## Restoration of the classic Aston Martin

# DB4



#### DB4/107/R



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# CHAPTER ONE



The DB4 - a car for all time

## DB4 DEVELOPMENT HISTORY





n 1955, John Wyer, having assumed responsibility at Aston Martin for engineering development, initiated a programme for a new replacement for the DB2/4. It was to be a very different car. Harold Beach was entrusted with the development of chassis and body and Tadek Marek with an all new engine. What follows here is a brief timeline of the origins of the DB5 from the early development of the DB4 through to its final flowering as the DB6.

#### STYLING AND BODY DESIGN

Development of the all-new DB4 started with a development prototype, DP 114, completed early in 1956. It was conceived as a platform for body design, chassis and engine development. Designed by Frank Feeley, neither John Wyer or David Brown had been impressed by its styling and for this principal reason, it was thought that the styling of the new car should be entrusted to an external styling house.

Following a tour of the Italian stylists and designers, John Wyer and David Brown both agreed that the design of the new DB4 should be entrusted to the Italians. Aston Martin favoured fabricating bodies in aluminium, and having been particularly impressed by the Superleggera concept of body design, decided that the styling of the DB4 should be given to Touring of Milan. This necessitated a platform chassis, with a trellis of small diameter tubes and channel frames for the main openings, around which the aluminium panels could be clenched. Harold Beach designed and then ensured fabrication of a prototype chassis in the remarkably small timescale of 10 weeks, and this was duly dispatched to Touring, in late 1956.

The DB4 was first shown to the public at the Paris Motor Show in the Autumn of 1958 to universal acclaim, and (the DB4) was duly launched into production.

By all accounts, the DB4 captured the essence of Aston Martin, clothing it in a light, airy, crisp, perfectly proportioned body.

## DB4 DEVELOPMENT HISTORY

Conceived from the outset as a two plus two, the DB4 duly progressed through 5 significant production series, the last from the bodywork perspective, being the most significant. Customer feedback had indicated that more headroom was desirable, both for the front and most particularly for the rear seats. Accordingly, the roofline was subtly altered, by slightly raising it and extending it backwards to the rear most extremity of the boot, which was also extended backwards by 2 inches. Other refinements in the shape cowled headlights and electric windows followed, initially as an extra and then with the DB5 as standard equipment. The series 5 DB4 then duly transitioned to become the new DB5 essentially unmodified but with refinements.

#### The DB4 GT

Identifying a need to support an increasing customer demand for a version of the DB4 with which owners could indulge in competition, Aston Martin decided that they should produce a lightened version, with a number of weight saving measures, which they could then homologate. The principal change involved a shortened wheelbase, sacrificing rear seat accommodation and making the car a strict 2 seater. Other chassis lightening changes were also used.

There was also a need to significantly increase the power available. This resulted in major developments of the cylinder head, introducing a twin plug arrangement, higher compression and triple twin choke Weber carburettors.



## DB4 DEVELOPMENT HISTORY



Early cars were also made with thinner 18 gauge aluminium outer panels, Perspex windows (excepting the windscreen), cowled headlights and lightweight seats and trim. To cope with this increased performance, the Dunlop disc brakes were discarded in favour of 3 pot Girling disc brakes all round. The result was a potent sports car, capable of in excess of 150 mph, a quarter mile in the low 14 secs and 0 to 100 mph in around 14 secs that no other standard production sports car could better. 80 DB4 GTs were built between 1960 and 1961. They are and certainly were in their time seriously quick.

#### The DB4 GT Zagato

A yet further variation of the theme were the DB4 GT Zagatos of which 19 cars were manufactured. The chassis for these cars were standard short wheel base DB4 GT which were then dispatched to Newport Pagnell. There they were fitted with all of the necessary running gear and with all other parts to prepare the cars which were then dispatched to Italy. There Zagato panelled the cars, trimmed and painted them, before sending them back to Aston Martin to finally complete and send out to the distributors for onward delivery to their new owners.

The Zagato version was conceived initially as a way to compete against the then dominant force in GT racing, the Ferrari 330 GT. To do so they were intended as even lighter in weight than the DB4 GT, the initial competition cars being fabricated using 20 gauge aluminium panelling, even more basic trim and lighter weight drilled chassis. They were only partially successful in competition, not least as the drilled chassis proved to be not sufficiently stiff. They have subsequently become regarded by many, not withstanding, as design icons and an example of the very best of Italian styling and flair. A total of 19 were eventually manufactured, the later examples using thicker gauge panelling which were then sold to "privateers" and other private owners.

## CHASSIS DEVELOPMENT





Early key engineering decisions taken confirmed the move away from a ladder type chassis used with the DB2 and its developments to a perimeter frame, more easily fabricated and hence leading to some reduction in manufacturing cost. At the same time, the trailing arm front suspension was discarded and a more conventional double wishbone front suspension, in conjunction with steering rack and pinion configuration, was employed.

Other key decisions followed. In addition to a double wishbone independent front suspension it was proposed to fit a De Dion torsion bar rear suspension longitudinally located with twin trailing arms and laterally with a Panhard rod, following the same basic design as in the DB3. The rear suspension was an advanced design concept but it was not without development risk and would be costly to put into production.

Design Project 114 (DP114) became the development platform for the front and rear De Dion suspension design and it was fitted with the 3 litre DBA engine as used with the then production DB Mk3. The mules for engine and car development were DP184/1 and DP184/2, the prototype DB4s.

Early experience indicated a number of major problems; these included a tendency for the splines on the rear drive shafts to bind under acceleration. Other problems to surface included cooling of the inboard rear brakes. Furthermore, the complexity and cost of the installation was excessive, and it was very clear, that to obtain the general serviceability and reliability required, an extensive development programme would be needed and that coupled with the additional cost made the De Dion rear axle simply not viable, given the intended DB4 launch date.

This was a shame, as the De Dion arrangement gave simply unrivalled ride comfort with superb road holding. In the event, the rear axle design was carried over from the DB2/4 with twin, equal length-trailing arms each side. The only change came through the adoption of a Watts linkage, which created a rather higher roll centre at the back, which helped to reduce roll angle.





#### ENGINE DEVELOPMENTS

Engine design was initiated in 1955. Having taken the decision to develop a new engine for the DB4, there was considerable discussion as to what size of engine to build. Initially the intention had been to develop a 3 litre engine. There was a wish to see this engine design also as a future candidate for racing at Le Mans, consistent with the then 3 litre capacity limit for sports racing cars set by the FIA. Tadek Marek was also briefed to consider a design with growth capacity from the outset, as a suitable engine for a new Lagonda. The initial intention had been to design the engine, using cast iron, but quickly found a complete absence of available iron foundries with the casting capacity and capability. However, some spare aluminium foundry capacity was available, leading to the adoption of aluminium for both cylinder block and head.

As a consequence, the engine was redesigned with 7 over- large main bearings and generous scantlings thus giving substantial future growth capability. Being cautious, Tadek Marek started development with an engine at 4 litre capacity, as part of his design brief.

It was a natural decision to carry over the use of wet liners and twin overhead camshafts as with the configuration of the previous LG6 engine fitted to the DB2/4.

It was Tadek Marek's fervent wish to initially develop his engine for road use and then later adapt it to go racing. In the event, the racing application came first, initially with the DBR1 in 3 litre form, using an adaptation of the old LG6 engine modified with a conventional crankcase design and seven main bearings and then later as a DBR2 in 3.7 litre form, using his new engine.

Aluminium, while significantly lighter than cast iron, brings with it significant problems of controlling oil pressure. While these deficiencies can be largely overcome, early production engines succumbed, as use on the then newly opened M1 enabled owners to experience driving their DB4's at near maximum power and engine speed continuously over many miles. In the event, several solutions were pursued, these being an increase in oil pump capacity, use of an oil cooler, very careful control of main bearing clearances and ensuring there was always a generous oil sump capacity to enable aeration and with it oil pump cavitation to be better controlled.

As technical director from 1956 to 1972, Dudley Gershon oversaw solving all of these problems over time and his eventual summing up bears repeating, "I know of no engine which can be thrashed continuously so hard for so long as this engine."

Later, as cars saw extensive service, other problems surfaced, examples being early timing chain failure and valve failure. All these issues succumbed to careful redesign or through changes to manufacturing methods, material selection and assembly procedures.



#### TRANSMISSION DEVELOPMENTS

Initially, the first series of DB4s were fitted with a 10" Borg and Beck single dry-plate clutch and a David Brown four speed gearbox connecting to a Salisbury hypoid bevel rear axle. An overdrive gearbox was available in the series 2 from January 1960.

This was eventually superseded in the DB5 by a ZF 5-speed gearbox linked to a 3.77 to 1 rear axle ratio, giving a fifth speed ratio of 25.2 mph per 1000 rpm. Other alternative rear axle ratios were still available as no cost options, that being a carry over from the DB4.

The series 5 DB4 saw the introduction of 15inch wheels, a reduction from the 16inch wheels of earlier series DB4s. This was also carried over to the DB5. The final configuration provided a wonderfully flexible combination, with effortless high speed cruising and rapid acceleration in the intermediate gears.

Automatic transmission was available at extra cost in the later DB4s, in this case using a 3 speed Borg Warner Type 35 gearbox. This was mated to a 3.54:1 rear axle ratio giving a top speed of 21.1 mph per 1000 rpm.

## BRAKING SYSTEM

The DB4 introduced disc brakes as standard on both front and rear wheels. The braking system chosen for the DB4 was a single circuit Dunlop braking system, with vacuum servo assistance. When in excellent condition, these proved adequate for the task, but owner experience soon showed that retention of good braking was not always predictable, especially if the car was used infrequently. Furthermore, the piston seals used also proved susceptible to failure and gave these brakes a relatively poor reliability record.

While the Dunlop disc brakes were adequate for the standard production DB4, it was realised that a more capable system was needed for higher performance versions such as the DB4 GT. The Dunlop system was discarded and replaced by a Girling system using 3 pot callipers with a larger brake pad area. These proved highly satisfactory.

#### OTHER DB4 DEVELOPMENTS

The first 100 Series 1 DB4s were built with frameless door windows. Unfortunately, at high speed, the windows were sucked away from the door seals, creating an unacceptable level of wind noise. To prevent this, later cars were provided with a chromed heavy duty window frame, which solved the problem. The series 1 cars also had front opening bonnets. Following an incident where a bonnet flew up at high speed, later cars were provided with front-hinged bonnets and this solved that problem.

#### THE DB4 CONVERTIBLE

An early priority in the development of the DB4 was a convertible version. In order to retain adequate stiffness in the chassis, the sills were significantly reinforced with additional longitudinal stiffening, reinforcement in and around the structure supporting the rear suspension and in and around the A and B Posts. The hood was designed to fold back nearly flush by providing a recess behind the rear seats into which it could fold. The doors now featured front quarter lights.



# CHAPTER TWO



Restoration of a DB4



DB4/107/R - AT SILVERSTONE 1959 AS WORKS FACTORY DEMONSTRATOR

#### DB4/107/R - A VERY SPECIAL HISTORY



estoring any old car to its original condition takes time and care.

It is sometimes fraught and invariably expensive! Whether the car in question is complete, sound and largely original, or whether decrepit, incomplete and in poor condition, nothing can be taken as sound or serviceable without careful inspection. A restoration would generally only be contemplated where the intrinsic value of the restored car makes this a financially viable project, or, as may happen, it is being done for sentimental reasons. Those fortunate to be able to own Aston Martins are favoured better than most because they have always been valued for what they are, for their rarity and because they are an object of beauty and power.

But this car has something else, a continuous history from new, as an Aston Martin Works demonstration and development car and later in single family ownership for nigh on 40 years.

#### The Works History

One of the first prototype and demonstration DB4's, this car (according to the Aston Martin Owners Club Register) has the earliest existing prototype engine 370/PP/105 (PP stands for pre-production). Described in the 1976 register as the works demonstration car it was registered by David Brown Industries as 4 SMU in October 1958. There is evidence of ongoing chassis development, with a variety of different brackets and mounting points that were present but now redundant, which gives us some evidence of how the specification and design matured over time as production and service experience became available.

During this period when various changes were made, an immediate visual one is the fitting of framed door windows, something not introduced until the second series DB4. There were almost certainly a number of different engines that were fitted to the car, incorporating different modifications. On disposal by the Works, the car was refitted with its original engine, No 370/PP/105.

The car was retained by David Brown Industries Limited and Aston Martin Lagonda Limited for nearly 2 ½ years and in addition to being used for development it was used as a company car. When its previous owner David Stanger took the car to the factory in Newport Pagnell in 1973, Roger Stowers (who was the link between the factory and owners) told him that the car had frequently been used by David Brown. The car was sold in 1961 to Jonathan Saul of Workington, Cumberland. After some five years he sold it to a motor trader, Robson and Everard of Gosforth, Newcastle upon Tyne who were prominent dealers in prestige cars of this type. However, Mr Saul retained the original number plate 4 SMU when he sold the car and he transferred it to his Alfa Romeo and the DB4 was re-registered as YJR 968. It was sold a month or two later in 1966 to

#### DB4/107/R - LATER HISTORY

Mr Don Carr of Central Garage, North Shields, also motor traders, but in this case used for a limited time as the business owner's personal transport. Mr Carr had previously tried another earlier Aston Martin DB2/4 saloon, but elected to take the DB4 in preference. The car was now eight years old and Mr Carr decided to return it to Newport Pagnell for a complete mechanical overhaul. This is evidenced by an invoice dated 26 October 1966 comprising seven pages which shows that a new block was fitted, together with new liners, pistons and rods and many other parts. All this work including parts was carried out by the works for a "nominal charge"!

#### SINGLE FAMILY OWNERSHIP

DB4/107/R was sold to his friend Raymond Stanger of Gosforth, Newcastle upon Tyne in June 1967. When the DB4 was offered to Raymond he was driving an Austin Healey 3000, which he promptly sold for £200 to his son David, who had just qualified as an Accountant.

Raymond was a dentist and used his DB4 as daily transport to take him from Newcastle to his practice in Tynemouth, as well as for family use. David went to Paris in 1969 and then in 1971 joined a company in St Kitts, one of the chain of islands that comprise the Leeward Islands in the West Indies, as its first Chartered Accountant. He returned two years later in the summer of 1973 and purchased the car from his father for £400, for use when on annual holiday in the UK. David then returned to St Kitts for a further year and again returned home on holiday in 1974. David was later to recount that while on holiday he tried to acquire a DB3S from Dan Margulies, then a prominent dealer in rare sports and racing cars. Unfortunately it was already sold and he then tried to acquire a Birdcage Maserati Tipo 61 sports racing car with a long and distinguished racing history. He was yet again beaten to the post. He eventually found an off-white DB4GT which he did manage to purchase for £2,000. For the next few years David used both Astons on his annual visits to the UK with his family, staying with his parents in Newcastle. During David's period in St Kitts both Astons were cared for and maintained by his friend and fellow enthusiast Clive Kennedy, an accomplished Rally Driver in Northern events, who lived near Hexham in Northumberland and who happened to have adequate garaging space. Most of the old photographs of both of David's Astons in this book were retrieved from Clive's photo albums. In 1978 David managed to sell the DB4GT back to its previous owner for £8,000, a time when classic car values had risen rapidly.

oney from the sale then enabled David to set up a boat building enterprise in St Kitts, specialising in large sailing catamarans suitable for use in the West Indies and beyond.

DB4/107R required periodic repairs and work to the chassis, body and mechanicals. Both sills and wheel arches were replaced in 1974 and again in 1987 when David returned from St Kitts for good. Indeed the need for work to restore the car by 1987 involved a full bare metal respray as well as structural work to the chassis. For the next six years David was to use this car as daily transport and subsequently as a second car. By the mid 1990's and in need again of much serious restoration, the car was placed in storage until finally sold to the Aston Workshop in 2006 for full restoration.

Having returned to Northumberland from St Kitts in 1987, David recalls allowing his 11 year old son Oliver to drive the DB4 at 80 miles an hour, on a disused WW2 airfield runway near Beadnell on the Northumberland coast.

During the nearly 40 years ownership by father and son, the DB4 received only the necessary running repairs, dealing with corrosion and mechanical overhaul as and when required. It thus preserved most of its original features and the little extras. One of these was the unique arrangement of the electric windows, fitted during the period of the Works ownership, a consequence of its time as a Works car and a clear indicator of the development steps Aston Martin took in this pre-production DB4/107R.

## 1987 NEW WHEEL ARCHES AND RE-PAINT



















#### CLIVE KENNEDY AS HE FOLLOWS DB4/107/R IN THE DB4/GT



DB4/107/R - PARKED OUTSIDE DAVID'S PARENTS HOUSE IN GOSFORTH



JUST OFF THE A1 ON THE RETURN JOURNEY HAVING PURCHASED THE DB4/GT



DB4/107/R- AGAIN PARKED IN GOSFORTH DURING ONE OF DAVID'S TRIPS HOME FROM ST KITTS

#### THE RESTORATION

Until purchased by the Aston Workshop in 2006 from Mr Stanger, DB4/107/R had never been restored and had not undertaken any major restoration, just the normal running repairs that would be expected in normal private use. In fact, when received by the Aston Workshop, it had been in storage for some 10 or more years, the owner having decided that he could no longer drive the car safely. Nevertheless, in his family ownership since 1967, the car has had a full and complete history going right back to its initial build in 1958. Utterly unmolested, it has numerous hints and indicators of how the design of the chassis in particular changed as it matured and the fabrication process developed.

#### THE STRIP

Right from the outset, it was known that there was only one way that this car could be rescued and restored to her former glory, and that would be to assume everything would need to be stripped, assessed, replaced or overhauled. As with any restoration, the first task is to strip her of everything that can be removed, starting with her interior, or what remained of it, the engine, gearbox, front and rear suspension, bonnet, doors and boot and of course all the glass.

The next stage was to strip out the headlining, interior fittings, trim and then the dashboard, followed by the wiring looms and under bonnet fittings, all the while carefully cataloguing what had been removed, labelling everything and storing. The engine, gearbox and final drive was then stored until required, as were all of the suspension, steering rack, steering column, brake calipers, hubs and related items. Window frames followed, as with the door handles, catches and aluminium trim.

By this stage, the car had been mounted on a trolley, and transferred to the body restoration team for the next stage of her restoration.





## ASSESSING THE BODY SHELL AND CHASSIS

The next and very important stage in restoring DB4/107/R was to undertake a detailed and thorough assessment of the chassis and structure, the condition of the body shell and of the major mechanical components, these being the engine, gearbox and final drive. So as part of this assessment, the shell was removed in two halves, the rear structure that runs from the B Post backwards and the front section that runs forward from the A Post. The front shell was separated at the base of the windscreen pillar and the rear section halfway up the rear window in line with the rear window and quarter-light. The front skin was unclenched from around the frame that surrounds the bonnet aperture together with the base of the windscreen frame. At the rear, the boot aperture and rear window frame provide the principal anchorages and the skin was unclenched from that also.

Once this had been done, the outer aluminium sills were removed, and the chassis was then cleaned back to remove all of the residual oil, grease and general muck that had accumulated, of which there was a huge amount. This was a filthy job, but vital if the grit blast of the structure that followed was to be fully effective in removing all of the surface rust. It was only when the grit blast was completed that it became possible to acquire an indicative assessment of the chassis structure that lay underneath. Early assessments of the structure indicated that in this case, the outer forlorn state of the car was perhaps also an accurate indicator of its inner state, which was poor.

Not only were the sills showing an advanced state of decay but also the front outriggers, the rear chassis legs and a boot floor that showed more resemblance to lace than something solid. The rear suspension anchorages were equally unsound.

At the front, the base of the front footwells, the front engine bulkhead and crossmember was also heavily rust damaged, as were the under-bonnet side panels.

Stripping the many layers of paint from the outer shell followed, revealed a considerable amount of old panel damage. Corrosion in all of the usual spots was found around the wheel arches, sill, around the bonnet and across the rear of the car around the bottom of the boot, all caused through damp and the effects of electrolytic induced corrosion of the aluminium panel in the proximity of its steel supporting frame.

The doors were equally in a poor state and needed a total reconstruction. The doors on these cars suffer most from the rotting out of the door bottoms. In turn this allows the door to twist and in advanced cases, the door hinge members start to break away and the door sags. There is no other alternative to a full reconstruction, and the frame can only be completed and the door skin clenched onto the doorframe once the front and rear body skins have been repaired and remounted.

The bonnet skin also showed signs of delamination, quite common with unrestored cars, and in advanced cases, there is no alternative but to re-skin the entire bonnet. Fortunately, this proved not to be necessary with this car.





## ASSESSING MECHANICAL CONDITION

With the engine, gearbox and final drive now separated from the car, these were cleaned off and the engine was dismantled, with the first task being to remove all intake and exhaust manifolds, dynamo, water pump and fan. This was followed by the separation of the bell housing and gearbox. The next operation was the removal of the cylinder head. The sump was then removed followed by the removal of the front timing case and chain, the oil pump and filter housing. The separation of the cylinder head followed, revealing for the first time the inner state of the cylinders and pistons.

As this car was to be totally restored, the next stage was to remove pistons and connecting rods, followed by the crankshaft, oil pump and strainer assembly and all of external fittings. The cylinder block was next inserted into an oven and heated, followed by the extraction of all cylinder liners. This revealed that the seatings for the liners, though damaged, could be recovered. A check across all main bearing webs revealed no serious cracking. This meant that, subject to recovering the sound condition of the liner seatings, the block could be safely cleaned and reused.

The crankshaft was carefully measured across all main bearing and connecting rod journals, and though a small amount of wear was noted, this was well within acceptable tolerances and therefore indicated that the crankshaft could be safely reground, polished and refitted with new bearing shells.

The cylinder head was also dismantled at this stage, revealing no particular problems. Waterways were flushed out, valve guides extracted, the cylinder head heated and the old valve seats removed. All external fittings were removed as a matter of course and set aside for later examination. Apart from removing the hubs and suspension fittings, the rear axle was cleaned and set aside for reconditioning, as was also the 4-speed gearbox. Brake calipers were dismantled and stored in readiness for reconditioning. All other brake components were then scrapped as a matter of course.




## CHAPTER THREE



## The Rebuild Specification

## THE REBUILD SPECIFICATION





he key objectives for the rebuild of DB4/107/R were to ensure that she was restored to a standard at least as good as when she was new, but in addition, to improve performance and usability. Wherever practical, steps were to be taken to ensure that it was well equipped to withstand modern traffic conditions and to improve comfort with air conditioning. The interior was to be totally re-trimmed.

It was decided that she should be painted in the original Works colour of Wedgwood Blue with a beige interior.

The car was then to be prepared for the 2007 autumn Pebble Beach Concours. Thus not only was it necessary to restore structural and mechanical integrity, but also ensure that cosmetic appearance, fit and finish were faultless.

After the concours the car was returned to the UK, where steps were taken to ensure that a high standard of reliability was achieved with modern contactless electronic ignition, unleaded fuel compatibility and with other related electrical system upgrades. Finally a Thatcham 1 standard alarm and immobiliser system was to be installed.

### THE REBUILD

The requirement was that DB4/107/R had to be brought back fully to as new in every aspect of the car. What follows in this chapter are the steps taken to achieve that standard and to create a beautiful car of which any owner could be justly proud.

### CHASSIS RESTORATION

As the strip pf the chassis progressed, so those talked about differences in the layout and fabrication of the chassis became evident. In one key area, it was clear that several alternative positions for the Watts linkage anchorages had been tried. In another, several redundant brackets and mounting points were discovered, with numerous holes that had been later plug welded or just left. The first step taken in the reconstruction of the chassis was to check the alignment of chassis and mount in a frame to ensure that the chassis remained correctly aligned and free from distortion.. Installing the chassis in a special jig did this. This not only ensured that front and rear suspension alignment was always correct but to also support the chassis during its reconstruction to avoid twist and sag, while important strength members such as sills were removed and new structures welded into place. It also provided a means whereby past damage could be detected and eliminated. As these progressed, careful steps were taken to ensure all of the numerous small changes to the standard chassis were retained so as to provide continuing evidence of its long term history as a development car.

The chassis reconstruction involved repairs to almost every section and panel below the top of the A and B posts. Important structures replaced in toto involved the sills, both front outriggers, large sections of the chassis leading back from the front crossmember and which supports the front suspension and new jacking points. At the rear, virtually the complete rear suspension supporting structure required to be replaced, as well as the support legs leading backwards to support the boot floor. Within the bonnet area, not only did the panels either side of the bonnet need replacement, but also all of the forward structure from the front suspension uprights back to the engine bulkhead. Sections of the front bulkhead showed significant deterioration and rust damage and areas had to be cut out and replaced. All of the floor sections had to be replaced and welded into place, as also the rear seat pan, which had been holed.

In all, the extensive level of reconstruction involved some 700 hours of skilled fabrication as every new section had to be shaped to fit and carefully welded into place. Once the reconstruction was completed, the finished chassis was again grit blasted and then primed and powder coated, giving a hard, durable and impervious satin black coating to the chassis. All of the internal surfaces were primed and painted prior to assembly. Once the structure had been powder coated, all of the internal sections were then wax injected, thus providing a significantly enhanced level of corrosion protection.



### **BODY SHELL FABRICATION**

In keeping with the Aston Workshop restoration policy, it was usual to renew the body shell, front and rear, and to fit this to the restored chassis. In keeping with this policy, DB4/107/R was duly dispatched to a partner company, Shapecraft, for the new shell to be fitted and shaped, modifying as required to ensure perfect alignment with the roof section and main structural sections of the chassis, these being the sills, A and B posts, bonnet aperture, windscreen frame, rear window frame, and boot aperture. The door frames were reconstructed in their final state, once the front and rear shells had been fitted and aligned, thus ensuring perfect door alignment and they were then re-skinned and trimmed to fit.

Once the new shell had been fitted, there was then the highly skilled task of finally shaping the outer panels to ensure a perfectly smooth surface for priming and painting. The shell was subsequently painted in its final shade of Wedgwood Blue, and given its final rub down and polish to achieve a perfect mirror smooth finish. Six months after dispatch, DB4/107/R was received back as a fully completed and painted body shell with doors, boot and bonnet all fitted, ready for reassembly into a complete car.





### ENGINE OVERHAUL AND ASSEMBLY

The brief for the restoration of DB4/107/R was that any component not to its original specification was to be replaced as a matter of course. So extreme care was taken to ensure first that the engine block was sound. In this case, once all of the scale had been removed from inside the water jacket, it would be possible to re-machine the liner seatings for new larger liners to be then pressed in complete with new O-ring seals. The engine was then to be duly assembled with new pistons and a small increase in engine capacity from 3700cc to 4200cc giving a useful increase in torgue and power.

The engine was to retain its original camshafts and valve clearances machined to specification. The cylinder head was then to be reassembled, with new valve guides, seats, valves, tappets and springs.

The machine shop at Aston Workshop is particularly well equipped for this type of engine overhaul. The principal machine used is the Rottler, which is a computerised milling machine. This amazing piece of equipment will surface to a standard of better than 0.001 in. It will line bore to a similar degree of accuracy, and is sufficiently versatile to be capable of doing many other machining operations, such as recovery of the liner seatings, all to similar standards of accuracy. This is far in excess of the available machines that were used by Aston Martin when they were initially manufactured.

Another key piece of machinery is the honing machine. This excellent piece of equipment is capable of creating a cylinder bore which is truly circular and uniform to a standard of 0.0005 in, and will in the process of honing, also create the diamond pattern of machining that creates the optimal oil retaining surface. This not only largely eliminates oil consumption, but also significantly reduces the time required to run in an engine.

Then there is the balancing and weight matching of the engine, which Aston Workshop will always do as a matter of course. Again, this is far more accurate than when initially Aston Martin assembled the engine, and we aim to zero out any out - of - balance forces. The result is a smooth and free revving engine.

So with the Rottler we start to machine the cylinder block. The main bearing tunnel is line bored first along with a new rear main bearing seal. The head face of the block and sump face are then machined to ensure accurate alignment with the crank. The liner seatings are then re-machined to achieve the correct liner protrusion above the head face.

New valve guides were fitted to the cylinder head and reamed to size. New valve seats were shrunk in and the valve seats machined using the valve guides as the datum in each case.

New Cosworth 4.2 pistons were selected, going to 9.3 :1 compression ratio. New liners were then duly pressed in and the cylinder bores honed to their final size.

It was also standard Aston Workshop policy to fit a new oil pump, and this was agreed to readily. Finally the crank was critically examined, checked for wear and crack tested. As no defects were identified and the crank journals were in excellent condition, it was agreed the crank was to be ground and refitted with new bearings.

Finally the crank was fully balanced in unit with the flywheel and clutch cover plate, and pistons and con rods were then weight matched.

One of the distinguishing features of Aston Workshop restorations was the care taken to clean, polish and plate many fittings that are bolted to the engine, to give that complete new car look. From throttle linkages to carburettor balance tube, all these parts were dispatched to be nickel plated or chromed and returned ready for fitting. The carburettors had also been given a complete overhaul with new throttle linkage bushes, throttle plates, jets and seals. Engine assembly could now begin.

First the crank complete with new main bearing shells were carefully matched and fitted. The running clearances are very tight on these engines, and need to be precisely set at 0.0015 in. Given such tight clearances, ensuring that the crank is free to rotate is critical and is a highly skilled task. Fortunately Aston Workshop has a highly experienced engine builder, Mick Durrant, who was asked to personally rebuild this engine. He had been first with Aston Martin, which he joined as a young apprentice and shortly afterwards finding himself in the engine build shop, making new and overhauling customer engines. He stayed with Aston Martin for nearly 30 years, finally moving on his retirement from Aston Martin to the Paris main dealer for Aston Martin. He finally came to the North East and joined Aston Workshop in 2003 and has been our principal engine builder ever since.

Having fitted the crank, the pistons and assembled con rods were next inserted, with all new bolts, shell bearings, nuts and washers. The oil pump was then refitted and assembly of the oil pump drive could be completed. The primary camshaft chain was thereafter assembled and fitted. Next in line was the fitting of all new studs, including cylinder head studs and the fully assembled cylinder head, complete with all new gaskets which was then fitted and lightly tightened down, having ensured that no 1 cylinder was precisely at top dead centre. The secondary timing chain was then fitted and an approximate alignment of each camshaft checked.

The cylinder head was subsequently tightened down, and the camshafts were then precisely timed. The distributor was then fitted and ignition timing provisionally set. The sump, engine ancillaries and intake and exhaust manifolds were refitted, all with new gaskets throughout. The front timing case was then closed and the oil filter complete with housing refitted to the block. Cooling ancillaries, fan and hoses then followed.

The next stage of the rebuild process involved placing the engine in the Aston Workshop dyno facility, where the engine was carefully run in, final adjustments made and power figures taken. It produced 260 BHP and 275 Ft Lb of torque. The engine was then ready to be mated to the bell housing and gearbox and installed.



# CHASSIS, BODY AND SUSPENSION SYSTEM ASSEMBLY

Starting with the bare shell, the first items to be installed were the brake and fuel lines. Extreme care was taken to ensure that these were all precisely aligned and neatly installed, as the quality of this work distinguishes a restoration of the highest quality from those that just aspire to be good. The next stage was the fitting of the front and rear suspension, wheel hubs and steering linkages and the steering rack. At this point the car was fitted with some "slave" wheels and became mobile.

An extensive amount of soundproofing and heat insulation for the car floor and front engine bulkhead followed. This makes a major improvement to the cabin temperatures and noise and is one of the many hidden improvements that come with an Aston Workshop restoration.

The fitting of the windscreen wiper linkages, gearboxes and washers jets etc then followed. The heater box was then installed, in unit with the fitting of the air conditioning system evaporator and associated ducting and pipework.

The next major task was to fit out the engine bay with the associated relays, servos and fuse boxes. This was then followed in short order by the engine bay wiring loom and the main loom running through to the boot and rear light assemblies.

The installation of the steering column and linkage followed.

Independently, the engine was now mated to its gearbox ready for installation. At the same time the process of trimming the interior of the car commenced with the fitting of the headlining, which was essential to complete prior to the fitting of windows and windscreen.

While all this work was going on, the task of painting, assembling and trimming the dashboard commenced. Every instrument was sent away for checking and for calibration and a revised and much improved LED based instrument lighting system installed, which replaced the old bulb based illumination. New switches were installed. Once completed, the complicated task of installing and connecting all the wiring could now begin, in conjunction with the fitting of the pedals, brake and clutch master cylinders and throttle linkages.

It was now time to install the engine, now in unit with its gearbox. A task that requires some considerable care, the engine was hoisted above the car and the gearbox and engine combination were threaded in and securely bolted to the car using new mounting blocks. The transmission cover was now fitted, thus enabling the carpeting of the cabin to start. Beige Wilton carpets, leather bound, were specified throughout.

At the same time, the water radiator and oil cooler were now installed, followed by the installation of the air-conditioning system condenser. An electric cooling fan followed and the water and fuel hose connections were completed.

#### TRIMMING THE CAR

Bridge of Wier soft leather was used throughout for all seats, door trim and boot with corresponding beige piping. Expertly undertaken by Gary Wright, the retrim also included a complete refit of all seats with new webbing, padding and rechroming of the seat hinges and reclining mechanism. In addition, the retrim of all of the door trim, dashboard undertray, radio console, and all of the smaller black trim pieces around the side windows and windscreen pillar were recovered and installed with new chrome headed screws and cup washers.

#### FINAL FINISHING

The final part of the assembly process involved the fitting up of a new stainless steel exhaust system, installing the fuel tank, and connecting the fuel lines. Lights and external trim installation followed with other items such as the boot and bonnet liners. The bonnet would remain unfitted until all of the under-bonnet systems had been checked and proved. Doors were hung and connected up. The boot lid was finally hung and hinges adjusted to achieve the best possible fit and alignment.

Finally the seats were installed.

### COMMISSIONING AND TESTING

In a rebuild of this type where every component has been removed, replaced or overhauled and installed, it is important before any attempt to start the engine is preceded by a series of crucial checks. First among these was checking the electrical system for continuity. This involves testing that every wiring connection is correct, then checking for any unwanted earth. When that thorough check has been completed and only then, the battery is connected and the electrical system is functional. Each and every electrical circuit was then checked for correct operation, starting with the lights and going on to check the ammeter, fuel gauge, clock and the radio function. Other functions such as the door windows, the electric cooling fan, heating and ventilation blowers etc followed. With those complete, attention was then turned to checking the engine cooling system for the correct levels, engine and transmission oil levels, and the integrity of the fuel system and exhaust. Finally, a very thorough check of the cleanliness of the engine intake system was undertaken.

It would be so easy to leave a stray washer or nut lurking in a corner of the air box bolted to the carburettor intake system. Then and only then was the car signed off for its initial engine checks.

The first time that the engine was run in the car, particular attention was turned to ensuring that there was plenty of oil pressure. If there should be any untoward indication the engine would have been immediately stopped while a thorough check was then carried out. In this case there were no problems encountered. The next most important check was to look for any signs of fuel, coolant and oil leaks of any kind. Again, all was leak free. The engine was then allowed to idle to its normal operating temperature, while all the time monitoring the oil pressure, temperature and looking for any exhaust leaks and blows. At this stage the radiator water levels were monitored and topped up as the system slowly self-bled and trapped air was released. All was well. So far so good.

On completion of the rebuild, the engine had already been on the dynamometer, so there was a good degree of confidence that the engine would run reasonably well, but experience has generally indicated that some adjustments are nearly always necessary. The next stage was to check that the throttles were precisely synchronised. In other words it was to check that the throttles on each of the SU carburettors opened and closed together. While all these checks were going on, the engine charging system was also fully checked out.

The braking system was bled during its assembly. It was now time to check, with engine running, that the servo operation was correct and with full operating pressure, the system was leak free. While that was going on, the operation of the clutch was checked and ease of gearbox operation also checked, while the engine was running. With these now completed satisfactorily, the engine was shut down and allowed to cool and once cool, another thorough check was carried out for any untoward problems. With these now completed, the bonnet was fitted and aligned.

The car suspension system alignment was then checked for toe-in, camber and castor angles and any needed adjustments made. In this case it was a minor adjustment for toe-in, while ensuring that the steering wheel was correctly aligned. Finally the car was now ready for road testing.

The first road test was to check for smoothness of operation, any noise, vibration or harshness in any of the car controls. At this stage any misalignment of the exhaust, for example would have come to light. However, this initial road test also checked out the general handling, as well as the basic tune of the engine. A number of minor routine items needed attention. Finally the car was then taken to acquire its new MOT.

There followed a 500 mile shake-down to ensure all the systems on the car are fit for purpose and to demonstrate acceptable reliability. All was basically well and DB4/107/R was then passed for its final valet, fitting of new wheels, spinners and tyres and to prepare the restoration invoice and photo portfolio.

## THE HANDOVER

The final handover - the finished car in all its glory

YJR 968

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Summerst



## APPENDIX A



## **RESTORATION IN PICTURES**













































































#### ....JOIN THEM

The Club was formed in 1935 "to promote the sport of motoring, touring, racing, hill climbing and social connection with other owners and enthusiasts of the marque".

In addition to the U.K. the Club flourishes in the U.S.A. where it operates in two sections East and West, and in Switzerland, Australia, Spain, New Zealand, South Africa, and elsewhere.

The Club caters for all tastes in the world of motoring. Members can compete in hill climbs, sprints, race meetings and Concours d'Elegance organised by the Club, or take advantage of the privilege passes to spectate at these events. The Club is the only one-make club running an international race meeting in the world – the Martini International – again your privilege passes are valid.

On the social side there are monthly Area meetings, cocktail parties, dances and occasional Works visits, and various other social functions.

At all times you are kept in touch with what is happening in your Club by the free monthly "News Sheet" and "A.M." the quarterly magazine. This, coupled with the up-to-date Club Register which is also given to you makes certain that you can take full advantage of the Club's many and varied events.

Members travelling to other parts of the U.K. are free to visit local Area meetings, and when travelling overseas are made very welcome all over the world. CONCOURS d'ELEGANCE events always attract enthusiastic crowds as well as the chance to see many varied models of the marque.





The Competition Calendar encourages Members to compete with their cars in most aspects of motor sport.

One of the big social events in the Calendar is the annual prize giving and cocktail party. Here you see Members as guests of The MARTINI INTER-NATIONAL CLUB at Martini Terrace, New Zealand House, London.



P.O. pox 342, Basseterre.

St. Kitts.

10th July, 1973.

Director of Public Relations, Aston Martin Limited, Newport Pagnell, Bedfordshire, England.

Dear Sir,

I have just been given an Aston Martin DB4 by my Father who has cured it for the past six years. It is one of the very first models produced and the Chassis Number Speaking from memory there is also a P, is DB4 107. I think denoting prototype in the chassis number. According to the Log Book this car was owned for its first two and a half years by Aston Martin Lagonda Limited and I think David Brown Engineering Limited. During 1967 it was given a complete overhaul by Aston Martin, the bill for parts alone totalling some 2780. This was shortly before it was purchased by my Father. Since then it has done only 35,000 miles and is in excellent mechanical condition but unfortunately the bodywork is corroding around all four wheel arches and in one or two other places. I am having a complete bodywork overhaul carried out by a firm of coach builders in the North East of England. This havilyos cutting out sections on all four wings and welding in new sheeting among other things. The paint is being stripped on the whole car down to metal and any other faults are being remedied. The car is to the best of my knowledge in its original colour which is palo blue and this is the reason for me writing to you.

I seem to remember that Pacific Blue was a particularly attractive colour on this model but as I will be living in St. Kitts until early next year I will have no opportunity to look at an early model in this colour and am rather reluctant to change from pale blue to pacific blue unless I am certain that the car will retain its classic lines in this colour. I would be grateful if you could therefore advise me as to whether:-

- 1. Pale Blue was the original colour for this particular car.
- 2. The approximate number of DB4's produced in pale blue and the approximate number of DB4's produced in pacific blue.
- 3. Any other history relating to this car which might be of interest to someone who intends to keep it in good condition for a long time.

Incidentally, the colour of the upholstery is cream.

I realise that this may require some research and I would therefore be happy to pay for this service.

Voina Posthfullt





DIRECTORS: S. W. WILLSON F.C.A. CHAIRMAN C. H. WARDEN A.C.A. MANAGING H. H. BEACH F. H. HARTLEY G. E. FLETCHER A. A. P. SOUTHALL

NEWPORT PAGNELL BUCKINGHAMSHIRE MK16 9AN

TELEPHONE: NEWPORT PAGNELL 610620 (12 LINES) TELEGRAMS: ASTOMARTIA, NEWPORT PAGNELL TELEX: 82341

RPS/OA.

D.J. Stanger Esq., P.O. Box 342, Basseterre, St. Kitts. West Indies.

19th July 1973.

Dear Mr. Stanger,

ref: Aston Martin DB4/107/R.

It was most interesting to have your letter of the 10th July you can see why, from the enclosed brochure. What a terrific present!

We are enclosing a photocopy of the history of the car, as we know it, which confirms very much of what you say.

The chassis suffix is in fact 'R' but the engine number certainly does include a reference to its having been in the hands of the Experimental Department at some time.

I was interested to know that the car is in the North East of England and I wonder if you would care to let me know just where, for I have some friends in Co. Durham who I see quite often and would very much like to see the car being reborn, so to speak.

As you can see from the enclosed copies, the colour was Wedgewood Blue and the trim described as "off white". As a personal opinion, for what it's worth, I think it might be a mistake to change to Pacific Blue. Apart from the fact that this is a non-standard colour for the DB4, I personally do not think that such a dark colour will do justice to the DB4. It does suit the DB5 and 6, but these are not DB4's. However, I am a little apprehensive that Wedgewood Blue might not now be obsolete. One can only enquire. It really would be very difficult to find out how many were produced in this shade, without going through the entire range of record cards and quite honestly this would take a long time. I can assure you that there were no cars produced from the factory in Pacific Blue.

The object in sending you the A.M.O.C. brochure was in fact twofold, as you may guess. Although you will soon be living



/Continued: REGISTERED IN ENGLAND NO. 243636 in St. Kitts, which is certainly a long way from 'home' this is a car which is missing from the Club's records. With its history it really should be included, now that we know where it is. In the hope that we can persuade you to join the Club, I, as a member, have signed the enclosed form and hope that you might do the rest. The Club is probably the largest one-make club in the world and although it is not run by the factory, we work very closely together. The events will hardly be of much interest to you, so far away, but the monthly News Sheet and the quarterly magazine AM will keep you very much in touch with all that goes on.

We look forward to hearing from you again shortly.

Yours gincerely, er

R.P. STOWERS. Special Representative.





DIRECTORS: S. W. WILLSON F.C.A. CHAIRMAN C. H. WARDEN A.C.A. MANAGING H. H. BEACH F. H. MARTLEY G.E. FLETCHER A. A. P. SOUTHALL

NEWPORT PAGNELL BUCKINGHAMSHIRE MK16 9AN

TELEPHONE: NEWPORT PAGNELL 610620 (12 LINES) TELEGRAMS: ASTOMARTIA, NEWPORT PAGNELL TELEX: 82341

DIL/JJ.

David J. Stanger, Esq., 10, Beechfield Road, Gosforth, NIMCASPLE-UTON-TYME, 3.

20th June, 1974.

Dear Mr. Stanger,

It was a great pleasure to meet you and Mrs. Stanger on Mednesday and also to see and drive 4SMU, as I hopeshe will be known before too long.

You mentioned an interest in a GT and by chance I have just heard of one. It is not the car that I had been told about; this car is Chassis Mumber DB4 GT/0155/R and I understand that you may be getting a call from its present owner Mr. Edensaw. I cannot tell you much about it for we last saw the car in 1963. The recorded mileage then was a mere 4,300 miles.

There was nothing extraordinary about it when it was built. Its colour was Dubonnet and the trim is fawm. It was sold by K.N.Rudd in June, 1961.

It will be interesting to hear whether anything transpires.

Yours sincerely,

R.P.STOLERS.

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LASTON MARILIN)



#### ASTON MARTIN LAGONDA LIMITED

A SUBSIDIARY OF THE DAVID BROWN CORPORATION LIMITED

#### NEWPORT PAGNELL BUCKINGHAMSHIRE

Telephone : NEWPORT PAGNELL 720 to 729 Telegrams : ASTOMARTIA NEWPORT PAGNELL

ATH/HEA

26th October,1966. Invoice No. SE 35547 NR 4989/41734.

D.F. Carr Esq., Central Garage, Church Way, North Shields.

#### Re: Aston Lartin DB1/107/R Reg. No. YJR 968.

110: 1
Removing bonnet panel to facilitate repairs to engine. Draining cooling system, removing
radiator hoses, radiator cowl and radiator.
Disconnecting and removing engine ancilliary
equipment. Removing seats, interior trim and
gearbox tunnel. Disconnecting andremoving
propshaft, speedo cable, clutch slave cylinder etc
Disconnecting and removing engine and gearbox
complete. Removing gearbox from engine.
Dismantleing engine, cleaning and inspecting all
parts. Cverhauling and reas. embling engine
using new parts as listed. Fitting new clutch
release bearing to gearbox and refitting
gearbox to engine. Reinstalling engine and
gearbox in chassis. Connecting up and refitting
engine ancillary equipment. Fitting new choke cable
assembly and refitting carburettor controls.
Filling engine with oil. Refitting radiator and
radiator cowl. fitting new cooling system boses.
Filling cooling system with antifreeze solution
and treating with barsleak. Purning engine and
moling necessary of instructed to alow muching
and minture setting. Defittion houst 1
and mixture settings. Relitting bonnet panel.
Relitting propenait, speedo cable, clutch slave
cylinder etc. Adjusting slave cylinder push rod
clearence. Refitting tunnel trim and seats.
Road testing and carrying out final adjustments.

Supplying:

- 1 Clutch release bearing.
- 1 Cylinder block.
- 1 Timing case.
- 1 Front cover



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INVOICE No. SE 35547 CONTIN

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Removing calipers, hubs and discs etc. Dismantling and inspecting axle. Cleaning all ancillary parts removed from axle and fitting to new rear axle. Cleaning calipers and checking for correct operation, refitting and recentralizing calipers, cleaning brake pads and refitting. Cleaning lubricating and refitting handbrake calipers. Re- installing rear axle assembly using new flexible brake hose. Freeing off and refitting handbrake cables and adjusting handbrake. Eleeding brake hydraulic system, balancing frint road wheels and fitting all road wheels.	22.	10.	0.
Road testing, tracing and rectifying body rattles, fitting new door sealing rubbers. Fitting new wiper arms and blades.	<u>ل</u> ه و	10.	0.
Supplying:       1.       18.       8.         2 " gaiters.       17.       6.         3 Bolts.       3.       0.         1 Nouning plate.       2.       0.         1 " "       8.       3.         3 Spacers.       2.       0.         2 Clips.       3.       8.         6 Bolts.       3.       0.         2 Clips.       3.       8.         6 Bolts.       3.       0.         1 Hose.       4.       3.         1 Hose.       4.       3.         1 Hose.       4.       3.         1 Hose.       4.       3.         1 Hose.       5.       8.         2 Gaiters.       1.       12.         4 Waiters.       1.       12.         2 Bushes.       5.       8.         2 Bearings ceps.       15.       0.         2 Hub oil seals.       1.       5.         1 Bearing       19.       8.         1 Bearing       19.       8.         1 Bearing       19.       8.         2 Hub oil seals.       15.       0.         2 Insulating rings.       4. <td< td=""><td>£656<b>.</b></td><td>0.</td><td>0.</td></td<>	£656 <b>.</b>	0.	0.
L.P. 100			

			B/FWD	.s656.	0.	0.
1 Swing link (Watts link).	2.	12.	0.			
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Engine Reg. No. Owner Chassis SERIES ONE (DB4/101/R - 249/L; all saloons) 4 TMC H. J. Truscott 370/EXP 10 DB4/101/R (Engine was 370/PP/104) 370/110 DB4/102/L (French demonstration car) DB4/105/L 370/114 (Swiss demonstration car) T. D. Lombard (U.S.A.) 370/115 DB4/106/L (New York demonstration car) 370/PP/105 YJR 948 (In St. Kitts) DB4/107/R (Works demonstration car, was 4 SMU) 400/1814/VC WLC 433 R. S. Williams DB4/108/R (was 370/PP/107) (was 370/PP/107)
1971 A.M.O.C. Wiscombe (Williams), 3rd in Class. A.M.O.C. Curborough (Williams), 8th in Class.
A.M.O.C. Silverstone (Williams), 9th in Class.
1972 A.M.O.C. Wiscombe (Williams), Hetreed Trophy. A.M.O.C. Curborough (Williams), Corgi Trophy. J.D.C. Thruxton (Williams), 2nd, 1st in Class.
4/111/R 370/118 YYH 780
1000 Sth in Class. DB4/111/R 370/118 YYH 780 1962 A.M.O.C. Wiscombe (Bond), 5th in Class. DB4/115/R 370/116 D. E D. Dyke-Wells (S. Africa) 370/121 WXR 100 R. J. Johnson DB4/116/R DB4/110/R 370/122 9 DKA 1959 B.A.R.C. Sprint, Castle Howard (Tyrer), 1st in Class. B.A.R.C. Members Aintree (Tyrer), 1st in Class. Middlesbrough M.C. Thornaby (Tyrer), 1st, 72.06 m.p.h. DB4/123/R 370/136 1666 DA C. S. and R. Thompson DB4/125/R 370/138 877 CGB D. G. Hall 2514 UG J. W. Johnson DB4/123/R DB4/125/R DB4/126/R 370/135 3514 UG J. W. Johnson 991 YBF 358 DLW D. Weskin-Fox DB4/129/R 370/139 I. Moss and P. Foster DB4/130/R DB4/146/R 370/142 W. B. Curtis P. A. Wilde 370/153 XX 4880 7019 PP XLE 46 370/151 DB4/147/R R. Jones DB4/148/R 370/158 DB4/149/R 370/156 NGR 1 1962 London M.C. Slalom, Finemere (Perring), 1st in Class. /150/R 370/364 805 WAR L. A. Burrell DB4/150/R 1966 A.M.O.C. Wiscombe (Faggeter), 1st in Class. A.M.O.C. Curborough (Faggeter), 1st in Class. Hants. and Berks. C.C., Gt. Auclun (Faggeter), 4th in Class. 6548 PP A. F. W. Platt 370/155 DB4/151/R 951 VMT DB4/154/R 370/149 1960 Barbon Hill Climb (Hepworth), 2nd in Class. DB4/157/R 370/1164 675 LPJ M. Quinn (Only Series 1 car originally fitted with oil cooler). 370/207/4/V KKX 4C DB4/170/R (Was l.h.d.; 4-litre experimental Vantage engine; five-speed box; ex-Marek) 370/180 3888 DA I. W. Joiner (N. Ireland) DB4/171/R (TG 11) DB4/176/R 370/188 1960 W.E.C.C. Sprint, North Weald (Gates), 2nd in Class. /178/R 370/199 139 HGA P. J. Egan /179/R 370/172 UDM 245 J. F. Walker DB4/178/R 370/172 DB4/179/R 4/4 (75)

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	ME:- DAVID BROWN	INDUSTRIES LIMITED.		CAR No DB4, REG. No. 4	/107/R SMU
GUARANTEE ISSU	IED :		GUARANTEE EX	PIRES :	(a).
DELIVERED :	1		SHIPPED :		
AGENT :			YEAR OF MANU	FACTURE :	
	D D D D D D D D D D D D D D D D D D D			TANDARD FOUR	DMENT
	PARTICULARS	PARI	ICULARS OF NON-	STANDARD EQUI	PMENI
TYPE ENGINE No. CHASSIS No.	ASTON MARTIN DB4 370/PP/105 DB4/107/R	Mark II this ca	I speedometer o r.	able fitted t	0
CARBURETTOR DYNAMO STARTER	LUCAS LUCAS				
GEARBOX SPEEDO GEARS	S.432/100	/ G/Box rep	laced No.S432/3	/244 19.9.60.	
REAR AXLE RATIO SHOCK ABSORBERS FOG LAMPS CIGAR LIGHTER	ARMSTRONG	3.77:1 Dept) c	axle (belièved hanged to 3.54:	fitted by Exp 1 28.9.59 (No	erimental .C59.23)
SPEEDOMETER PLUGS	SMITHS KLG. FE.80. SING	LE POINT 14 mm			
TYRES HEADLAMPS	AVON TURBO P SPEI	3D		4. 42	
BODY TYPE BODY MANUFACTUI	SALOON RERS TICKFORD				
BODY No	DB4/107/R	T C T M037-3145	ADDITIONA	L OWNERS	1
BODY COLOUR WE	DGE.VOOD BLUMANFRS.	1.0.1. 2007-0140			
BODY COLOUR WE TRIMMING HOOD and COVER	DGENOOD BLUMANFRS. OFF WHITE	CONNOLLY VM.3323 Addition	al:Swift Motor Alfreton Roa	Services (Der d, Derby.	by) Ltd.,
BODY COLOUR WE TRIMMING HOOD and COVER SLIDING ROOF WIRELESS	DGEWOOD BLIMANFRS. OFF WHITE   "	CONNOLLY VM.3323 Addition	al:Swift Motor Alfreton Roa J. Saul, Seho	Services (Der d, Derby. ose Cote, White Working	by) Ltd., chaven Road gton.1.2.61
BODY COLOUR WE TRIMMING HOOD and COVER SLIDING ROOF WIRELESS HEATER REAR AXLE No.	DGEWOOD BLUMANFRS. OFF WHITE	CONNOLLY VM.3323 Addition	al:Swift Motor Alfreton Roa J. Saul, Seho	Services (Der d, Derby. ose Cote, Whit. Working	by) Ltd., chaven Road gton.1.2.61
BODY COLOUR WE TRIMMING HOOD and COVER SLIDING ROOF WIRELESS HEATER REAR AXLE No. BATTERY No. KEY No.	DGEWOOD BLUMANFRS. OFF WHITE E58/3 M5-1 8 IGN. FP.717 BOOT FO 737	CONNOLLY VM. 3223 Addition	al:Swift Motor Alfreton Roa J. Saul, Seho	Services (Der d, Derby. ose Cote, Whit Workin	by) Ltd., chaven Road gton.1.2.61
BODY COLOUR #15 TRIMMING HOOD and COVER SLIDING ROOF WIRELESS HEATER REAR AXLE No. BATTERY No. KEY No.	DGEWOOD BLUMANFRS. OFF WHITE E58/3 M5-1 8 IGN. FP.717 BOOT FO 737 DUNLOP DISC BRAKES	CONNOLLY VM.3323 Addition	al:Swift Motor Alfreton Roa J. Saul, Seho	Services (Der d, Derby. ose Cote, Whit Workin	by) Ltd., thaven Road ton.1.2.61
BODY COLOUR #13 TRIMMING HOOD and COVER SLIDING ROOF WIRELESS HEATER REAR AXLE No. BATTERY No. KEY No.	DGEWOOD BLUMANFRS. OFF WHITE	CONNOLLY VM.3323 Addition	al:Swift Motor Alfreton Roa J. Saul, Seho	Services (Der d, Derby. ose Cote, Whit Workin	by) Ltd., chaven Road gton.1.2.51
BODY COLOUR #13 TRIMMING HOOD and COVER SLIDING ROOF WIRELESS HEATER REAR AXLE No. BATTERY No. KEY No.	DGEWOOD BLUMANFRS. OFF WHITE E58/3 M5-1 8 IGN. FP.717 BOOT FO 737 DUNLOP DISC BRAKES	CONNOLLY VM.3323 Addition	al:Swift Motor Alfreton Roa J. Saul, Seho	Services (Der d, Derby. ose Cote, Whit Workin	by) Ltd., chaven Road gton.1.2.61
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DATE	SERVICE WORK				
23.4.59.	37232. Engine oil changed, new oil filter element fitted. Gearbox and rear				
25.6.59.	axle oils changed. Transmission checked. Chassis points greased and lubricated. Lighting changed to Continental syste, G.B. Letters fitted. <u>Mileage 1718</u> 37232 Car serviced as at mileage and checked generally. Plugs, points and carburetters cleaned. Engine oil changed. Gearbox and rear axle oils toned.				
¥ 29.7.59.	Chassis points greased and lubricated. King pin nuts checked. Battery topped: Damaged paintwork rectified. Car compounded and wax polished. <u>Mileage 6152</u> # GR.97107 Timing chain on cylinder block clearanced. Distributor shaft machined to take "O" ring. Heater water pipe clipped securely. Fast idle setting edjucted				
28.9.59.	Soft type shock absorbers fitted. Front suspension shimmed. New silencer fitted. Breather pipe fitted in petrol filler. CR.37232. Axle C59.23 c.54:1 ratio fitter and speedometer to suit. Steering tightness rectified. Offside front wing repaired. Complaint of lack of				
13.10.59	GR37232. Engine oil changed. Filter element renewed. All oil levels checked. New tyre and tube fitted to spare wheel. Battery topped. Car polished.				
12.11.59.	37232. Engine oil level checked. Clutch pedal adjusted for clearance. Hand brake adjusted. Car filled with petrol and clearance.				
¥ 20.7.59	. GR 97107 Defect in nearside electric window winder rectified. Horns rectified Wireless interference attended to. Trim in glove bor refired.				
1.12.59.	rear squab rectified. Press studs fitted to carpet. <u>Mileage 635 # See ab</u>				
	blind and squeak on throttle pedal rectified. Master cylinder changed.				
x	rectifications carried out. Electrically heated rear window fitted.				
4.1.60.	37232. Barsleak added to radiator, all hoses checked. Front hubs checked, also				
x 29.12.59	Master cylinder changed. Badge bar fitted. <u>Mileage 3625</u> . 37232 Trico solvent added to windscreen washer container.				
1.2.60.	links renewed. Badges fitted. // <u>"ileage not taken</u> 37232 Blow from exhaust system rectified. New winer blades fitted arms				
16.2.60.	adjusted. 37232 Cyl; head tightened. Engine oil changed. G/Box refilled with				
	XL. General service carried out. Psintwork rectified. Car wax polished.				
25.3.60.	CR.37232. O/S electric window rectified. Mileage 6584				
30.5.60.	37232. Blow from exhaust manifold rectified. <u>Milease 9226</u> 37232. Throttle rectified; steering greased; speedometer and cable changed; rear brake pads changed; switch for o/s window mechanism changed and readjusted.				
11.7.60.	R.3110. New flywheel, starter rack, centra plate and clutch unit <u>Mileage 9897</u> fitted; flywheel and clutch balanced; gearbox oil seal and carbon ring renewed.				
	(Accident damage) <u>Mileage 2177</u> .				
£2.8.60.	37232 Replacement propshaft fitted. <u>Mileage 2579</u> . X				
	R.3110. New flywheel, starter rack, centre plate & clutch unit fitted. Flywheel & clutch balanced. G/Box seal & carbon ring re-newed. Mileage 2177. *				
19.9,60.	37232. New valve covers fitted. New accelerator spring fitted. Rad; blind adjusted. 2 new by-pass hoses fitted. Exhaust, fouling, rectified. Cyl; head pulled down. New clutch unit fitted. New G/Box fitted. R/axle pinion nose seal replaced. 2 new tyres fitted. New servo fitted. King pins shimmed. Front N/S wishbone arm gaiter refitted. Steering wheel				
	· · · · · · · · · · · · · · · · · · ·				

		Page 3.
DATE	SERVICE WORK	CAR No. DB4/107/F
<i>i</i> .	polished. Silencers replaced & system rehung. Exhaus refitted. Paintwork rectified.	t 'tail pipe screws <u>Mileage 5761</u>
28. 9.60.	37232. Starter overhauled. Int; trim cleaned by Conno re-cellulosed.	lly's. Boot lid <u>Mileage 6169</u> .
11.11.60.	37232. Replacement carburettors fitted. Screen washer from O/S window rectified.	s adjusted. Rattle <u>Mileage 7919</u> 1
6.12.60.	104.37232. 6 New exhaust valves & new springs fitted.	Mileage 9790.
4.5.62.	R.5513. Oil leak from engine attended to. Engine decarbon seatings refaced. New starter ring gear fitted to new fly centre plate fitted. Carbs cleaned. New jets and needle valves fitted to float chambers. Float levels reset. Pl Points cleaned and adjusted. Cap segments and rotor strik element fitted. New set of water hoses fitted. Engine re road tested, engine tuned. G/Box oil seals checked for lea thrust assy. fitted. R/Coupling on G/Box changed. New s to front suspension and new anti roll bar links. 4 newtyr tightened. R/S/A's replaced. New silencers fitted, and New steering rack mounting assemblies and/new control cable f New pedal bushes and shaft fitted to clutch and brake. Element rectified. Paintwork made good.	ised. Valves and vale wheel. New clutch and s'fitted. New needle- ugs cleaned and reset. er cleaned. New cleaning filled with XL. Car ks. 'New clutch withdrawal et of rubber bushes fitted es fitted. Spokes new suspension links. itted to radiator blind, ctricals checked and
.5.62.	R.5513/1. Heater replaced. New heater trunking. Armature :	Mileage 18938
	Battery cleaned and recharged.	Mileage 18938
26.10.6	6. NR 4989 Engine overhauledNew clutch release bearings. New system hoses. Filled with antifreeze. Adjustment to slow r New cylinder block. Timing case and front cover.	choke cable. New cooling unning and mixture settings.
26.10.66.	NR 4989 Engine repairs. Fitted new clutch bearing to gear New cooling system hoses. Checked brakes. New upper and low pads and gaiters. Adjusted thrust clearance. New innet and to near side hub, New oil seals. New antiroll bar rubbers, steering rack mountings. New offside front brake pipe. Rea New rearaxle. Handbrake adjusted. Rectified body rattles.	box New choke cable. wer king pin thrust outer wheel bearings , rack gaiters and ar axle inspected. New wiper arms and blades. <u>Mileage 41784</u>
./.2.0/.	2 4009. Sent engineer to owners nome and carrying out pivot boit	Mileage not stated.

EPHONE	3394		ESTABL	ISHED	1893		Partners :
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н	MARK	7 7	(T)		C	C	W. RA
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(B)	1 al	A A o	a juin	C		DUIID	ATTA
(. Mar	23	COAC	H BUILDERS 8	MOTO	OR ENG	GINEERS	( <u>CHAR</u> )
OCIAT	9	~ ·	C		C.		CELET OF
		Gowe	er Garage	-	Spa	ennymoor	

Our Ref :MDR/AW/F.95/929 Although we take every precation we do not accord responsibility for Authough we take every precation we do not accord responsibility for Your Ref : Customers goods are subject to a general lien in respect of unpaid accounts.

Mr. Stanger, 10 Beechfield Road. Newcastle 3

13th April, 1973

RAINE

£400 - 00

## Re: Repairs to Aston Martin; REGN. NO. YJR 968

Remove paint from all lower part of vehicle. Remove bumpers etc and send rear bumper for rechroming by specialist. Cut out sections of all four wings and weld in new aluminium sheet and shape around wheel arches and bottom of vehicle. Remove part or all of rear lower panel. Make and fit new aluminium panel. Check N/S and O/S sills for corrosion. Attend to O/S jacking point, welding in new metal to support existing arrangement. Repair bonnet aperture panel welding in new aluminium. Reshape bonnet. Check condition of rear window aperture panel and attend to hair line cracks. Clean up interior of N/S and O/S doors and paint steel frames - it being understood that it is impossible to arrest the spread of rust or to prevent it coming through paint in due course. Remove GB badges from boot lid and weld up holes. Fit new rubber to boot aperture if rubber is in stock.

## RECELLULOSE

Vehicle complete in a colour of owner's choice.

## Additional cost

Specialists charge for rechroming rear bumper subject to his estimate that the cost would not exceed £30 - 00 excluding V.A.T. The whole of this quotation is subject to the addition of Value Added Tax at the rate in force at the time liability to tax arises.

Yours faithfully, p.p. H. RAINE & SONS.

## TO MESSRS. H. RAINE & SONS

I HAVE RECEIVED AND READ YOUR QUOTATION FOR WORK ON MY VEHICLE AS DETAILED ABOVE AND AUTHORISE YOU TO PROCEED WITH THE WORK. I HAVE ARRANGED FOR THE VEHICLE TO BE FULLY INSURED WHILST IN YOUR CARE AND ACCEPT THAT YOU ARE NOT LIABLE FOR DAMAGED TO THIS VEHICLE HOWEVER CAUSED, WHETHER THROUGH NEGLIGENCE OR ANY OTHER CAUSE.

V.A.T. Reg. No. 258	DR. TO DR. TO D	W. RAINE W. RAINE INVOICE
Mr. Star Re: Remo send sect shee Remo pane bonn and stoo or t Remo ADDI Repa: fit n Also <u>RECEN</u> Vehic	Repairs to Aston Martin Reg. No. YJR 968 New paint from all vehicle. Remove bumpers etc. and rear bumper for rechroning by specialist. Cut out ions of all four wings and weld in new aluminium t and shape around wheel arches and bottom of vehicle. ve all rear lower panel. Make and fit new aluminium 1. Check N/S and O/S sills for corrosion. Repair et aperture panel welding in new aluminium. Reshape et. Check condition of rear window aperture panel attend to hair line cracks. Clean up interior of and O/S doors and paint steel frames - it being under- d that it is impossible to arrest the spread of rust to prevent it coming through paint in due course. We GB badges from boot lid and weld up holes. <u>FIONAL WORK</u> : ir O/S/R, N/S/R, and N/S/F jacking points. Make and new fillett panels to N/S/R and O/S/R wheel arches. make filletts for front wings. <u>LULIOSE</u> : bele complete in blue V.A.T. @	2440 - 00 10% 44 - 00
NOTES	<ul> <li>1) Rear bumper declared unsuitable for recondition</li> <li>2) O/S/F jacking point not repaired as master cyling requires attention first - additional cost contain allowance for this job not being done, i.e. no charge made for this and estimated cost dedu from cost of additional work.</li> </ul>	£484 - 00 ======= ning. nder wers acted



