the Allard splined hub, complete with bearings, to be used. Also it was possible to retain both Allard brake drums and back plates. The Mk2 Palm Beach was designed to have an optional 11.7" diameter front disc brake arrangement and it was agreed that the calliper mountings would be incorporated in the upright fabrication. This addition would allow disc brakes to be fitted at a later stage. However, it would require the Mk2 Palm Beach hub to be used in conjunction with Girling sourced discs. One of the design criteria was to achieve minimal bump steer by locating the steering arms at their optimum relationship to a Jaguar 140 rack and pinion steering box. The steering arms were Ford Zephyr being bolted to a machined 'U' section which was part of the upright fabrication.

Rear Axle
The rear axle was incorporated with two modifications, the first being to use the more accurate peg and slider for lateral location, a system used on the prototype J2's. The production J2's used the less accurate Panhard rod which avoided an unacceptable level of wear and noise. Secondly the J2 De Dion radius rods were replaced by the Allard JR style twin parallel equal length twin radius rods.

Tubular Chassis Frame
I explored two options with Don, the first being the twin tube design as used by Allard on Palm Beach and JR models or a simple ladder type chassis. Don opted for the simpler ladder type which was easier to construct and almost certainly lighter and more importantly torsionally stiffer. Tube size was I believe 3.5" diameter and 12 SWG seamless cold drawn mild steel of the era. The chassis rebuild was carried out by Don Farrell in his workshop in the Edgware Road, Hendon, and was completed in early March 1958. With my agreement, my layout drawings and sketches for the front suspension were retained by the Allard Motor Company. Some 55 years on the Allard Farrallac is still a very competitive car, owned and driven by Tony and Pia Bianchi having a best Silverstone Club circuit lap time of 1m 06.4sec s.



The Weak Link - 'Gearboxes'

One of the weaknesses of the Allard marque was the use of the venerable Ford 3 speed gearbox. It's link with the enclosed prop shaft and rear axle torque tube made it difficult to use any of the other commercially available gearbox. The three-speed transmission was only just about adequate, if treated with care, when used in conjunction with Ford 3662cc and Mercury 3917cc engines. However, when linked to both Cadillac and Chrysler engines this was a seriously weak link. Alternative ratios came via Lincoln Zephyr. The Company experimented with it's own version, essentially for Sydney's own cars. Today it is still possible to get close ratio conversion gears from the US, however the latest (2006/7) batch would appear to have a machining error which has meant that they have now been withdrawn from sale.

It would have been logical for the Company to produce a purpose-built gearbox, however development costs ruled that solution out. Commercially available alternative gearboxes were investigated over the years. Apart from experiments with a Cotal/Clark electric type box, a modified form of the Ford Commercial four speed box and lastly the Hobbs Automatic gearbox, no alternatives were ever available. Once open prop shafts were used on the P2, K3 and JR chassis it made it easier to the use various US manual and automatic gearboxes. The Mk1, Palm Beach used the standard Ford 204E three-speed gearbox. However, the Bridgehampton was to have been fitted with a four speed Moss gearbox. A cast aluminium adaptor housing had already been made prior to the cancellation of this project. A commercially made overdrive (H & A?), had been made for the Ford Zephyr and Consuls models and this was retro fitted to a number of Palm Beach's. The Mk2 Palm Beach used the Moss four speed gearbox and overdrive in conjunction with the 3.4C Type Jaguar engine.

The first gearbox to be investigated was one based on the Cotal electric unit which was a redesigned version by Robert Clark. The Clark gearbox was dimensionally the same size as the Ford box and an experimental unit was fitted and tested in Sydney's M Type Coupe. The results were not encouraging for a number of reasons. However, it might have been more successful if today's alternators and batteries had been available. The only production car to ever be fitted with a Cotal gearbox was, I believe, the Ardun powered Essex Aero magnesium bodied J2X. The Clark designed electric gearbox was tested in Sydney's Hillclimb Championship winning Steyr 'Single Seater', however it's reliability was questionable and it was never used in anger.

The second gearbox, destined to be used in the 1952 Le Mans Chrysler powered J2X, chassis number 3055, was based on the 4 speed Ford commercial box. Once again, the design was carried out by Robert Clark, it's close ratio gear train was based on what was felt to be advantageous for use at the Le Mans circuit. A major disadvantage was the gearbox casing weight, together with the need to use very large diameter gears. A report in 'Motor Sport' at the time, noted that Sydney's J2X running at a Goodwood Race Meeting produced a gear 'whine' similar to that produced by racing Bentley's. A purpose made cast aluminium remote gear change unit was bolted to the top of the gearbox casing, being fitted with a latch to stop reverse gear being inadvertently engaged. Apart from the failure of the rather spindly short gearchange lever both boxes performed well at Le Mans. However, it was decided that with the lack of synchromesh, the excessive weight and high unit cost it was not a viable solution. At the time there were numerous requests for it's use in the UK for J2 and J2X's, but only two Le Mans gearboxes were ever made. I believe the US view was that this gearbox's best use was as a 'sea anchor'!

Around 1953 the chance of a purpose-built gearbox with a capacity claimed to be in excess of 300lbs feet torque, came from the Hobbs Gearbox Company with an Australian based design. This box could either be operated as a full automatic but it retained the ability to manually override gear selection. It was claimed to be more efficient than the current Borg Warner of that time and there appeared to be a real possibility of being able to supply an alternative to the venerable and inadequate capacity Ford 3 speed box. As part of adapting the gearbox case to fit the Allard chassis mountings, the Company agreed to assist in work related to supplying a Hobbs gearbox to fit into a Bristol engine powered car which was to be raced by a handicapped driver. In addition to this, I was involved in producing drawings for mating the Hobbs gearbox to a Ford Zephyr. Hobbs were hopeful of getting Ford Motor Company to use their gearboxes rather than the Borg Warner. The Ford dealership, Adlards, which was part of the Company, loaned Hobbs a Ford Zephyr for these tests. However Fords opted for the Borg Warner and the hopes for Hobbs to become a major supplier failed. While a 'dummy' Hobbs box was fitted to the 1953 Motor Show P2 Monte Carlo Saloon the project was disappointingly never completed. Thanks to some research done recently by Chris Bass, a member of the Allard Owners Club, he discovered that David Hobbs was the son of the founder of the Hobbs Company and there was a link between the 1950's UK Lanchester Motors and the Hobbs Gearbox Company.

Allard Disc Brake Applications.

The first works produced disc brakes system was fitted to the Jaguar powered Mk2 GT chassis, Sydney's car which had been developed from the standard Mk2 Palm Beach. The drum brakes the Mk2's had started life with, Lockheed 12 inch diameter by 2.25 inch, were adequate however their self adjusting version had its problems. As far back as 1952 the Stirling Moss C Type had won the 12 hour Rheims race which heralded the advantage of discs over drum brakes. Their shorter breaking distances improved lap times by a large margin and if there had been an updated version of the JR for the 1954 Le Mans disc brakes would have been used. The fortunes of the Company at this time were at very low ebb, and sadly the two JR's of 1953 were the last Allards to compete at the Le Mans. The JR chassis built in 1952 for Tommy Sopwith (the Sphinx), left the works with Lockheed drum brakes however we were required to supply drawings with the car so that Dunlop could investigate fitting both front and rear discs – whether they were ever fitted I have no knowledge.

Sydney's GT (7102) was fitted with Girling 11.75 inch diameter front discs, however the rear drum brakes were retained. At this time front disc and rear drum brakes were the norm, possibly due to the poor performance of the disc linked hand brake. The Allard set up did not use a conventional vacuum servo but an Australian designed hydraulic 'booster' which provided the extra line pressure needed to get a balance between front and rear braking effort. The road test of the GT by Autocar stated that braking performance 'proved adequate with maximum retardation of 88 per cent was above average', it did comment that pedal pressure was heavy by present-day standards. The Chrysler GT, currently own and raced by Bob Girving had the same disc brake system, along with the last Allard produced Mk 2 Palm Beach (7107).

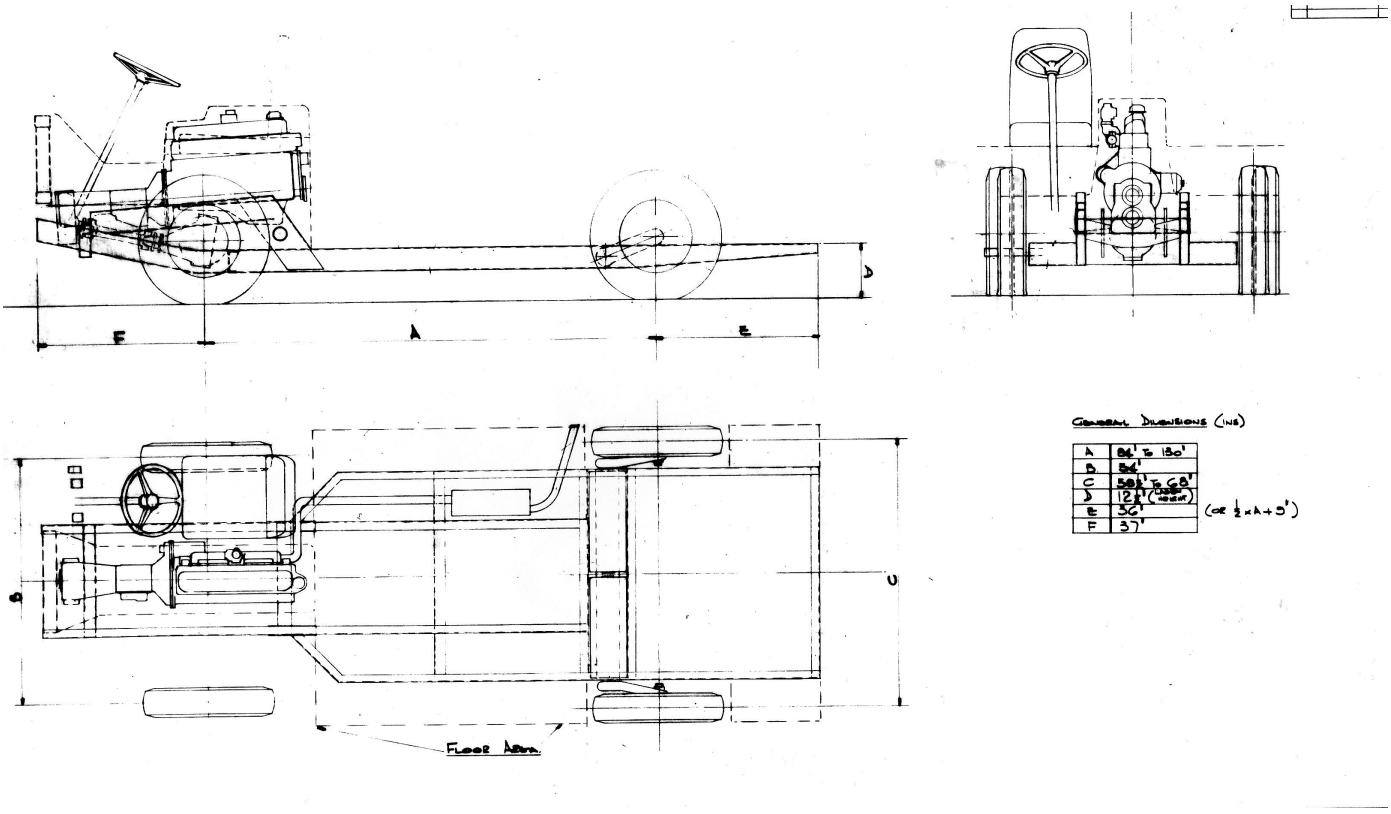
The Company was now deeply involved with the Shorrock supercharger installations, suspension modifications for the Ford 105E small saloon, including a disc brake conversion, which was a standard fitment on the Allardette. Over 1000 sets of this conversion were produced probably being the most successful conversion kit we produced.

Prior to the Chrysler Dragster, which at the insistence of the UK RAC, construction rules required front brakes were fitted and a modified version of the Ford conversion system was used. Sydney's Steyr powered 'Sports Car' used front discs along with aluminium Girling callipers, and lastly the twin engine Steyr 'Sprint Car' had a single front disc which ran at crankshaft speed.

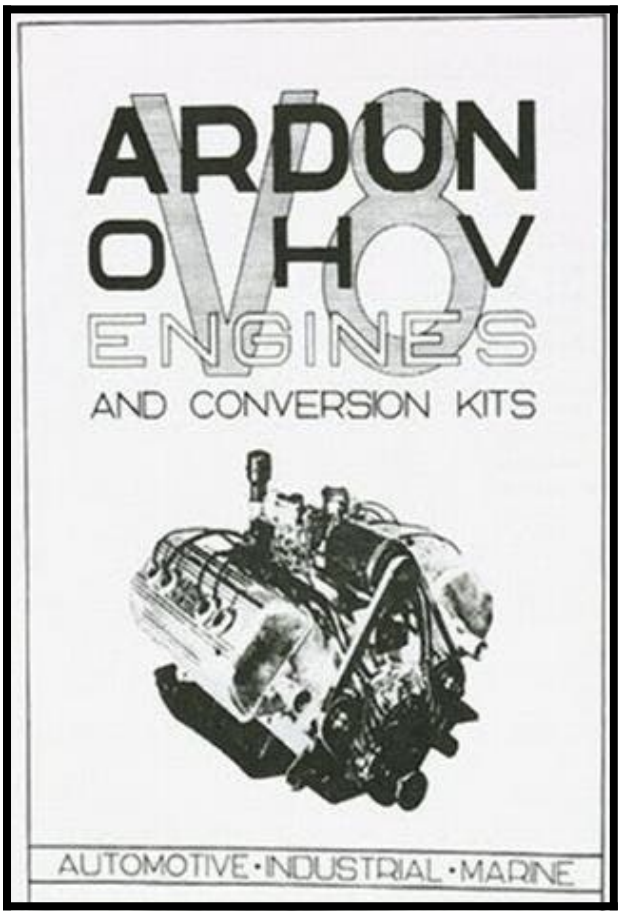
In 1957 a prototype set of discs were supplied to a customer in Peru for his J2X, (believed to be chassis number 2223) using the Mk 2 Palm Beach 11.75 inch discs and callipers, along with special wire wheel type hubs and steel calliper mounting brackets. Whether these were ever fitted remains a mystery because some months later we had a letter from the Allard's owner's mother to say that her son had been killed while racing his Austin Healey.

Ignoring a number of Allard specials which have been fitted with disc brakes, Jim Tiller's J2 - 'Old Fella' was a project I was involved with and used a set of AP Racing 12" diameter ventilated discs and four pot callipers. The rear on this application used E Type Jaguar discs and callipers, incorporating the handbrake arrangement linked to the Allard fly off hand brake lever. Prior to fitting the AP system Jim had used a front E Type disc brake set up which was a considerable improvement over the original Allard drum brakes, however they had their limitations.

Ambulance Chassis as designed for the GLC



The Ardun Engine Conversion



The company's involvement in the Ardun overhead valve conversion was, in my view, an ill judged attempt to provide an alternative to the outdated 30HP 3442cc Ford engine. From the company's point of view there was the potential of 140 brake horse power by converting to a modern overhead hemi design. However, while the literature was easy to produce the reliability of the conversion was sadly under developed and fell well short of Zora Duntov's claims. The biography by Jerry Burton sums up Zora's Ardun conversion as it had delivered neither the performance nor the reliability claimed in his advertising. In fact, the engine suffered from a litany of problems including inadequate rocker shaft support, overweight valves and push rods, coupled with the tendency to lack adequate oil drainage from the cylinder heads. The rockers which came from raw casting, were difficult to machine to the dimensions specified by the Ardun Corporation drawings, plus there was evidence of porosity found on failed items.

Over the last ten years a redesign of the cylinder head has been carried out by Don Roscoe, which has breathed fresh life into the Ardun conversion