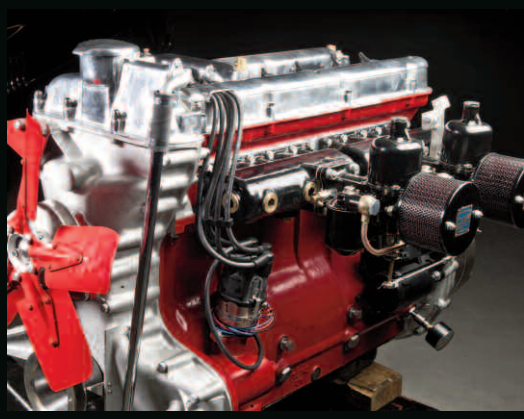
Aston Workshop



Aston Martin DB2/4 Vignale Chassis no. LML/802

History of the DB2

Aston Martin DB2/4 MkIs were in production from April 1953 to October 1955.

The chassis numbers ran from LML/501 to LML/1065.

The DB2 had been well received and sold throughout the world, but the market in this price range for a car with two seats (and limited luggage space) was restricted.

A 1952 DB2 chassis (LML/50/221) was modified in a number of ways.

The roofline was changed to give more headroom towards the back and the small rear window was replaced by a larger window in an opening panel, forming the first sporting hatchback and the design of the new DB2/4.

"The load carrying space would carry two unconscious basket ball players and the open hatch is wide enough for a polar bear to walk through without removing his hat"

'Uncle Tom' McCahill (Mechanix Illustrated - March 1955)

A total of 562 cars were made with at least 102 being drophead coupes (56 to the home market and 46 for export).

Of these DB2/4s 12 were sold as LHD chassis only and sent to custom coachbuilders in Italy and Switzerland:
VIGNALE
Two DB2/4 Mk 1's were fitted by Alfredo Vignale
LML/608, delivered to France.
LML/802, this car.

BERTONE
Eight were fitted with Bertone bodies by Franco Scaglione.

CARROZERIA ALLEMANO
LML/761 was fitted by Serafino Allemano in Turin.

CARROSERIE HERMANN GRABER
LML/562 was fitted by Hermann Graber in Wichbach, Switzerland.

Chassis number LML/802

This ultra rare Aston Martin DB2/4 Vignale Coupe, is based on an original Aston Martin 1954 DB2/4 Mk 1 chassis LML/802 as recorded in Aston factory records and delivered to master Italian coachbuilder Alfredo Vignale in Turin on the 28th September 1954 for a very special VIP, his Majesty King Baudouin of Belgium, the eldest son of King Leopold and who reigned from the time of his father King Leopold's abdication in 1951 to his death in 1993.

On his passing, Cardinal Danneels at his funeral said that "There are Kings who are more than kings, they are shepherds of their people. King Baudouin was such a King". After 42 years on the throne he was the longest reigning monarch in Europe at the time – a familiar and beloved figure.

LML/802 was completed in a one-off distinctive fastback design with a large opening rear hatch, subtle lines and rakish good looks. The stunning Grand Tourer was delivered on 10th March 1955.

It was fitted with the later, three litre DB2/4 engine and the 3.73:1 ratio for GT style touring.

This car is believed to be one of only three early Aston Martin's bodied by Vignale, and as such it is of significant historical importance, both to Aston Martin & Vignale.

Aston Martin DB2/4 Mk 1 Chassis Number LML/802

http://www.coachbuild.com/2/index.php/encyclopedia/coachbuilders-models/item/vignale-aston-martin-db-2-4-1954

http://astonmartins.com/car/db24-by-vignale/

Coachbuilt by ALFREDO VIGNALE

Alfredo Vignale was born in 1913, by eleven was a metalwork apprentice and by the age of seventeen he worked for Stabilimenti Farina in Turins Corso Trapini, then managed by Giovanni Farina, the older brother of Battista "Pinin" Farina.

At the age of twenty six he planned to setup his own bespoke coachbuilt car business but the war delayed those plans for six years.

In late 1946 the Carrozzeria Vignale was founded at Via Cigliano, Turin and quickly gained serious attention.

He had become an all-round technician and his first steps in coach building started when he traded an old motorbike for a Fiat Topolino.

The rusty coachwork of the Topolino was replaced by an aluminium body, additionally a second body for a Topolino was made and this one got attention from the English 'Autocar' magazine.

Cisitalia gave him a large order for cabriolets and coupes, whilst Vignale was tasked with creating three specially aerodynamic coupes. He incorporated sharply vee-shaped windscreens, striking tail fins and added two portholes to each side of the front wings – trademark Vignale details. Across the Atlantic GM took notice and styled their ‘49 Buick with these influences.

Cisitalias’ owner Piero Dusio was pleased and paid Vignale a bonus.
A big break came in 1950 with the design of a 166 Mille Miglia Coupe with chassis number 0062M, the first of 156 Ferraris.

For the design he often relied on his friend and former colleague at Farina, the hugely talented Giovanni Michelotti with whom he formed a vibrant partnership translating Michelottis’ brilliant and elegant styling with hand crafted mostly aluminium bodyworks, with no two the same. Bespoke, hand made, seductive, modern (for the day) and very expensive. Vignales’ futuristic designs incorporated innovative aerodynamics, elegant minimalist interiors and were ahead of their time.

http://www.coachbuild.com/2/index.php/encyclopedia/coachbuilders-models/category/vignale
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SUREWELD

Evolution

From a Princess' Ferrari 250 Europa GT MM to a Kings Aston Martin DB2/4.

Vignale customized a total of 156 Ferraris through to 1954 which afforded Vignale a reputation and success in the United States that nearly rivalled Enzo Ferrari.
Vignale liked to describe himself as an artist in metal, each chassis akin to the sculptors block of marble, a new challenge to his flights of fancy which he brought to life with a subtle blend of metal, glass and chrome. In an article dealing with a Vignale bodied Ferrari, one English writer wrote that "if Pininfarina was Ferraris Armani, then Vignale was his Gaultier".
On the continent Vignale's creations were attracting VIP clients including nobility, one of whom, Princess Lilian De Reithy, the wife of Belgiums ex-King Leopold who customized a Ferrari 250 Europa GT coupe and even paid Signor Vignale a factory visit.
It was through the design of this Ferrari, that Vignale as an atelier with 156 Ferraris under his belt took an evolutionary step.
Michelotti designed 4 cars to show the Princess, introducing style changes that would the following year be incorporated into this car, Aston Martin DB2/4 LML/802 and the only surviving original Vignale bodied Aston of this era.
The Princess' body choice on her 250MM included a dramatic windscreen and hatchback style and redesigned driver side instruments. This redesigned rear hatchback glass for the Princess would change again on the Aston Martin.
The result, in burgundy with a silver roof was sensational.

The Princess drove a quick 11,000 miles then cabled Vignale expressing her gratitude and enjoyment.
"Enchantee de la voiture. Carrosserie est parfaite vous remercie de tout Coeur pour vos jolis adeaux et votre grande obligeance."
Liliane De Belgium

http://www.coachbuild.com/2/index.php/encyclopedia/coachbuilders-models/item/vignale-ferrari-250-europa-gt-coupe-liliane-de-rety-0359gt-1954

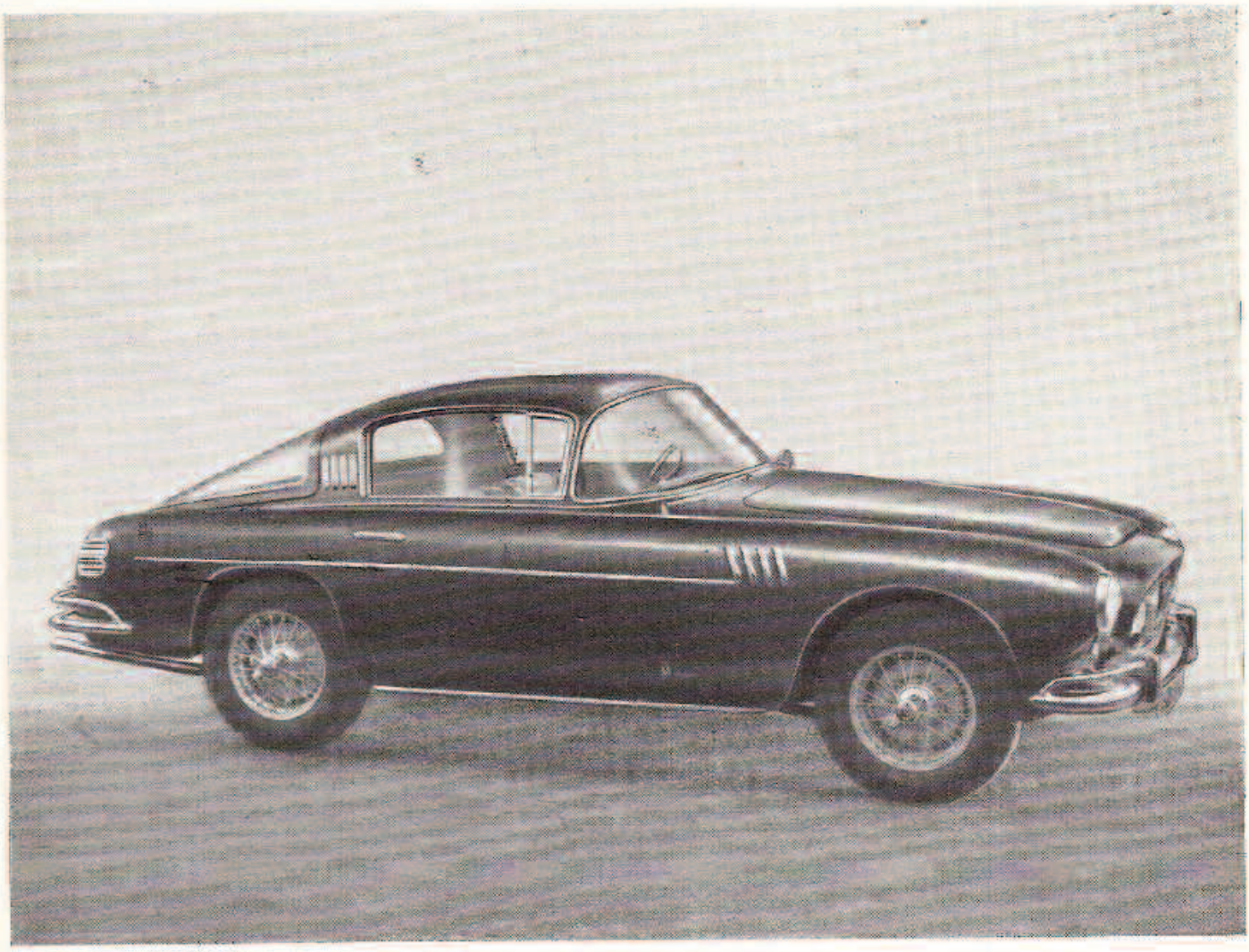
On return to Belgium, the Ferrari 250MM was proudly shown to King Baudouin then in his 20's who requested Vignale to style an Aston Martin, Vignales second, after an earlier Vignale bodied 1953 racing DB3 that was subsequently crashed and the body married with a Ferrari 166 period chassis.

1955

CARROZZERIA

ALFREDO VIGNALE & C.

TORINO



COUPÉ 2 POSTI SU ASTON MARTIN FORNITO AD UNA ALTA PERSONALITÀ EUROPEA.

LML/802 History

King Baudouin sold the car in the late 50s to a Palace aide beleived to be R Feldhein who is named on Aston Martin factory records.
James Toth a Canadian Serviceman based in Moselle, France purchased the car from a garage in Paris (you can read his story below).After a series of engine related problems James sold the car to a captain T.R Mottershead for $1000 in1963.
LML/802 was purchased by Aston Workshop in the 1990's from a Roland Wommack of Virginia USA. In largely its original condition with superb original Vignale aluminium panels and doors, original chassis, suspension, bumpers, grill and light clusters. The original engine, gearbox, carburettors and pedal gear plus period detailing were all restorable, the result – possibly one of Aston Martins most exciting and individual coachbuilt grand tourers.

Here is some information and images of the Vignale from a previous owner (most likley the third).
James Toth serving in the American Army for NATO, based at the Shape headquarters Paris. Previous owner of the Aston Martin DB2/4 Vignale, bought from a (back street) Paris motor dealer in January 1962, advised that the main bearings were worn, he removed the front bumper, the vertical and horizontal grille slats to "improve" the appearance, he then used the Aston until it put a con. rod through block, rebuilt with replacement rod, piston and liner with a large patch brazed over the hole in the block, this lasted a short time before the block split from end to end.

He borrowed some money and with a contact at work having a brother Brian working at the Aston Martin Factory he flew to England to collect a new engine block, liners, pistons, con rods etc. Transported to and from the airport in the Aston Martin works van an ordinary looking van transplanted with Aston Martin running gear. Using the new parts the engine was rebuilt and the Vignale was up and running again.

'One week before the intended marriage while driving with the fiancé past the queues outside the picture house at 15 miles per hour, once again the engine blew up, pools of oil, clouds of steam etc. We pushed it into the side on a parking lot, the following day the captain instructed to get it moved as there was no insurance for that kind of thing on the base.
With a friend we set about to tow the Vignale to a safer spot, as with all inexperienced towing procedures the rope became wrapped around the wheel snapping the track rod, once again pushed into the road side, enlisted the help of a friendly sergeant to deal with it as no time before the wedding. Following the wedding discovered the sergeant had hired a garage and stored the Vignale safely inside. This was the end of Aston Martin motoring, the Vignale being advertised around the American Air force bases for $1000 in August 1963. The Aston was then bought by an army captain for $1000 which immediately went to pay the debt on the Aston. The buyer describing how he would fit a Pontiac engine and dashboard.'

James did not believe this until we (Aston workshop) informed him the Aston had come to us with a Pontiac engine and dashboard.

John, (John Gray Aston Workshop)
It was good talking to you today. I hope that the information that I was able to pass on will be of some help in the restoration effort. Please see
attached photos. James.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The Restoration

The Engine

In the light of past experience, The Aston Workshop does not do partial re-builds of DB2 engines, even if there is evidence of a recent re-build by some other specialist. After removal from the Aston, the engine and gearbox unit was thoroughly steam cleaned before any work was carried out. The gearbox, complete with bellhousing, was removed and put into temporary storage.

The engine could now be stripped completely, starting with its auxiliaries:
The exhaust manifolds were removed and discarded as they were to be replaced.
The dynamo was removed to be completely overhauled by our own electrical department.
The starter motor was discarded to be replaced by a modern geared unit.
The clutch was also discarded, to be replaced by a new DB5/6 type diaphragm clutch.
The flywheel was in good condition and could be re-used after having a new ring gear fitted.
The original distributor was discarded to be replaced by a modern electrical unit.

The oil filter unit and adaptor were removed to be overhauled and modified. The fan pulley, water pump and water pump housing were all stripped off the timing case to be overhauled in due course.

The main engine assembly could now be stripped and examined, starting with the timing and cam covers, the timing and oil pump drive chains were removed and scrapped as a matter of course.

The timing sprockets, tensioners and rubbing strip were removed and examined for wear, all were found to be in good usable condition apart from the water pump spindle which needed replacing and the oil pump/distributor drive shaft which would be replaced as part of the uprated oil pump conversion. The cylinder head could now be removed and stripped completely, the valves, guides, collets, springs and core plugs were discarded, to be replaced by new components. The cylinder head casting was now examined and found to be in poor condition, suffering from cracks and serious corrosion, a new cylinder head was sourced.The sump was now removed and along with the suction filter and windage plates were checked for cracks and damage, the oil pump was discarded to be replaced by a new uprated unit.
The pistons, connecting rods, liners and crankshaft, complete with bearing housings were removed and discarded to be replaced with new parts.
The cylinder block could be chemically cleaned and then thoroughly examined and measured, the block was found to have serious defects and cracks, the casting itself has minor differences from the following production items, the most significant of these being a lack of material around the oil gallery from the oil filter across to the main crankshaft oil supply gallery on the other side of the block.
The gallery wall was so thin and porous that it must have been leaking constantly during the life of the engine with a consequent loss of oil pressure. As a result a new block was sourced.

Engine Block Preparation

The design of the DB2 engine is unusual in that it features a barrel form of crankcase. With this design, three of the main bearings are mounted in split circular aluminium housings (known colloquially as cheeses). The idea is that as the engine warms up to running temperature, the aluminium 'cheeses' expand more than the cast iron cylinder block, creating a rigid crankcase. In practice, this concept does not fully deliver its promise, resulting in wear occurring, not only on the outside of the 'cheeses' but also in the locations in the block, resulting in a less than rigid assembly, the new block eliminates this problem.
The cylinder block, head and sump faces only need light machining to check they are parallel to the crankshaft centre line. The oil galleries were increased in diameter to suit the uprated oil pump to be fitted. The new cylinder liners were fitted with new copper sealing rings and modern sealant after having been adjusted to give the correct protrusion above the head face, a clamping plate was fitted and the block was pressure tested to 40 PSI, the liners were then bored and honed in situ to suit the new pistons. The block was thoroughly cleaned and painted ready for final assembly of the engine.

Cylinder Head Preparation

The new cylinder head was bored to accept new valve seats which are suitable for running on unleaded petrol. The new seats are shrunk into position and then matched to the ports and combustion chambers, the ports are then gas flowed and matched up to the manifolds before the valve guides are fitted.
The new bronze guides are fitted using a modern high temperature sealant to achieve a perfect water tight seal between them and the water jacket, the head was then tested to 40 PSI.
The camshafts and followers were temporarily fitted to enable the valve seats to be cut, this method ensures that the seats are cut to achieve the correct valve clearance without having to alter the length of the valve stems. The cylinder head face was now machined and then the head was thoroughly cleaned ready for its final assembly.
The new 1.675" inlet and 1.515" exhaust valves were fitted to the head using new valve springs and collets. New cam followers were fitted into their bores which had previously been checked and found to be within tolerance. The new Aston Workshop fast road cams were then fitted complete with modified front oil seals and a final check carried out on cam bearing and valve clearances, new core plugs were fitted to the head casting and the head was then ready to fit.

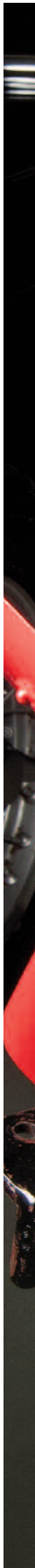
Final Assembly of Engine

The new cylinder block was mounted on a special engine stand. A new front main bearing bush was carefully fitted into the block and then checked for size and position. The new solid main bearing housings (cheeses) which had been machined to be a very close fit in the cylinder block locations were fitted complete with new main bearing shells on to the new forged crankshaft. The crank and bearings were now fitted into the block and the end float checked and set. The new pistons were fitted to the forged conrods and then the assemblies were fitted into the cylinder bores and onto the crank. The new uprated oil pump, oil strainer, windage plate and sump were all fitted with all internal fasteners lock-wired in position.
The new cylinder head complete with cams and new head gasket was now fitted and torqued down. The timing sprockets, tensioners, rubbing strip, new timing chains and front timing cover complete with new oil seals were then fitted and again all internal fasteners were lock-wired in position.
The valve timing was now carefully set to the camshaft manufacturer's settings and the new electronic distributor was fitted and statically timed up. All the top timing and cam covers were now fitted and the new plug leads fixed into position. The modified flywheel housing, with modern lipseal to fit onto the new modified crankshaft was then fitted and this will cure the normal 'Aston' oil leak. The fly-wheel with new ring gear and new DB5 diaphragm type clutch was now fitted and the engine is now ready to be installed on the dynamometer.

Dynamometer, running in and testing

The engine was installed onto the dyno and run on a light load to achieve normal running temperature and then switched off. When the engine had completely cooled down the cylinder head bolts were re-torqued. The engine was now run for 5 hours using a gradual set procedure of building up RPM and load, during this time, the engine is constantly monitored for temperature, oil pressure etc.
The ignition timing and carburettors were checked and adjusted to the optimum settings. No oil or water leaks were found on the engine. This engine, once run in, was then put through a 500 RPM stepped power run up to 5500 RPM and the power and torque figures recorded, the figure showed the engine to be performing well with high torque readings throughout the rev range which makes it a very driveable engine when fitted in the car.

This type of engine, although not complicated, requires a meticulous method of rebuilding and attention to detail. With appropriate modifications to oil seals etc. and with the use of modern sealants, these engines can be made oil tight and reliable. This engine also has the benefit of electronic ignition and geared type starter motor which combined with the use of modern lubricants, should result in many miles of rapid trouble free motoring.




MAGNECOR ELECTROSPORT 7D - IGNITION CABLE
1

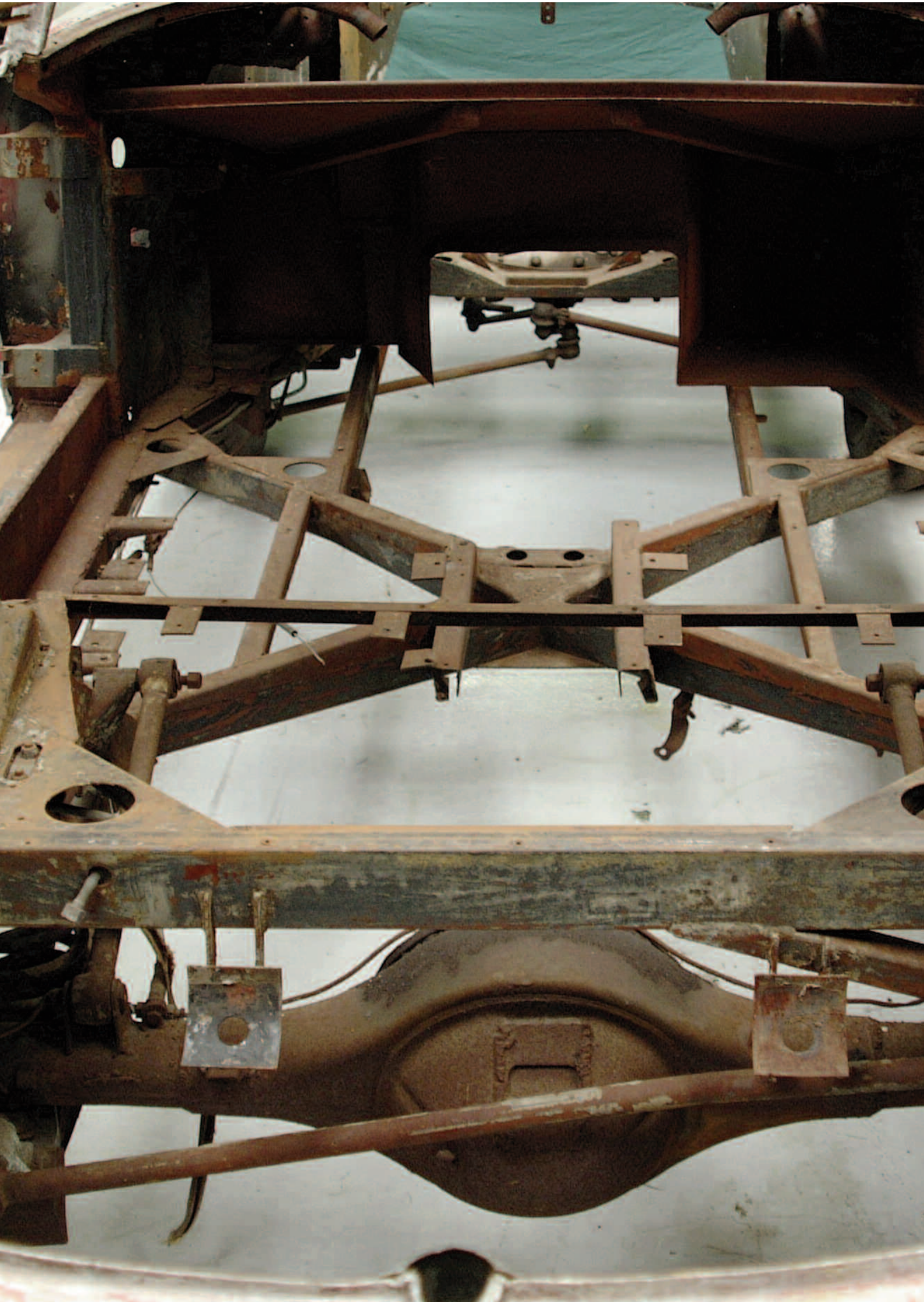
Chassis Reconstruction

Jigging

The first requirement in repairing the chassis was to place it in our special jig. This has a number of essential benefits. First, it ensures that should there be any distortion and evidence of accident damage, this is identified so that the chassis can be straightened. Second, it ensures that as the chassis repair is ongoing, the chassis is rigidly and fully supported, so that as any repairs and new sections are let in, that movement and distortion of the chassis is avoided. Third, it provides a means of supporting the chassis at a convenient height, thereby aiding considerably ease of repair.

Chassis Reconstruction

In the case of this chassis assembly, there was relatively little in terms of repairs necessary on the tubular chassis, other than bead blast and painting.
Over time however, fillet sections, floor panels, rear wheel arches, timber fillets, B posts and sections of the front bulkhead were all in need of attention and in many cases, replacement.
In the case of this car, other than floor panels, sections of the front bulkhead, and new rear wheel arches which were fabricated and welded into position,there was relatively little new metal required in the chassis tubes.
However, this could not be said of the timber sections, all of which necessitated new well-seasoned ash timber sections being fashioned, planed and shaped to size.
In keeping with restoring the car to the highest standards, the complete and repaired chassis was primed, undercoated and powder coated in satin finish black.

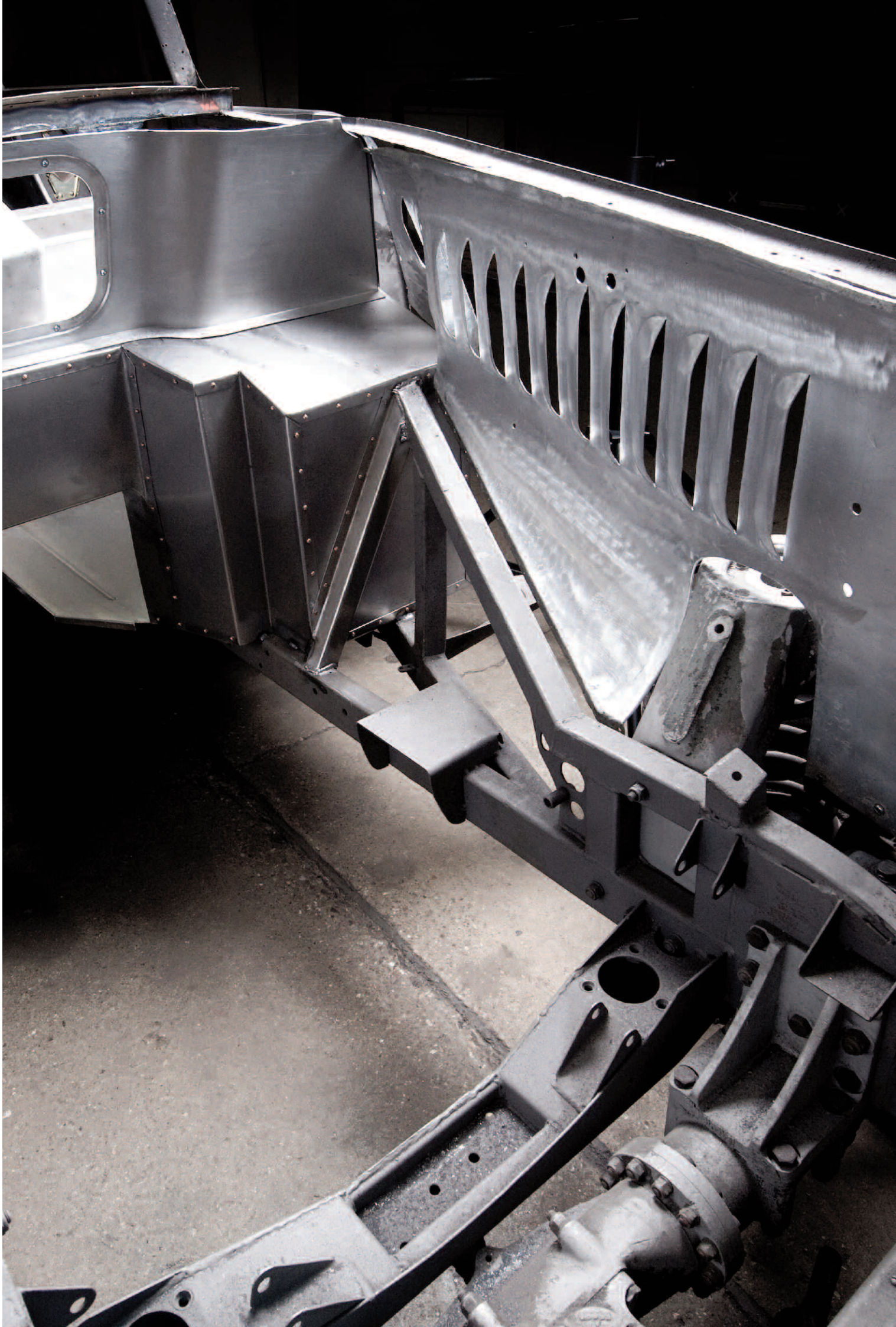


Body Reconstruction

Corrosion Removal

In keeping with the Aston Workshop restoration policy, it was usual to refurbish the body shell front and rear and to fit this to the restored chassis. In keeping with this policy, LML/802 was duly dispatched to Shapecraft, for the refurbished shell to be fitted and shaped, modifying as required to ensure perfect alignment.
The door frames were refurbished once the front and rear shells had been fitted and aligned, thus ensuring perfect door alignment and then re-skinned and trimmed to fit.

Once the 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.



Painting the Car

Etch Priming and Final Shaping

The first stage of painting was to etch prime the body shell. The object of etch priming was to provide an impermeable barrier to any moisture and to provide the best possible adhesion of subsequent primer, filler (if any required), paint and lacquers. Any final shaping of aluminium panels was then undertaken to ensure the best possible standard of finish and to ensure the barest minimum of filler was used in the next stage of preparing the panel surfaces for final painting.

Priming and Filling

The body shell was then given two coats of high build primer, followed by a light guide coat and this was allowed to fully harden. A long process of rubbing down followed to ensure that perfectly smooth and flat surface. A small skim of filler was used where necessary to compensate for any minor deviation of the panel from the perfect shape. Only when an even guide coat finish was achieved and the surface perfectly smooth was the body shell passed as fit to move to the final painting stage. The same process was used for the doors, bonnet, boot lid and petrol filler flaps. The final stage was to refit the doors and other opening panels to do any final adjustment in the gapping, ensure that adequate clearance was provided and a perfect match of the front and rear body panels with the doors, boot lid and bonnet was achieved.

Painting

Two coats of body base colour were used. The doors, boot lid, bonnet and other opening panels were all painted at the same time to ensure perfect continuity of colour, as also were all of the closed panels inside the door jambs, fuel filler apertures etc and around the tailgate and bonnet apertures. The paint was then allowed to harden and then rubbed down using 1000 grit paper.

Once done, two further coats of clear coat lacquer were then applied and allowed to fully harden prior to final polishing.

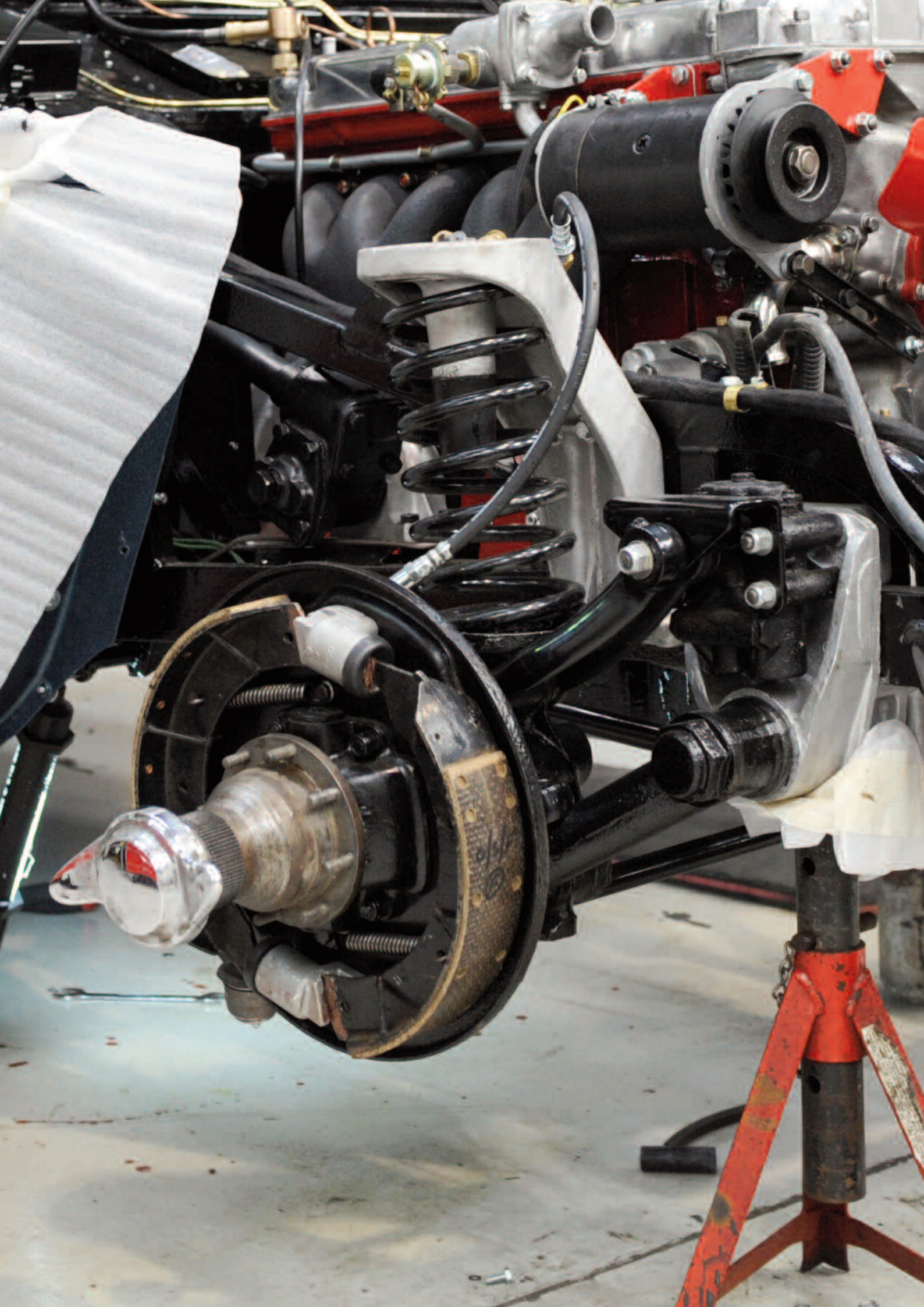
Polishing

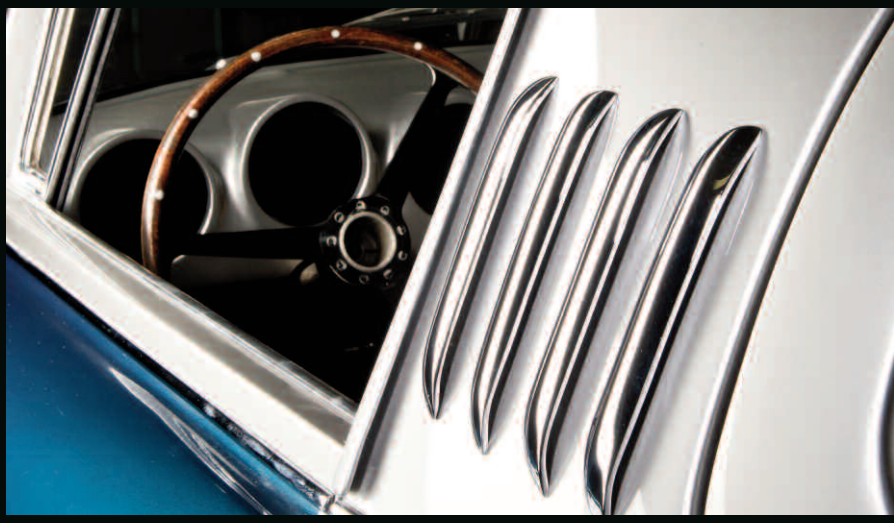
The fully hardened lacquer coat was then lightly rubbed down using 2000 grit paper to achieve the final glass quality surface finish. Only when this was done was the final polish applied to achieve the perfect glass-like finish.

Suspension and Steering Overhaul

Another unusual feature of the DB2 is the use of a trailing arm front suspension. The design generally works well but the anti-roll bar and lower trailing arm bearing is housed within an aluminium casing and doubles as an oil bath for the needle roller bearings and over time the oil seal deteriorates and wear increases. The overhaul therefore involved fitting new roller bearings and seals. The steering is also of an unusual design, featuring divided track rods, the inboard ends of which connect to a crank that is horizontally pivoted. The crank pin of this steering crank also wears and as part of the overhaul was fitted with new roller bearings. New track rod and drag link ends were then assembled on each of the track and drag rods and these put to one side awaiting assembly.

The restoration specification featured electric power assisted steering. This then necessitated dispatching the original steering box and column for modification and overhaul. The existing drum brakes were retained and refurbished as required.



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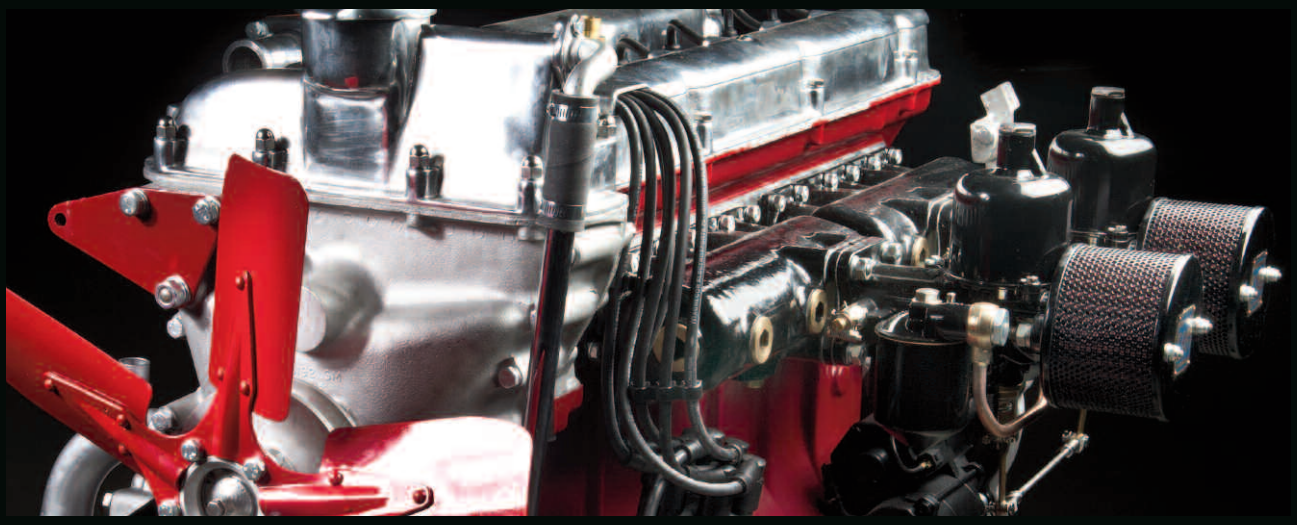

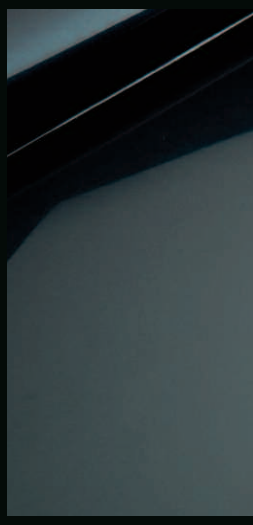


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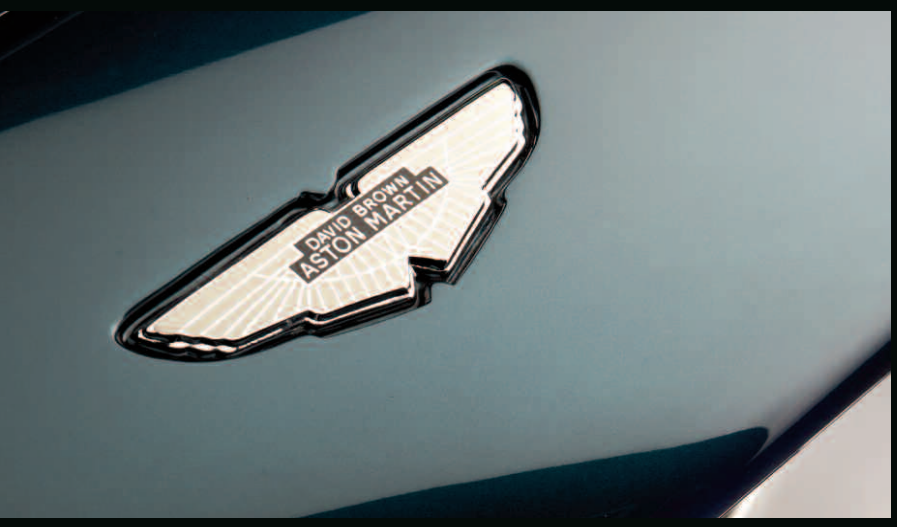
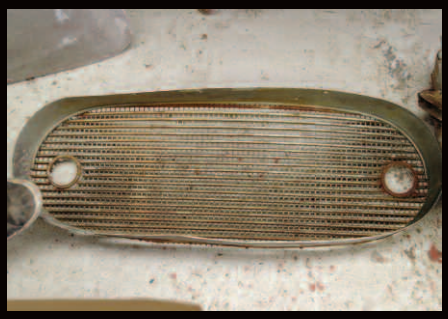
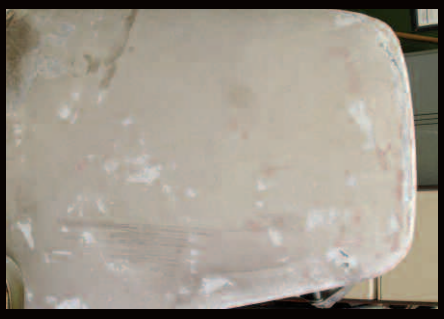
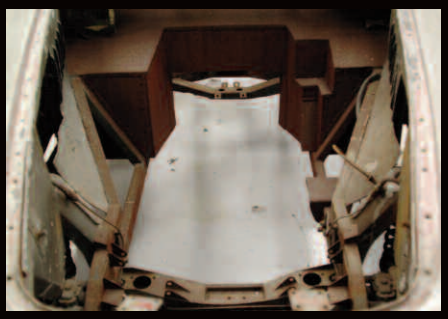

DAVID BROWN
ASTON MARTIN

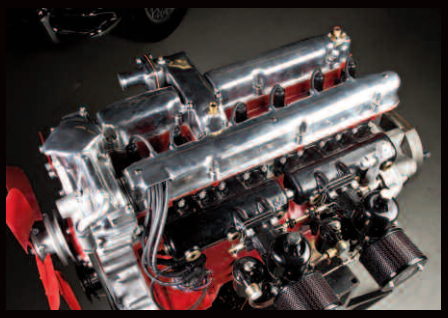


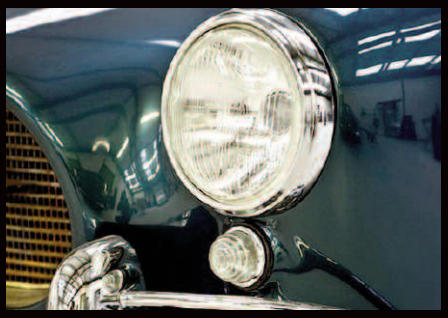


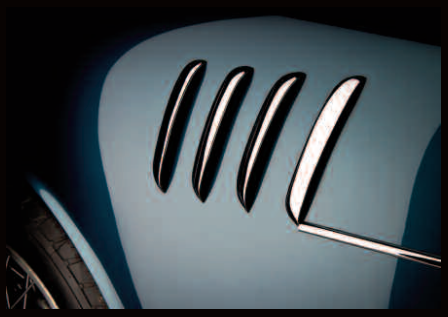









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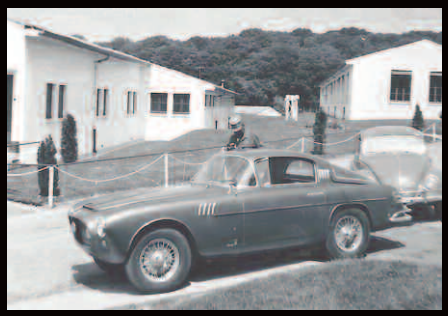

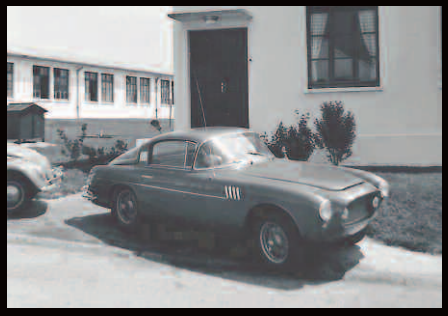


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