Restoration of the classic Aston Martin

DB5

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CHAPTER ONE

The History of Aston Martin

ORIGINS

The History of Aston Martin is a long and convoluted one and is one not untypical of much of the early and mid 20th century of British sports car manufacturing industry. Like so many of the illustrious names of British motoring history, this was a car company formed initially to enable a select group of wealthy individuals to go racing and hill climbing.

The start of what became Aston Martin was the occasion in early May 1914, when a certain Lionel Martin ascended the hill climb at Aston Clinton in a specially tuned Singer 10 and winning his class on handicap. By then he had resolved that he wanted to start manufacturing light sporting cars for the wealthy sportsman. Supposedly he drew a connection between his own name and the hill climb at which he came to prominence. This we presume led him to naming his cars Aston Martin.

Lionel Martin was the son of a wealthy family with business in granite quarries in Lincolnshire. He was already a partner in an established company, Bamford and Martin, a garage in London, which he founded with his good friend Robert Bamford in 1912. They had taken on an agency for Singer cars, with the intent to tune and modify them for sporting use. With a colleague and mechanic Jack Addis they had formed a successful partnership in developing the Singer 10 into a competitive light car capable of over 70 mph. Other motor sport enthusiasts soon asked for replicas of his own car, following the success he was enjoying. This encouraged him and his business partner Robert Bamford to go into car manufacture, a decision he took following his success at the Aston Clinton hill climb.

Rather than continue in modifying and tuning Singer 10 cars, Lionel Martin decided that they should create their own design, using a proprietary 1400 cc Coventry Simplex engine. Impatient to make an early start, they adapted an Isotta Fraschini voiturette chassis, a car already with a successful sporting pedigree. The prototype was ready in August 1914 and was entered in the Brighton Speed trials. Shortly after, World War 1 commenced, thus bringing an immediate halt to any further activities.

n 1920, Lionel Martin revived the business and restarted design and development of his car, starting with the design and manufacture of their own chassis. The Coventry Simplex engine, which they had used in 1912, was heavily modified and tuned. Bodies were designed and built in house as simple open sporting cars, with minimal weather protection. By 1925 some 23 examples had been built. There were 3 further development cars built, each being optimised for competition, the last one, named “Bunny”, successfully breaking the hill record at Brooklands in 1922.

In 1921, Robert Bamford withdrew from Bamford and Martin, his place as director being taken by Lionel Martin’s wife, Katherine. As development costs mounted, it became essential for Lionel Martin to find sponsorship, to allow him to continue development and production. In this he was successful and shortly after in 1922, he obtained £10,000 sponsorship from Count Zborowski, who commissioned him to create a racing car, powered by a twin overhead camshaft engine, to be entered for the 1922 French Grand Prix. two cars were built for this race and neither finished. By 1924, his company had absorbed £100,000, and it became essential that further capital was obtained if development and production were to continue. Again, Lionel Martin was successful and in 1924, he had invited the son of Lord and Lady Charnwood, the Hon John Benson, to join Bamford and Martin as director. This led to access to further finance, but for this, John Benson was given the lead in designing and developing another all new twin overhead camshaft-racing engine, a costly project. They exhibited at the 1925 Olympia Motor Show, but within a few weeks of the show closing, the firm was put into receivership and Lionel Martin was asked to withdraw from the company.

Lord Charnwood then bought the physical assets of Aston Martin and the company was put for sale. It generated great interest, including from the Vauxhall Company. The company was bought soon after, however, by Mr William Summerville Renwick who then merged it with his firm Renwick and Bertelli, the shareholding then being split 50-50 with Lord Charnwood to form Aston Martin Motors.

Renwick and Bertelli was formed originally to design, build and manufacture high efficiency small engines for sporting use, which could then be sold to the motor industry. The initial design was based on an overhead camshaft 4 cylinder 1.5 litre engine of quite advanced concept for its day, leading to a significantly higher power to weight ratio then contemporary side valve engines commonly available. The development led to an approach from John Benson, leading as indicated to the merging of their respective interests to form Aston Martin Motors in late 1925. The new company brought in Augustus Bertelli, who was responsible for the design of every Aston Martin model up to the outbreak of war in 1939.

In forming the new company, new premises were required and so Aston Martin moved from central London to Feltham until eventually the site was closed in 1960.

The initial car design produced by Aston Martin Motors was a 1.5 litre light sporting car, based on the Bertelli engine. It was low, fast and with excellent handling, quickly established itself as a very capable sporting car. A company formed by the brother of Augustus Bertelli, Enrico, was commissioned to provide the bodies. These were manufactured on an adjacent site, and being of excellent quality, added to the car’s reputation for high quality, though they were expensive.

THE INTERWAR YEARS

Shortly after production commenced in 1927, the British and World economies were plunged into recession, and with a general downturn in demand credit was tight and expensive and it became clear that there was a need to re-capitalise the company and reform it. By 1929, the company was very vulnerable and it was to continue in such a state until eventually being bought yet again by Mr Arthur Munroe Sutherland, who, being a wealthy shipping magnate from Newcastle, put in his son, Mr Robert Gordon Sutherland, as joint managing director with Augustus Bertelli. These two continued to drive the company until 1947, when Mr David Brown bought the company. The new company was called Aston Martin Ltd.

Models produced from 1929 till the outbreak of war, were all based on the original concept of a light chassis and sporting body using a small capacity high efficiency 1.5 litre engine. This later grew to 2 litres with the introduction of the 2-litre model in 1936.

The initial 1.5 litre International model established Aston Martin firmly as a manufacturer of very high quality, high performance sports cars, which could with equal felicity, be used on the race track and road. They were eminently practical road going cars.

Aston Martin Team cars circa 1935 - Aston Martin enjoyed a successful competition history during the 1930's often winning their class in many prestigious races of the era, including Le Mans.

They quickly established themselves on the race track, at Brooklands, Le Mans and elsewhere, and their success only added to their reputation. Based on their Le Mans success, other events led to special sporting bodies, including a particularly elegant design first used at Dundrod in Ulster. This became known as the "Ulster". In 1936, the 2 litre model was added. In common with other contemporary cars of the period, the fashion called for increasing comfort and sophistication. Weight under these demands, increased substantially. To compensate for this, it became imperative to increase power, thus creating the need for an increase in engine size to 2 litres. Complementing the engine, the Cotal electric pre-selector gearbox became a standard fitment. The 15/98 as it was known, was produced in three main versions, Saloon, Tourer and Drop Head Coupé. While the Tourer, at least retained some sporting pretensions, the Drop Head and Saloon were heavy and rather underpowered, but beautifully constructed.

On the departure of Agustus Bertelli in 1939 Claude Hill was appointed as chief designer. Claude Hill's first task was to design a replacement for the 1.5 litre engine used in the International. The 4 cylinder design configuration chosen, maintained the overhead valves, but there were pushrod operated, using a clever system not unlike that used in the Riley car. This enabled the use of a wedge shaped combustion chamber and cross flow with induction and exhaust being on opposite sides of the engine. The result was a very respectable power output with commendable fuel efficiency.

To complement this new engine, Claude Hill also set out to design a new car. The new chassis introduced trailing arm front suspension and the use of a rigid rear axle located by twin trailing arms and a Panhard rod for lateral location, the whole being coil sprung. In order to make this new chassis configuration work, Claude Hill introduced a small rectangular tube ladder framed chassis, with outstanding torsional and longitudinal stiffness. The result was class leading road holding and ride comfort.

2 litre Speed Model, a rakish design that was typical of Aston Martin in the late 1930's. Augustus Bertelli eventually left Aston Martin and the motor industry, after a serious disagreement with Gordon Sutherland. His deputy, Mr Claude Hill, who would remain with the company until 1956, assumed his role of Chief Designer.

Engine and chassis were developed, using a variety of prototype cars. First among those was "Donald Duck", described even at the time as a "curious looking saloon"! Chassis design was further developed with the C Type, which was created to hone the road holding and engine. This introduced small section chassis tubes for the ladder type chassis construction, an all enclosed radiator and integral front wings. Later came another innovative saloon body design, known as "Atom". It utilised some clever and very advanced unitary body design techniques. While the styling, putting it charitably, might be described as quirky, the resulting car was, not withstanding, light, fast and economical and with outstanding handling. The Cotal gearbox was retained. At this point the 2nd World War intervened and production of all car manufacture ceased. Thereafter until the war's end, production was geared to the war effort. "Atom" went on to serve as valuable war transport for Gordon Sutherland.

ENTER DAVID BROWN

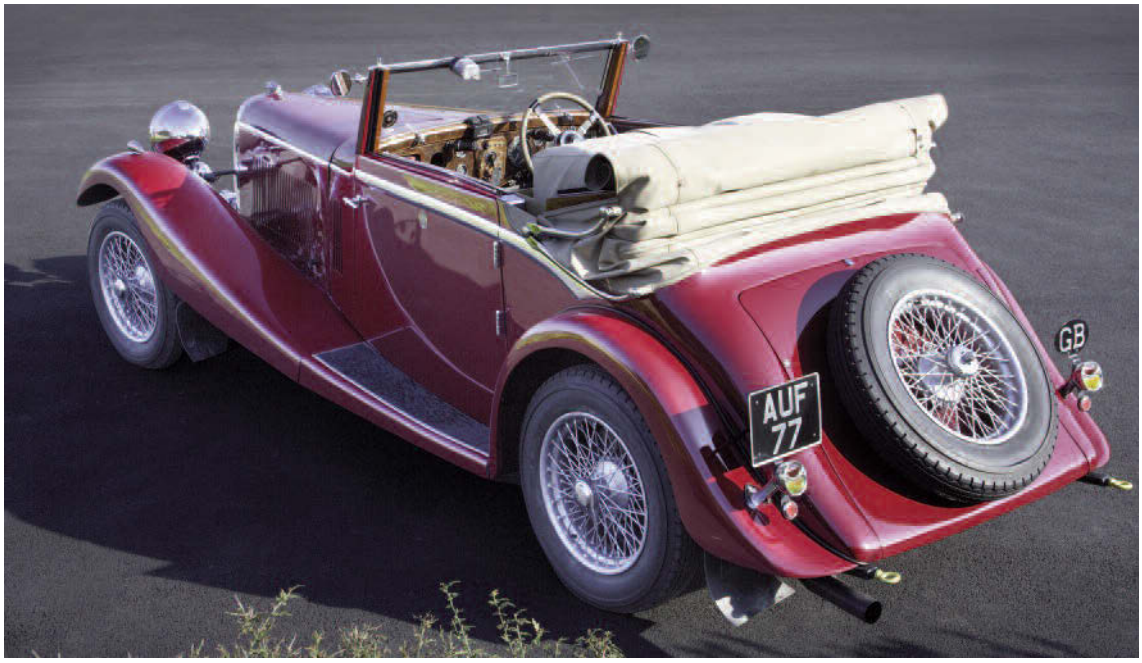
At the end of the war, Gordon Sutherland had acquired sole ownership of Aston Martin Ltd, his father having sold his shares to him for £5. Aston Martin emerged in a good state with excellent facilities, a sound balance sheet and a small but skilled workforce. However, in common with much of industry, resources were extremely difficult to acquire in order to restart car manufacture and the national effort, requiring as much export as possible, meant the need for a hasty design of a sporting 2 seater tourer suited for the American market. It rapidly became apparent to Gordon Sutherland, that gearing up for this required a level of resource and financial backing beyond what he could provide, and with a need for a major industrial backer in order to secure supplies of scarce steel and other materials. It was therefore with much regret that he put Aston Martin Ltd up for sale.

The advertisement announcing the sale of Aston Martin was placed in the Times as 1946 drew to a close and attracted only one serious indication of interest, this being Mr David Brown, owner and managing director of David Brown Ltd.

David Brown, born in 1904, assumed the responsibility for David Brown Ltd in 1932 on the death of his father, Frank, and his uncle Percy. The main business of David Brown Ltd was and remains the design and manufacture of gears and gearboxes, finding their way into the hulls of many warships and merchant vessels and countless other applications. This was and remains a nationally important company. However, David Brown also diversified into related mechanical products, including car transmissions, superchargers and similar products. As the 1930's drew to a close, opportunity was taken to enter in tractor manufacture, commencing production in 1939.

ENTER DAVID BROWN

David Brown answered the advertisement in his own private capacity. He felt that it was important that the UK had a nationally competitive sports car and, being a keen motorist, shared a passion to go racing and win at Le Mans. He saw Aston Martin as the ideal platform by which to achieve that ambition. In deciding whether to provide an offer for the Company, he test drove “Atom”, being highly impressed by its roadholding, but felt that it was lacking in power to take advantage of the potential in the car. This convinced him that Aston Martin would need a bigger engine and having seen the impact that the XK 120 had, that it had to be a 6 cylinder twin overhead camshaft engine that powered them.

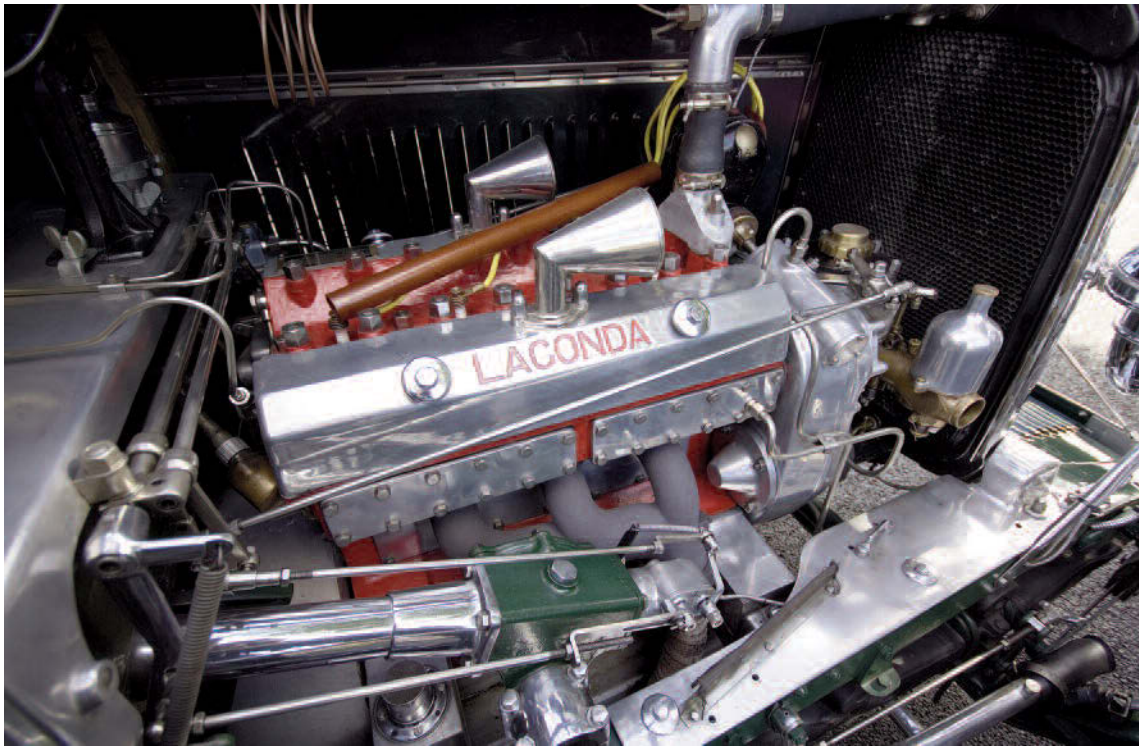


However the Claude Hill designed push-rod 2 Litre engine which he had developed, (in David Browns view) was not the way forward. Consequently, he therefore sought to source an alternative engine. This he found with Lagonda motors.

Lagonda Motors traces its roots back to 1899, when the company was founded by Wilbur Gunn as the Lagonda Engineering Company, initially using a shed at the bottom of his garden to build small compound steam engines primarily for boat propulsion. In 1900, Wilbur made his first motor cycle, sensing as he did, that with the state of transportation, more and more were demanding the convenience and speed available for motorised modes of transport. Initially, as with so many start-up businesses, the first products were built from parts bought in from other local light engineering companies, in this case Knights of Staines from whom he acquired the frames. Wilbur designed and manufactured a small internal combustion engine and adapted the frame to fit.

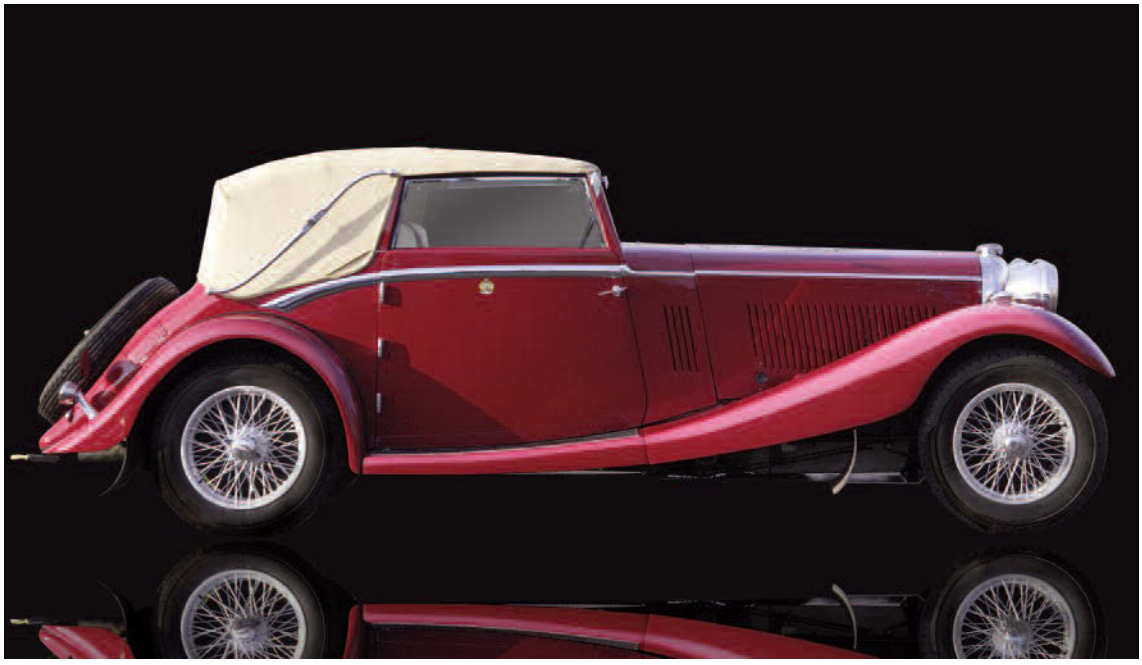
The company prospered and rapidly expanded, producing a succession of well engineered and made light cars starting with the 12 hp of 1908, then the 14/16 hp using a bought in 4 cylinder engine made by Coventry Simplex, to a 20 hp 4 cylinder model later to be adapted to a more powerful 4 cylinder engine of Lagonda's own manufacture (the 20 hp) to a new 6 cylinder model, the 30 hp of Lagonda's own design and manufacture.

Lagonda Motors as it had been renamed, survived the First World War and by 1919, was back manufacturing high quality sporting cars, concentrating in the carriage trade.



In the depressions of 1929 and early 1930's, ownership of Lagonda Motors was passed to Mr Alan Good and the emphasis of the company moved from high performance sporting cars to the highest quality and luxurious touring cars, starting with the M45, leading progressively through various iterations to the production of a V12 saloon and drop-head of the very highest quality and elegance.

Throughout this period, it had been the policy to manufacture in house many of the components and as such, Lagonda Motors possessed a large machine shop and associated foundry. At the outset of the 2nd World War, this manufacturing capability was transferred to the support of the war effort and car production ceased for the duration. During the late pre- war years, WO Bentley had joined Lagonda, initially designing and building the LG 45 and then later V12 engined cars. As 1939 approached, he was engaged in developing a replacement model with a new 2.5 litre 6 cylinder twin overhead camshaft engine, the initial development of which took place in the last year of war and 1946. The intention then was to restart car production in 1947. However, by war's end, Alan Good had decided to concentrate the use of these resources into small marine engine production under the trading name Petter Diesels.



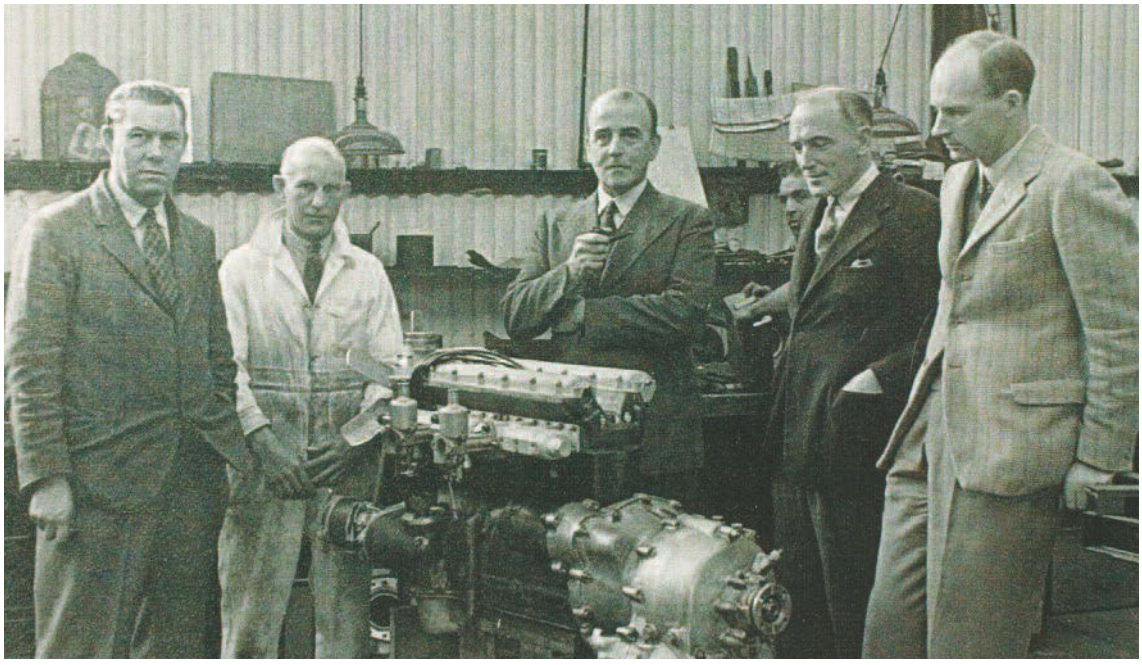
M45 Drop head - with Bodywork by Lancefield is very typical of the type of car made by Lagonda from 1934 until the onset of war in 1939

Car manufacture ceased in 1947 and design assets of Lagonda Motors were put up for sale but not the facilities and property. Initially he asked no less than £225,000. This offering attracted a number of potential bidders until the budget of 1947 introduced new taxation rules. The initial expressions of interest evaporated and on learning this, Mr David Brown then made his offer of £50,000 with the intention of mating the Lagonda engine with the chassis design created by Claude Hill and with a 2 seat Touring car of elegant design, subsequently named as the DB1. With the design assets of Lagonda Motors also came a number of design staff, including Chief Styling engineer Frank Feeley, who was to oversee every Aston Martin produced up to the birth of the DB4.

DB1 - The first car that was designed with the body for production by Aston Martin. It was fitted with the chassis and 2 litre engine design by Claude Hill. It performed well both as a road car and in competition with the prototype car competing and winning the 1928 Spa 24 hour race for sports cars outright.

THE POST WAR YEARS UP TO 1971

Under David Brown's ownership, Aston Martin was for the first time funded to develop and manufacture cars on a significant scale. A dealer network was created, a service centre provided and a full sports racing car programme put in motion. Sales rose, but never seemed quite sufficient to cover the full cost of development and manufacture. The adoption of the WO Bentley engine led to an early break by Claude Hill, in a serious disagreement with David Brown. His departure led to the promotion of Harold Beach who took charge of chassis design under the tutelage of Robert von Eberhorst late of Auto Union, who was appointed Chief Engineer.

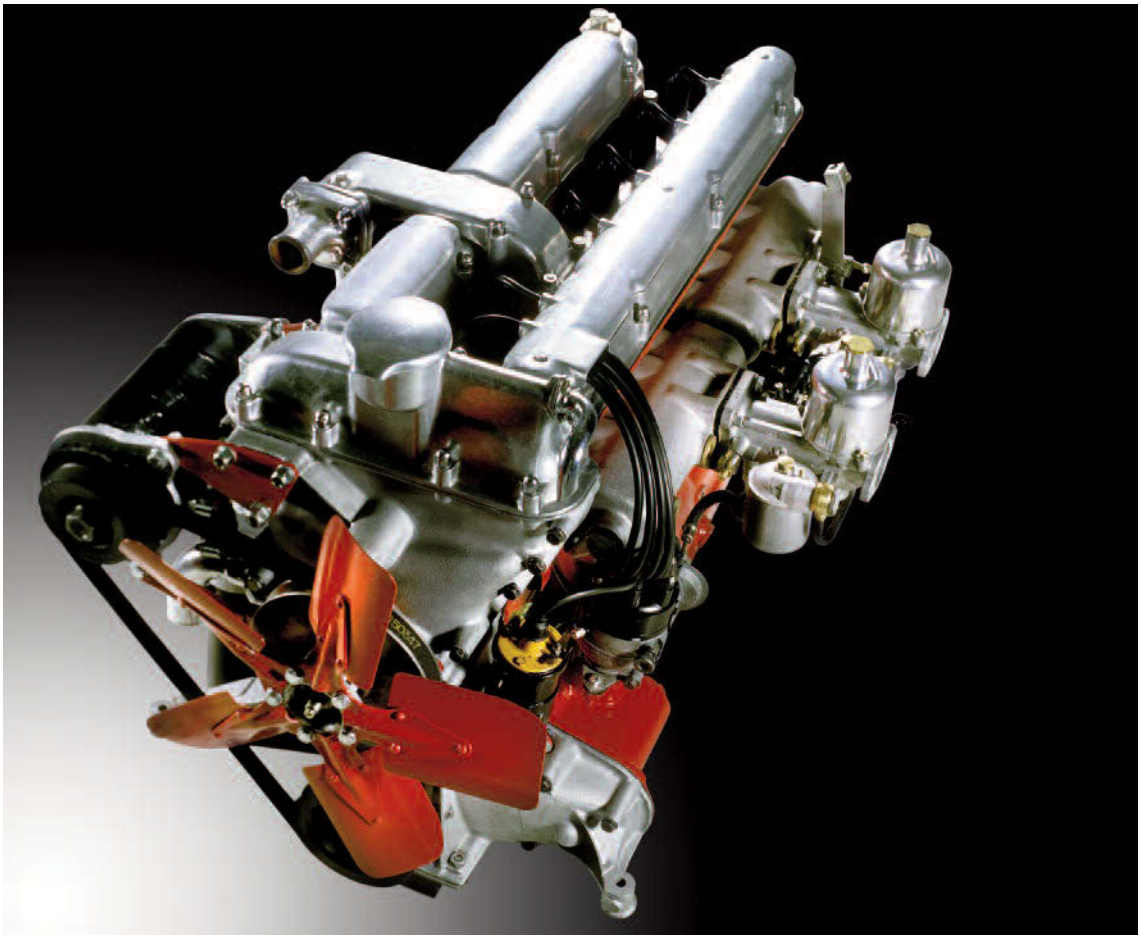


David Brown's reason for purchasing the Lagonda Company.

Engine development came under Mr Tadek Marek and initially the DB2 engine was progressively modified to increase power. An increase in size followed to 2.9 litres and after a number of design problems were rectified, it powered the DB2/4 from 1954.

The DB2 - powered by the 2.6 litre LB6 engine, established the international reputation of Aston Martin as a manufacturer of cars of the highest performance and comfort.

The DB2/4 was designed in the 2 plus 2 format, that was to endure through all subsequent models. An innovative hatchback design, it proved a popular choice for the discerning wealthy, but by 1956, was becoming increasingly outdated and it was clear that an all new model was needed. The DB2/4 was developed progressively until this car was ready, with the DB2/4 Mk II and then with a heavily revised body, in DB2/4 Mk III form. The LB6 engine was heavily modified to overcome a number of other design issues and to increase power and torque and emerged as the DBA in 3 litre form with a heavily revised cylinder block and head.



THE POST WAR YEARS UP TO 1971

By 1956, Harold Beach was hard at work designing a new platform chassis, Tadek Marek was fast developing a new light alloy engine and Touring of Milan was engaged in styling an all new body. The new model became the DB4.

The DB4 was first shown to the public in late summer 1958 to instant acclaim. The platform chassis designed by Harold Beach had been intended to use a de-Dion rear suspension, but for reasons of development and production cost, this concept was shelved and it emerged with a well-located conventional rear axle.

The body used the Superleggera construction concept of light alloy tubes supporting an outer body shell that was both light and strong. By 1958 the engine had grown to 3.7 litre capacity and as foundry capacity was only available in aluminium, emerged as an all alloy engine.

The DB4 set the world alight, reinforcing Aston Martin as a sports car manufacture of the highest performance, elegance and quality. It was a truly iconic model.

By the time the DB4 was announced John Wyer had become General Manager and set about developing it for production and to radically improve its early reliability. The DB4 was to progress through 5 distinct design series before finally emerging in DB5 form as finally a fully developed and reliable 4 litre car.

THE POST WAR YEARS UP TO 1971

Picture of DB5 - the model when all of the problems encountered with the earlier years of DB4 production were finally eradicated. The resulting car not only had very high performance and road holding for its time, but was superbly refined and proved it was a reliable performer and capable of sustained very high speeds in great comfort.

In 1957, the decision was taken to leave Feltham and to move all design and production to the old Tickford Works at Newport Pagnell. The move was to prove highly disruptive with many key workers refusing to move. In consequence there was a significant delay in the production of the DB4, which meant that the first cars were unavailable to the public until late 1959.

By 1964, it became clear, as a result of customer demand that better rear seat accommodation was required and an all new replacement was needed. This development was to spawn the development of an all-new V8 engine, designed by Tadek Marek, and heavily revised platform chassis, designed by Harold Beach, which at long last would use Aston Martin's de-Dion rear axle. Body Design was entrusted William Towns. To cover the interim before the car was ready, the DB5 was revised with a longer wheelbase, revised roof profile and improved aerodynamics, becoming the DB6 that was to continue on production until 1970. The DBS was announced in 1968 to wide acclaim, but as the V8 was unavailable, used the existing 4 litre engine fitted to the DB6 that continued in production alongside.

CHANGE OF OWNERSHIP

By 1971, the cost of the all new DBS, unfavourable trading conditions and under pressure by David Brown Ltd shareholders, David Brown sold Aston Martin to Company Developments. The new managing director William Wilson, set about taking cost out of production and realising as much of the asset base as possible, so that a sufficient amount of working capital could be made available to sustain production. The V8 was introduced in the DBS in 1971, just as the fuel crisis was hitting its zenith; unfortunate timing was just one of the reasons why the number sold never matched projections. Production continued in fits and starts as funds could be made available until finally the company was declared insolvent in 1975.

In July 1975, two American enthusiasts, Peter Sprague, George Minden and shortly afterwards Alan Curtis and Dennis Flather, bought the company and took operational control. After further fitful trading, the company was again sold in 1980, this time to Victor Gauntlett, who as Chairman and Managing Director steered the company until finally securing its long term survival when the Ford Motor Company bought Aston Martin in 1987.

The V8 Vantage and Volante introduced in 1979 - 2 models that the funding and recapitalisation provided by the new owners enabled and that secured Aston Martin's future for a few more years.

By 1984, it was clear that a new model was urgently needed to replace the V8 in Vantage and Saloon form and development of the Virage was commenced. The Platform chassis was revised and electronic controlled fuel injection introduced. The new body design was entrusted to John Heffernan and John Greenley. The Virage was announced in September 1988, and with the introduction of the Volante drophead, Vantage and V8 Coupé form, production finally petered out when superseded with the announcement of a replacement in 2000.

CHANGE OF OWNERSHIP

Picture of Virage - the new model the Virage that enabled Aston Martin to stay in business during the early 1990's and which with Ford's help secured a production base at Newport Pagnell and helped provide the essential continuity of the Aston Martin tradition into the future.

In 1990, Ford announced that the new MD was to be Walter Hayes, who immediately commenced the design of an all new model. The design brief was to create a beautiful smaller coupé that would attract a significant increase in demand. To make it affordable, it would have to adapt already developed major components in an all-new body. The foundation chosen was the Jaguar XJS platform and AJ6 engine in supercharged form. Ian Callum was entrusted with the new body design and development and production was entrusted to TWR of Bloxham, Oxfordshire, under Chief Engineer Rod Mansfield. A new company Aston Martin Oxford Ltd was formed for the purpose. In 1993, Sir David Brown became life President of Aston Martin Lagonda and gave his permission for the new model to be known as the DB7.

The DB7 was announced in 1994. In 1999, the V12 DB7 Vantage was introduced to replace the V8 Coupé. In 2001, the Vanquish was announced. It was to be assembled at Newport Pagnell. In 2003, Aston Martin's new production facility at Gaydon was opened and in 2005, DB9 production commenced, under the leadership of Dr Ulrich Bez, the new Chief Executive.

CHANGE OF OWNERSHIP

The DB7 the car that finally transformed Aston Martin from a cottage industry into a medium sized international manufacturer of GT cars.

Walter Hayes created the DB7 that secured Aston Martin's future finally for the long term. Dr Ulrich Bez that built so successfully on that foundation and that led to the DB9, Vantage V8 and which finally made Aston Martin a major competitor to the likes of Porsche and Ferrari.

CHANGE OF OWNERSHIP

In 2006 the new Vantage V8 was announced, a smaller cousin to the DB9. In 2007, it was announced that Ford wished to dispose of Aston Martin. A consortium comprising Kuwiati investors and David Richards of Pro-Drive, purchased the company. David Richards became Chairman of Aston Martin and Dr Ulrich Bez continued as Chief Executive.

ASTON MARTIN IN COMPETITION

A full racing programme was instituted under John Wyer in 1949. The brief given by David Brown was to be delightfully simple, win at Le Mans. The DB2 proved a very competitive car and in 1950, the team consisting of three DB2 works entries came 5th and 7th overall and first in the 3 litre category.

More success was to follow in 1951 with 2 specially lightened DB2 works entries, the lead car coming in 3rd, the other 5th and a privateer 7th. It was to prove a high point in the Le Mans for a number of years. By 1952, the DB3 was ready but never proved fully competitive nor adequately reliable. The DB2 continued to be campaigned with conspicuous success, but its competitiveness in the top echelons was becoming impossible to sustain.

To overcome the disappointing performance of the DB3, a revised design took shape, to reduce weight and drag, this being the DB3S. One of the prettiest sports racing cars of all time, it proved instantly competitive but not always reliable. However, this car proved that Aston Martin were up with the best of the rest of the world, attracting the best drivers and leading to conspicuous success in all of the main racing circuits of Europe and the USA, except at Le Mans.

As 1957 approached, it became clear that the LB6 engine was reaching its maximum potential, and an all new engine and chassis was needed to win. This led to the development of the DBR1. Its engine was designed by Tadek Marek, Ted Cutting was entrusted with chassis design and Frank Feeley designed the body. The engine design was initially developed to a 3 litre design brief, but from the outset, Tadek Marek built in the development potential to increase engine size up to 4 litre capacity.

The DBR1 was prepared in 3 litre form using the RB6 engine, and proved instantly successful. Among notable successes was the winning of the 1000km Nuerburgring race, in 1957, 1958 and 1959. Failure occurred at Le Mans both in 1957 and 1958 but 1959 proved the high water mark for Aston Martin's racing programme when they finally won Le Mans and the World Sports Car racing championship. The DBR2, a DBR1 with an engine of 4 litre capacity was also campaigned successfully, but not being eligible for the World Sports car racing series, was raced in North America and a number of other unrestricted races in Europe with reasonable success.

There was a brief foray into the world of Formula 1 with the DBR4 in 2.5 litre form. In reality, Aston Martin entered Formula 1 at least a year late and the cars were seldom competitive, particularly following the introduction of the rear engined Cooper and Lotus F1 cars. The DBR4 was campaigned in 1958 and 1959, but by then, it was very clear that it was not going to win. The DBR4 proved a major distraction to the Sports Racing car programme, and this was a major contributory factor in the relative failures in 1957 and 1958 at Le Mans.

With the winning of the Sports Car Championship in 1959, David Brown announced the official withdrawal of Aston Martin from competition. In reality, Aston Martin continued to keep a small racing team together. A new car Project 212 was designed and built to race at Le Mans. Some success followed, but the Ferrari GTO, which was the car to beat in 1960, 1961 and 1962, relatively outclassed it. Two other Project cars followed, most notably Project 215, which was the fastest car recorded down the Mulsanne straight. The company also went racing with the DB4 GT with success, though it rarely won races consistently.

By 1962 all racing interests had ceased and the company was not to get involved with a full factory racing team again until the mid 1990's, when in conjunction with Lola, a factory team was reinstituted for the Le Mans series. Limited success followed, but they were in competition with the Jaguar Silk Cut Team, and limited development funds and the high fuel consumption of the V8 were major factors inhibiting success.

Finally in 2005, Dr Ulrich Bez announced an agreement with Pro-Drive to race specially modified DB9 cars (known as the DBR9) in the Le Mans series races in the USA and Europe. Success followed in the GT1 class, against the major competition from the Corvette Team of General Motors. In 2007 Aston Martin finally won the GT1 class at Le Mans with a 1, 2.

CHAPTER TWO

The DB5 - a car for all time

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 an all new 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 DB5.

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 development 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 by extending the roofline backwards to the rear most extremity of the boot, which was also extended backwards by 2 inches. Other refinements in the shape of fared in headlights and electric windows followed, initially as 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.

With the accent on fast but luxurious travel, the refinements that came with the DB5 were heavily weighted towards making the car more practical and comfortable. With that brief in mind, the DB5, as standard equipment, was given twin petrol fillers, with opening flaps released by catches on the inside, over the B post. Front and rear overriders were fitted as standard. The dashboard was adapted to include separate instruments for all of the minor gauges, as first seen with the DB4 GT. Electric heating of the rear window was introduced and the rear lights were modified with a dimming relay to reduce rear light glare during hours of poor visibility and darkness. “Sundym” tinted glass became yet another standard fitment. Air conditioning was introduced as an optional extra.

A convertible version of the DB4 was launched in 1961 and this was carried over in the DB5.

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. The original intention had been to use a De Dion type rear suspension, developed logically from experience gained in racing with the DB3, DB3S and DBR1 and 2.

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 this over the conventional 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.


CCN 144B

ENGINE AND TRANSMISSION 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 design. 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.

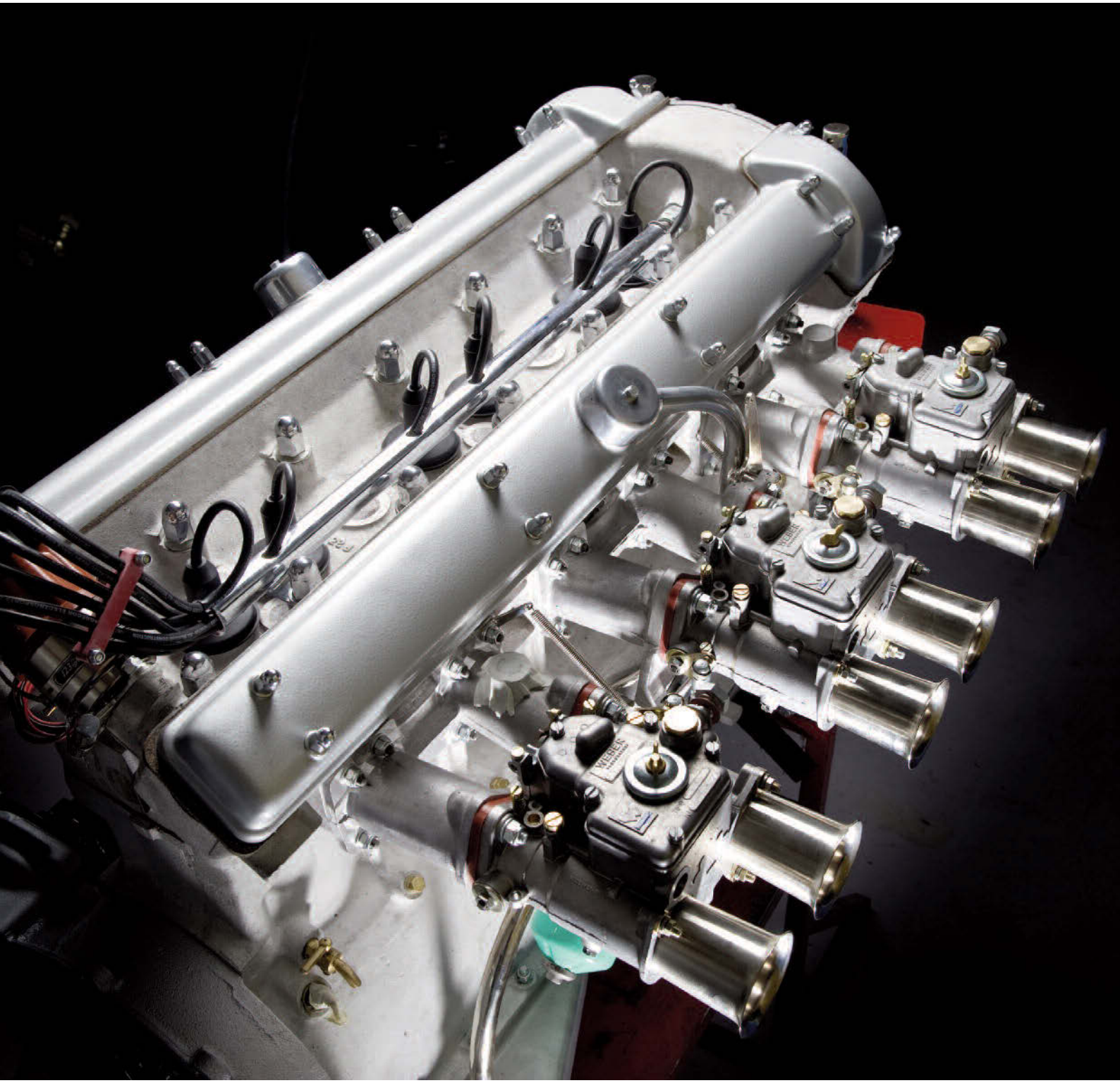
It was a natural decision to carry over the use of wet liners and twin overhead camshafts as with the configuration of the previous LG6 engine fitted to the DB2/4.

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 manufacture methods, material selection and assembly procedures.


WEBER

ENGINE AND TRANSMISSION DEVELOPMENTS

Initially, the first series of DB5's were fitted with a David Brown four speed gearbox with a no cost option of overdrive, these being a carry over from the DB4 series 5. This was soon superseded 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 too 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 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 as with the DB4, 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. For the first time an electric radiator fan was introduced in lieu of the more conventional engine driven fan. In the event, cooling proved to be marginal and this was soon discarded in favour of the original engine driven fan.

Finally, with the introduction of the electric fan, and the heated rear window, it was clearly evident that a standard dynamo was inadequate for the loads expected. Accordingly, the DB5 was the first British production car to feature an alternator as standard.

BRAKING SYSTEM

The DB4 introduced disc brakes as standard on both front and rear wheels. The braking system chosen for the DB4 was a simplex Dunlop braking system, with single vacuum servo assistance. When in excellent condition, these prove adequate for the task, but owner experience soon showed up that retention of good braking was not always predictable, especially if the car was used infrequently. Furthermore, the piston seals used also proved susceptible 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 4 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 dusty window frame, which solved the problem.
The series 1 cars also had front opening bonnets. Following an incident were 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 DB4 convertible. In order top retain adequate stiffness in the chassis, the sills were significantly reinforced with an 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 the hood could fold. The doors now featured front quarter lights. The door windows continued to be fully framed.

THE JAMES BOND EFFECT

Steve Heggie as MD could hardly have dreamt how important a decision he took would be for the long-term success of Aston Martin.

The surge in demand for the DB5 was beyond the resources of Aston Martin and not for the first time, David Brown must have regretted not having the resource to capitalise on their good fortune. The rate of production at that time was increased so far as it was possible and in the 2 years of production no less than 1050 examples were sold. This rate of production would not be exceeded again until the arrival of the DB7 under Ford ownership.

CHAPTER THREE

Restoration of a DB5

THE HISTORY OF CCN 144B – DB5/1425/R

Restoring any old car to its original condition takes time and care. It is sometime 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.

CCN 144B was built at Newport Pagnell and delivered to Brooklands of Bond Street on the 7th February, 1964. Its date of first registration as JON 100 was 25th February. It's list price would have been £2,853 12s 6d on which purchase tax of £743 13s 9d would have been payable. The only option specified at build was the provision of Chrome Road wheels. Painted California Sage, it had a red leather interior. It would have been fitted as standard with a ZF 5-speed gearbox. It would also, interestingly, have been fitted with an electric radiator fan, but experience indicated that its cooling capabilities left much to be desired and later cars would have reverted to the more normal engine fan. Most of the earlier cars would have been converted to the engine driven fan within a year of two of being first registered, as has this car.

CCN 144B arrived at the Aston Workshop in 2004 having been purchased as a restoration project. She sat awaiting a customer in the corner of the Workshop, for all to see and looking very forlorn and neglected. Would anyone be interested? Would someone finally pluck up the courage to commission Aston Workshop to fully restore her. It took all of 6 months before a customer finally took the plunge and the restoration of CCB 144B was launched.

THE RESTORATION

CCN 144B arrived at Aston Workshop, still painted California Sage. In order to cover up the poor leather interior, the leather had been painted white and was heavily cracked and soiled and the carpets, or what remained of them, in shreds. There was a heavy smell of damp and general must. It was also a non-runner, with much surface rust and showing dings and other signs of neglect that was evident all round the car. It was however, complete and at the price purchased had every sign of being a sound project on which to undertake a full restoration.

There was then a protracted negotiation, as cost and specifications were discussed. Finally there was agreement, the estimate and car specification at least in outline approved and a go ahead for the project authorised.

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 callipers, 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 CCN 144B 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 foot wells, the front engine bulkhead and cross member 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.


CCN 144B

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, alternator, 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 oversize 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 pressed out. 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 ZF 5-speed gearbox. Brake callipers were dismantled and stored in readiness for reconditioning. All other brake components were then scrapped as a matter of course.


Superleggera

CHAPTER FOUR

The Rebuild Specification

THE REBUILD SPECIFICATION

The key objectives for the rebuild of CCN 144B 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 through fitting of high torque camshafts, fast road suspension and upgraded brakes. Wherever, practical steps were to be taken to ensure that it was well equipped to withstand modern traffic conditions, to improve comfort with air conditioning and fitment of a modern entertainment and sound system. The interior was to be totally re-trimmed. It was decided that she should be painted in the original colour of California Sage Green with an all black interior.

Finally steps were to be taken to ensure that a high standard of reliability was achieved with modern contactless electronic ignition, unleaded fuel compatible and with other related electrical system upgrades. Finally a Thatcham 1 standard alarm and immobiliser system was to be installed. A detailed list of changes to the standard car specification is provided at Appendix 2.

THE REBUILD

Right from the outset, as previously stated, 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.

With this as a central objective, the chassis, now stripped of the outer body shell, had been mounted on a trolley. Chassis reconstruction would then start, with easy access to the chassis structure.

CHASSIS RESTORATION

Following the stripping of the chassis, the next step taken in the reconstruction of the chassis was to ensure perfect alignment. Installing the chassis in a special jig did this. This not only made certain that front and rear suspension alignment was always correct but it would also support the chassis during its reconstruction to avoid twist and sag, while important strength members such as sill were removed and the new structure welded into place. It also provided a means whereby past damage could be detected and eliminated.

The chassis reconstruction involved repairs to almost every section and panel below the top of the A and B posts. Important structures replaced in total involved the sills, both front outriggers, large section of the chassis leading back from the front cross member 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 body shell, front and rear, and to fit this to the restored chassis. In keeping with this policy, CCN 144B 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 California Sage, and given its final rub down and polish to achieve a perfect mirror smooth finish. Six months after dispatch, CCN 144B 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.


CCN 144B

ENGINE OVERHAUL AND ASSEMBLY

The brief for the restoration of CCN 144B 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 and new 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 3995cc to 4200cc giving a small but useful increase in torque and power.

It had been decided that CCN 144B was to retain its original specification, so the engine was to be reassembled with “fast road” 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 principle machine used is the Rottler, which is a 4 axis milling machine. This amazing piece of equipment will surface grind 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. In fact running is to all intents no longer required.

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 refaced to the cylinder block, along first the sump seal seating, thus providing an accurate datum for subsequent machining operations. Next the crankshaft bearings and front and rear crankshaft seal housings were then line bored parallel to this face. Next the top surface of the block was then machined to ensure accurate alignment and the cylinder liner seatings re-machined, first to ensure accurate alignment with the crank, but also to ensure a good seal facing for the cylinder liner bottom seals and cylinder head.

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

New “standard” Cosworth 4.2 pistons were selected, preserving the standard 9:1 compression ratio. The cylinders were then given their final hone, and with new crankshaft seal housings, line bored to ensure perfect crankshaft alignment. This was and still remains the standard Aston Workshop engine rebuild policy. 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 that the journals were to be polished and the crank was to be refitted.

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 and returned ready for fitting. The carburettors had also been given a completed 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 2000 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. They are attached at Appendix 3. The engine was then ready to be mated to the bell housing and gearbox and installed.

CHASSIS, BODY AND SUSPENSION SYSTEM ASSEMBLY

Staring 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 form 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 pipe work.

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 is hoisted above the car and the gearbox engine was then threaded in, and with new engine and gearbox mountings bolted securely into the car. The transmission cover was now fitted, thus enabling the carpeting of the cabin to start. Black 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

Black Bridge of Wear soft leather was used throughout for all seats, door trim and boot with corresponding black 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 chromed headed screws and cup washers.

The original radio for the car was specified and fitted, but with a new aerial and speakers.

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. Light 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, which is checking 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 functioned. 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 and many an engine has been damaged because this crucial check was never properly undertaken. 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 3 Webers 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 CCN 144B was then passed for its final valet, fitting of new wheels, spinners and tyres and to prepare the restoration invoice and photo portfolio, ready for the customer to collect his newly restored car.

THE HANDOVER

The final handover - the finished car in all its glory


CN 448

ANNEX A

The Post War Models up to 1964

THE DB1

The initial model manufactured by Aston Martin was a 2 seat Tourer, styled by Frank Feeley and aimed at the export market, particularly America. At the time production was authorised, the WO Bentley designed LB6 engine was not available, and so the Claude Hill designed chassis was mated with his 2 litre 4 cylinder overhead valve engine. They performed well and soon established a reputation for excellent road holding and ride comfort but in David Brown's opinion, were seriously underpowered and were clearly unsuited to the demands of being a top sports racing car. Nevertheless, they were competitive club racing cars over a number of years from 1949 to the mid 1950s. In all 14 of these cars were manufactured.

The chassis carried over the design features of the "Atom" and was fitted with a David Brown gearbox.

Production History

First shown at the 1948 Motor Show
Chassis numbers AMC48/1 to AMC48/15
Chassis number AMC48/1 was an open 2 seat sports racing car known as the "Spa Special"
A total of 14 DB1 Drop Head Coupes were built, production being suspended in 1950 on the introduction of the DB2.

SPECIFICATION

Engine	
CC	1970cc
Cylinders	4
General	Pushrod o.h.v
Compression Ratio	7.25 to 1
Max Torque	N/A
Power	90 at 4,750 rpm

Transmission	
Clutch	Borg & Bech sdp
Gearbox	4 speed non synchromesh
Final Drive	Hypoid Bevel

Overall Gear Rations	
1st	12 to 1
2nd	7.7 to 1
3rd	5.17 to 1
4th	4.1 to 1
Reverse	12 to 1

Suspension	
Front Type	Independent by twin trailing arms and coil springs
Rear Type	Rigid axle with twin trailing arms and Panhard rod
Brakes	Drum Girling Hydraulic 12 in dia
Wheels	Centre lock 16in

Weight
Dry 22.5 cwt

Dimensions	
Length	14ft 8in
Width	5ft 7.5in
Height	4ft 7.5in

PERFORMANCE

Not tested and no performance figures are available.

THE DB2

The DB2 was a defining model for Aston Martin. It confirmed Aston Martin as a design and manufacturer of sporting cars of the highest quality, performance and elegance and has set a standard that Aston Martin has maintained ever since. Launched in 1950, the DB2 brought together the 2.5 litre WO Bentley LB6 engine, the chassis design inherited from the DB1 and a new Frank Feeley styled 2-seat coupé body. It quickly established Aston Martin as a premium sports car manufacturer with a design that rivalled the very best that was available anywhere. Practical design features included an opening bonnet assembly providing unsurpassed access for servicing and repairs. A roadster variant was available by early 1951. The DB2 continued in production until 1953, when superseded by the DB2/4. A Vantage version with a higher compression and bigger valves was available which increased power from the standard 105 to 125 bhp. The Body was made in house at Feltham and featured a split windscreen. Body panels were fabricated in aluminium. The chassis was manufactured at Farsley in Yorkshire by a David Brown subsidiary company. The David Brown 4 speed gearbox featured synchromesh in 2nd, 3rd and 4th. Coil sprung all round, the car featured trailing arm front suspension and at the rear twin trailing arms and a Panhard rod located the rear axle. Lever arm dampers were used front and rear.

The engine featured an unusual design with a barrel crankcase with the 4 main bearings being contained in cheeses bolted around the crankshaft. Wet cylinder liners were located into seats in the crankcase around their base. The cylinder head featured twin overhead camshafts and hemispherical combustion chambers.

Model Series	Years of Manufacture	Number Produced	Chassis No Sequence
Development Cars	1949	4	LMA 49/1 to 49/4
Works Cars Engine Development	1950	1	LML 50/5
Production Cars	1950 to 1953	Total - 400	LML 50/6 to 50/406
Works Competition Cars	1950	3	LML 50/7 to 9 incls LML/50/50 LML/50/55
Saloons	1950 to 1953	302	As above
Drop Head Coupes	1950 to 1953	98	As above
DB 2/4 Development Car	1952	1	LML50/221
Coupes	1952/3	2	Special order for Sir David Brown LML /515 Facel coupé LML/50/335

SPECIFICATION

Engine	
CC	2580cc
Cylinders	6
General	Dohc – twin 1.5 in SUs
Compression Ratio	6.5 to 1
Max Torque	125 lb ft at 3,100 rpm
Power	105 bhp net at 5,000 rpm

Transmission	
Clutch	single dry plate mechanically operated
Gearbox	4 spd synchromesh on 2nd, 3rd and top
Final Drive	Hypoid bevel 3.77 to 1

Overall Gear Rations	
1st	11.03 : 1
2nd	7.05 : 1
3rd	4.75 :1
4th	3.77 :1
Reverse	11.03 :1

Suspension	
Front Type	Independent by twin trailing arms and coil springs
Rear Type	Rigid axle with twin trailing arms and Panhard rod

Brakes	
Front	Drum 12in
Rear	Drum 12in

Wheels
16in 6.00 16 tyres

Weight
21.9 cwt net

Dimensions	
Length	13 ft 7in
Width	5 ft 5in
Height	4 ft 6in

Max Speed
116 mph

Acceleration	
0 – 30 mph	4.1 secs
0 - 60 mph	11.2 secs
0 – 100 mph	34.5 secs
40 – 60 mph	9.4 secs in top
50 – 70 mph	9.9 secs in top
Standing Quarter	18.5 secs

Fuel Consumption	
Touring	24 mpg
Overall	20 mpg

THE DB2/4

The DB2/4 was launched in October 1953. In response to customer demand, the DB2 had been modified with a one-piece windscreen; there was a higher roofline and rear set accommodation to create a car in the 2 plus 2 form. At the same time, the opening rear window provided access to a large area behind the rear seat squab, and thus created a very practical hatch back and making it a thoroughly practical car for the sporting owner with a family. The LB6 engine was carried over from the DB2. Weight increased but so did the power output from the engine, which rose to 140bhp. Extras included twin exhaust pipes. It was available in drop head form in 1954. The Body was manufactured under sub contract to Mulliners in Birmingham who had available capacity at the time. Among unusual features was a one piece aluminium casting for the Body sill and A Post.

In 1956, the DB2/4 was given a facelift and became known as the DB2/4 Mk2, with a revised opening bonnet assembly, chrome flashes, and minor control modifications. The major change, however, was that body manufacture was entrusted to Tickfords at Newport Pagnell. A saloon configuration was offered for sale with a conventional boot. The drop head variant continued as before. The sill design was changed and sills were now steel fabrications. The engine specification continued unaltered, but a special series engine with yet bigger valves and higher lift and wilder camshafts was offered as an extra which increased power yet again to a claimed 165 bhp.

Model Series	Years of Manufacture	Number Produced	Chassis No Sequence
DB 2/4 Total Production	1953 to 1955	564	LML /501 to LML/1065
DB 2/4 Saloons	1953 to 1955	462	LML/501 to LML1065
DB2/4 Drop Head Coupes	1953 to 1955	102	
DB2/4 Special Order Externally Externally Bodied Cars	1953 to 1954	14	8 Bertone bodied LML/762 plus others 1 Vignale LML/802 1 Alemano LML/761 4 others
DB 2/4 Mk2 Total	1955 to 1957	199	AML300/1101 to AML300/1299
DB2/4 Mk2 Saloons	1955 to 1957	145	
DB2/4 Mk2 Drop Heads	1955 to 1955	16	
Fixed Coupes	1955 to 1957	34	
DB2/4 Mk2 Special Order	1956	3	Touring 3 Open Spyders
Development	1956	1	AML 300/1185 1 DB4 development car

SPECIFICATION

Engine	
CC	2,922 cc
Cylinders	6
General	Dohc – twin 1.5 in HD 6 SUs
Compression Ratio	8.2 to 1
Max Torque	178 lb ft at 3,100 rpm
Power	140 bhp net at 5,000 rpm

Transmission	
Clutch	single dry plate mechanically operated
Gearbox	4 spd synchromesh on 2nd, 3rd and top
Final Drive	Hypoid bevel 3.77 to 1

Overall Gear Rations	
1st	10.9 :1
2nd	7.38 :1
3rd	4.96 :1
4th	3.73 :1
Reverse	10.9 :1

Suspension	
Front Type	Independent by twin trailing arms and coil springs
Rear Type	Rigid axle with twin trailing arms and Panhard rod

Brakes	
Front	Drum 12in hydraulic
Rear	Drum 12in hydraulic

Wheels
16in 6.00 16 tyres

Weight
25 cwt net

Dimensions	
Length	14 ft 1in
Width	5 ft 5 in
Height	4 ft 6in

Max Speed
118 mph

Acceleration	
0 – 30 mph	3.8 secs
0 - 60 mph	11.1 secs
0 – 100 mph	31.7 secs
40 – 60 mph	7.9 secs in top
50 – 70 mph	8.0 secs in top
Standing Quarter	17.9 secs

Fuel Consumption	
Touring	23 mpg
Overall	20 mpg

DB2/4 MK3

The DB2/4 was never intended to be anything other than a stop gap model while the DB4 design and development programme continued. By late 1956, it was clear that sales of the DB2/4 were flagging, particularly in some of the key overseas markets and a new model was urgently required. To keep production viable, it became imperative to yet further revise the DB2/4 and to provide, in line with customer expectations for greater comfort, improved seating and ventilation arrangement. Inevitably this led to increased weight and with it a requirement to revise the engine specification to yet again increase power. At the same time, Tadek Marek redesigned the LB6 engine cylinder block to change the position of the wet cylinder liner seats from the base to the top, thereby radically simplifying assembly; he increased oil pump capacity, and a heavily revised cylinder head with bigger valve seats and improved porting derived from racing experience was introduced. The new engine, known as the DBA, produced in standard form 162 bhp; in twin exhaust form 178 bhp; and in DBD tune as a special series engine, a third carburettor was added yet further increasing power to 180 bhp.

The body was revised and introduced a grill shape emulating the design of the DB3S, but in most other respects remained the same as the DB2/4 Mk 2. The grill shape has been a defining feature of Aston Martin ever since. The dashboard was revised with instruments now being clustered around the steering wheel.

An overdrive was offered as an extra for the first time and at least one car was sold with an automatic gearbox.

The suspension was carried over from the DB2/4 Mk2 but for the first time front disc brakes were offered.

The saloon and drop head variants continued to be offered.

Model Series	Years of Manufacture	Number Produced	Chassis No Sequence
DB Mk III Total Production	1957 to 1959	550	AM300/3A/1300 to AM300/3/1850
DB Mk III Saloons	1957 to 1959	459	
DB Mk III Drop Head Coupé	1957 to 1959	85	
DB Mk III Fixed Head Coupé	1957 to 1959	5	
Prototypes	1957	1	AM300/3A/1300 Mk III development car
Special Bodies	1960	2	AM300/3/1399 & 1400 2 chassis sent to Bertone and delivered back to Aston Martin in 1960 – Fate unknown

SPECIFICATION

Engine	
CC	2,922 cc
Cylinders	6
General	Dohc – twin 1.5 in SUs
Compression Ratio	8.2 to 1
Max Torque	180 lb ft at 4,000 rpm
Power	162 bhp net at 5,500 rpm (178 bhp with optional twin exhaust)

Transmission	
Clutch	single dry plate hydraulically operated
Gearbox	4 spd synchromesh on 2nd, 3rd and top
Final Drive	Hypoid bevel 3.77 to 1

Overall Gear Rations	
1st	11.0 :1
2nd	7.45 :1
3rd	5.01 :1
4th	3.77 :1
O/D	2.93 :1
Reverse	11.0 :1

Suspension	
Front Type	Independent by twin trailing arms and coil springs
Rear Type	Rigid axle with twin trailing arms and Panhard rod

Brakes	
Front	Drum 12in hydraulic
Rear	Drum 12in hydraulic

Wheels
16in 6.00 16 tyres

Weight
27 cwt net

Dimensions	
Length	14 ft 4in
Width	5 ft 5 in
Height	4 ft 6in

Max Speed
118 mph

Acceleration	
0 – 30 mph	3.8 secs
0 - 60 mph	11.1 secs
0 – 100 mph	31.7 secs
40 – 60 mph	7.9 secs in top
50 – 70 mph	8.0 secs in top
Standing Quarter	17.9 secs

Fuel Consumption	
Touring	23 mpg
Overall	20 mpg

DB 4

The DB4 was announced and exhibited for the first time at the London Motor Show in October 1958. It caused a sensation for it was a complete break from previous worthy but uninspired design that characterised British car design in the late 40's and 50's. It promised performance unmatched by any series production car when it was launched. Pitched at a price that significantly undercut its Italian competitors, it would have sold in great numbers if only Aston Martin could manufacture them. In fact full scale production really only got underway in the latter stages of 1959 and early 1960, and with evidence that suggested rushed development and some worrying systemic engine problems that caused Aston Martin much grief and not at little cost.

Nevertheless, its 3.7 litre engine was smooth, torquey, powerful and sporting. All alloy, it was also reasonably light. It had a massively strong crankshaft, allied to a generous sized 7 bearing crankcase and journals. Wet linered, it was fitted with an all alloy cylinder head, hemispherical combustion chambers allied to twin overhead camshafts with considerable development potential. Much of the early unreliability came from the consequences of heat expansion causing the main bearing clearances to increase with consequent loss of oil pressure leading to bearing damage. Over time, the optimal main bearing clearance became established and with it, better oil cooling, an improved oil pump and a massive increase in sump capacity ultimately led to an engine that could be thrashed like no other.

It was allied to an uprated David Brown 4 speed all synchromesh gearbox. Overdrive was an optional extra. It was given all wishbone front suspension allied to rack and pinion steering. The rigid axle was located with twin trailing arms and a watts linkage. The DB 4 was one of the very first models to feature disc brakes all round.

Retaining the dashboard inherited from the DB 2/4Mk3, the seats were a major improvement in both comfort and ease of adjustment.

Model Series	Years of Manufacture	Number Produced	Chassis No Sequence
DB4 all series (excls DB4 GT and variants)	1958 to 1963	1,110	DB4/101/R to DB4/995/R and DB4/1001/L to DB4/1215/L
DB4 GT (all variants)	1959 to 1963	95	DB4/GT/0101/L to DB4/GT/0201/L excepting 0192 and 0194 to 0198
DB4 Series1	1959	150	DB4/101/R to DB4/250/L
DB4 Series 2	1960 to 1961	350	DB4/251/L to DB4/600/R
DB4 Series 3	1961	165	DB4/601/R to DB4/765/R
DB4 Series 4	1961 to 1962	230	DB4/766/R to DB4/950/R
DB4 Series 4 Vantage	1962	45	DB4/951 to DB4/995/R – all with special series engines
DB4 Series 5	1962 to 1963	145	DB/1001/R to DB4/1050/R & DB4/1176/R to DB4/1215/L
DB4 Series 4 Convertibles	1961 to 1962	30	DB4C/1051/R to DB4C/1080
DB4 Series 5 Convertibles	1962 to 1963	40	DB4C/1081/L to DB4C/1110/L & DB4C/1176/R to DB4C/1175/L
DB4 GT Coupé	1959 to 1963	75	DB4GT/0101 to 0201 excepting 0192 & 0194-0198
DB4 GT Zagato	1961 to 1962	19	DB4GT/0176/R to 0191
DB4 GT Bertone Jet	1962	1	DB4 GT/0201/L
DB4 GT Zagato Sanction II & III	1991	6	DB4GT/0192 & 0196 – 0198 plus Sanction III DB4/344/R & DB4/424/R All bodied by ZAGATO Italy.

SPECIFICATION

Engine	
CC	3,670 cc
Cylinders	6
General	Dohc – twin 2 in HD8 SUs
Compression Ratio	8.2 to 1
Max Torque	240 lb ft at 4,250 rpm
Power	240 bhp net at 5,500 rpm (DB4 GT with triple Weber – 302 bhp net at 6,000 rpm)

Transmission	
Clutch	single dry plate hydraulically operated
Gearbox	4 spd all synchromesh
Final Drive	Hypoid bevel 3.31 to 1

Overall Gear Rations	
1st	9.67 :1
2nd	6.14 :1
3rd	4.14 :1
4th	3.31 :1
Reverse	9.67 :1

Suspension	
Front Type	Independent by double wishbone and anti roll bar
Rear Type	Rigid axle with twin trailing arms and Watts linkage

Brakes	
Front	Disc 11.5in hydraulic (Dunlop 2 pot)
Rear	Disc 11.2in hydraulic (Dunlop 2 pot)

Wheels
16 in with 6.00 16in tyres

Weight
27.4 cwt net

Dimensions	
Length	14 ft 9in
Width	5 ft 6in
Height	4 ft 4in

Max Speed
141 mph

Acceleration	
0 – 30 mph	3.5 secs
0 - 60 mph	8.5 secs
0 – 100 mph	21.7 secs
40 – 60 mph	8.9 secs in top
50 – 70 mph	8.7 secs in top
Standing Quarter	16.1 secs

Fuel Consumption	
Touring	18 mpg
Overall	16 mpg

DB5

The model incorporated a long list of minor improvements inherited from the DB4. It introduced the 4 litre engine, a higher equipment specification and an alternator, one of the first applications in a production car. Divided brake circuits and uprated brakes also arrived with the DB5. It standardised the cowled headlamps, first seen with the DB4 GT. It also came with an oil cooler as standard.

When first announced, the only transmission option available was the 4 speed David Brown gearbox carried over from the DB4. Within a few months of introduction, it was announced that henceforward, cars would be equipped with a 5 speed ZF gearbox as standard. A 3-speed Borg Warner auto was available to order at additional cost.

Apart from being, in many eyes, the model of choice for anyone wishing to own a DB4, 5 or 6, the key event that was to set the DB5 aside from all others was the James Bond connection. In today's internet dominated environment, it is easy to forget the impact that the Goldfinger DB5 with its ejector seat, smoke generator, machine guns and extendable tyre and body shredders had on every hot blooded car enthusiast and small boy in 1964. With Aston Martin now connected irrevocably and permanently to James Bond, the demand for Bond car replicas will remain and with it, a cache that no amount of money could buy today.

Despite this, the DB5 deserves its place as one of the great sports GT cars of its period. It had all the right ingredients, rarity, speed and an integrity and quality that ooze out of every pore; handling that was very good and an ability to take 2 people very quickly and comfortably across the continent. It has an expensive and sophisticated sounding engine, which is very powerful but also flexible and which is unique to Aston Martin. While British to a tee, it has that rare quality that is exclusive and expensive yet would blend within any location from the poorest to the most fashionable anywhere on the globe. It is a combination of qualities that with few exceptions, Aston Martin has preserved in a way no other marque has equalled ever since.

Model Series	Years of Manufacture	Number Produced	Chassis No Sequence
DB5 all variants	1963 to 1965	1019	DB5C/1251/R to DB5/2275/L excepting 2021, 2094, 2124 & 2125
DB5 Saloons	1963 to 1965	896	DB5/1301/L to DB5/1500/R & DB5/1526/R to DB5/1900/R & DB5/1926/R to DB5/2100/R
DB5 Convertibles	1963 to 1965	123	DB5C/1251/L to DB5C/1300/R & DB5C/1501/R to DB5C/1525/R & DB5C/1901/L to DB5C/1925/R

SPECIFICATION

Engine	
CC	3,995 cc
Cylinders	6
General	Dohc triple 2in HD8 SU (optional triple Weber 45 DCOE 9)
Compression Ratio	8.9 to 1 (Vantage 9.00 to 1)
Max Torque	280 lbft at 4,500 rpm (Vantage 290 at 4,500)
Power	282 bhp net at 5,500 rpm (Vantage 302 bhp and 5,500 rpm)

Transmission	
Clutch	Single dry plate Laycock hydraulic
Gearbox	5spd all Synchromesh
Final Drive	Hypoid 3.77 to 1 later 3.73 to 1

Overall Gear Rations	
1st	10.18 :1
2nd	6.64 :1
3rd	4.64 :1
4th	3.77 ;1
Reverse	3.14 ;1

Suspension	
Front Type	Independent by double wishbone and anti roll bar
Rear Type	Rigid axle with twin trailing arms and Watts linkage

Brakes	
Front	11.5in Disc Girling 3 pot
Rear	10.8in Disc Girling 3 pot

Wheels
15 in 6.70 15 Tyres

Weight
29.6 cwt net

Dimensions	
Length	15 ft 2in
Width	5 ft 6in
Height	4 ft 4.5in

Max Speed
143 mph

Acceleration	
0 – 30 mph	3.4 secs
0 - 60 mph	8.1 secs
0 – 100 mph	25.7 secs
40 – 60 mph	6.9 in 4th gear, 9.3 in 5th gear
50 – 70 mph	6.9 in 4th gear, 9.3 in 5th gear
Standing Quarter	16.0

Fuel Consumption	
Touring	18 mpg
Overall	15 mpg





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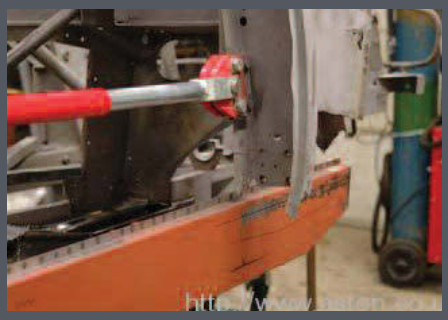








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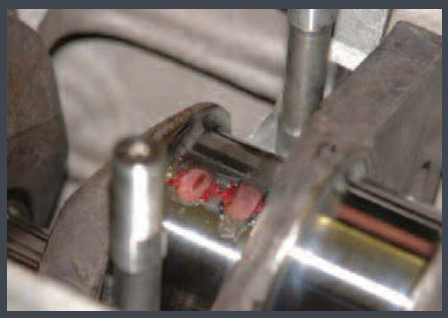

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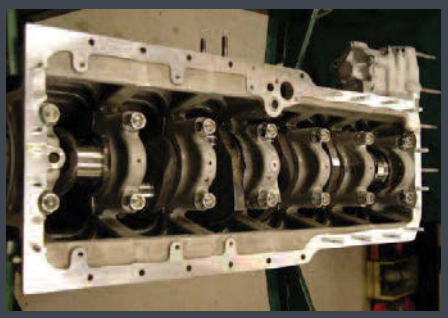



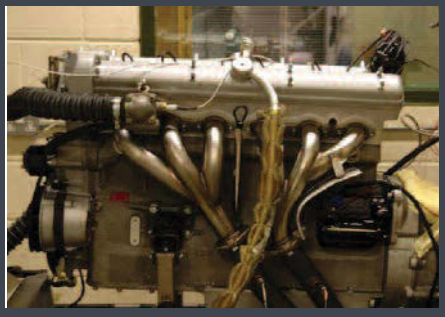

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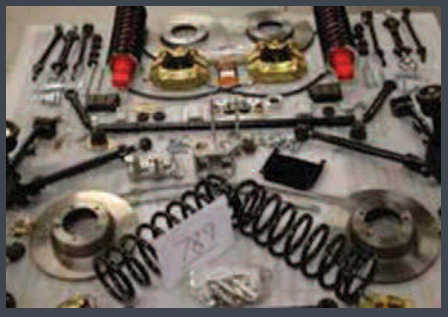


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