







The One-77 is the ultimate expression of Aston Martin. A spectacular fusion of high-technology and time-honoured tradition, One-77 uniquely combines radical design, exotic materials and engineering flair with the finest craftsmanship. Infused with breathtaking style, peerless quality and scintillating performance, One-77 exists at the point where art and science meet. This exclusive book—produced only for One-77 owners—is both a small token of thanks for your part in this remarkable chapter of Aston Martin's history, and also a celebration of what makes the One-77 so very special. With chapters focusing on its engine, chassis, bodywork and handcrafted build process together with a special section featuring your personal One-77, we hope the facts and images contained within these pages serve as a fascinating reminder of the passion and extraordinary workmanship that went into creating the greatest Aston Martin we have ever made.



Dr Ulrich Bez
Chief Executive



At the very beginning of the One-77 programme Ulrich said to me 'Make them irresistible Aston Martin. Something that is pure emotion.' Such latitude is an incredible opportunity for a design team and one I still have to pinch myself to remind me it is real. If you look at the very first sketch, then the finished car, the two are so close you could almost overlay them. That is almost unheard of in the automotive industry. It shows we have not compromised the designers' or the engineers' thoughts. It is as we first intended: a pure expression of Aston Martin. To do this we have pushed the boundaries of what an Aston Martin can be. One-77 is the essence of what we believe our cars should be: all the qualities of Power, Beauty and Soul perfectly distilled, then crystallised, into one very special car. One-77 has been an incredible journey. In designing the One-77 we have developed the design language and DNA of Aston Martin. Ideas and concepts we have explored will influence future series production cars, ensuring the One-77's significance extends way beyond the here and now. One-77 has been a big part of my life for three years, but when I see one in action it still makes the hairs on the back of my neck stand up. I hope you derive as much pleasure simply from looking at your One-77 as I know you will from driving it.

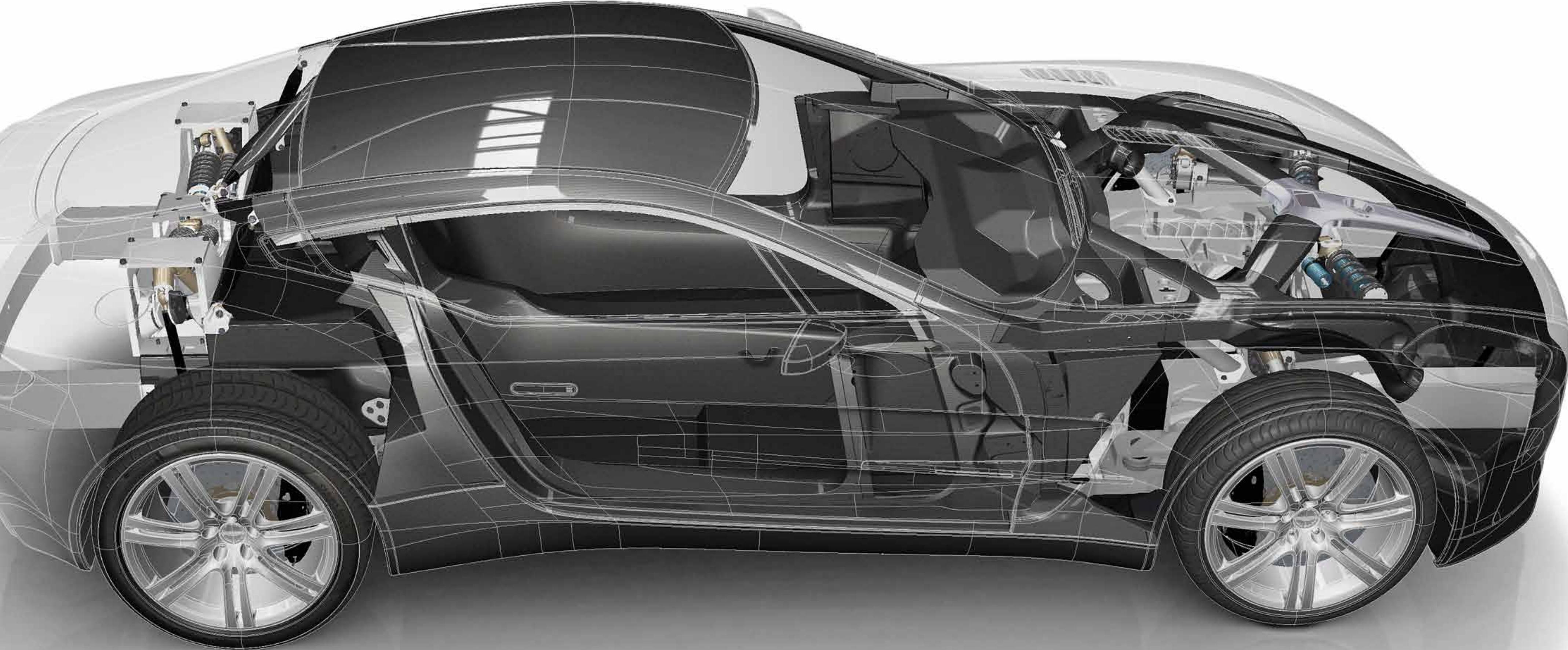
Marek

Marek Reichman
Director of Design

I think it is fair to say that One-77 has been the ultimate adventure for the engineering team that has worked so hard to bring the car to production. When you embark on designing and developing a new Aston Martin, the aim is always to create something exceptional. With the One-77 we have allowed ourselves to stretch the boundaries of what was possible from an automotive engineering perspective. As you might expect, the One-77 includes much of the craftsmanship and fine quality materials we use in the rest of our range, but with such an exclusive car we could explore other avenues. For example, we have taken the opportunity to pilot new technologies, materials and finishes that will be used in future models. Whilst the design of the One-77 is clear to see on the outside, much of the engineering beauty lies beneath the skin. In some cases we machined components from solid billets of metal. This can create components which show their method of manufacture through the lines created by the metal machining cutter, something that is a real piece of engineering sculpture. In many ways the One-77 is a juxtaposition of old and new craftsmanship. For example, we have the tradition of hand finished superplastic formed aluminium skin panels next to the high technology of carbon fibre monocoque and light emitting diode lighting systems. Above all though, it was always our belief that you, the driver, would be the most important component of the One-77, for only when driven does the One-77 truly come to life.

Ian Minards

Ian Minards
Product Development Director





THE KEY TO DYNAMISM



The One-77's super-strong, ultra-light carbon fibre chassis is a master class in absolute quality, methodical hand-manufacture and obsessive attention to detail. Built by Toronto-based Multimatic—world-leaders in composite materials and a long-standing technical partner of Aston Martin—each chassis starts life as the world's most expensive and complex jigsaw puzzle. Each One-77 chassis is made from 3800 individual carbon fibre pieces, with each piece precisely cut by laser from rolls of the very highest specification carbon fibre material. Every roll is inspected by eye prior to cutting to ensure there is no unsightly variation in the carbon weave. It is a painstaking

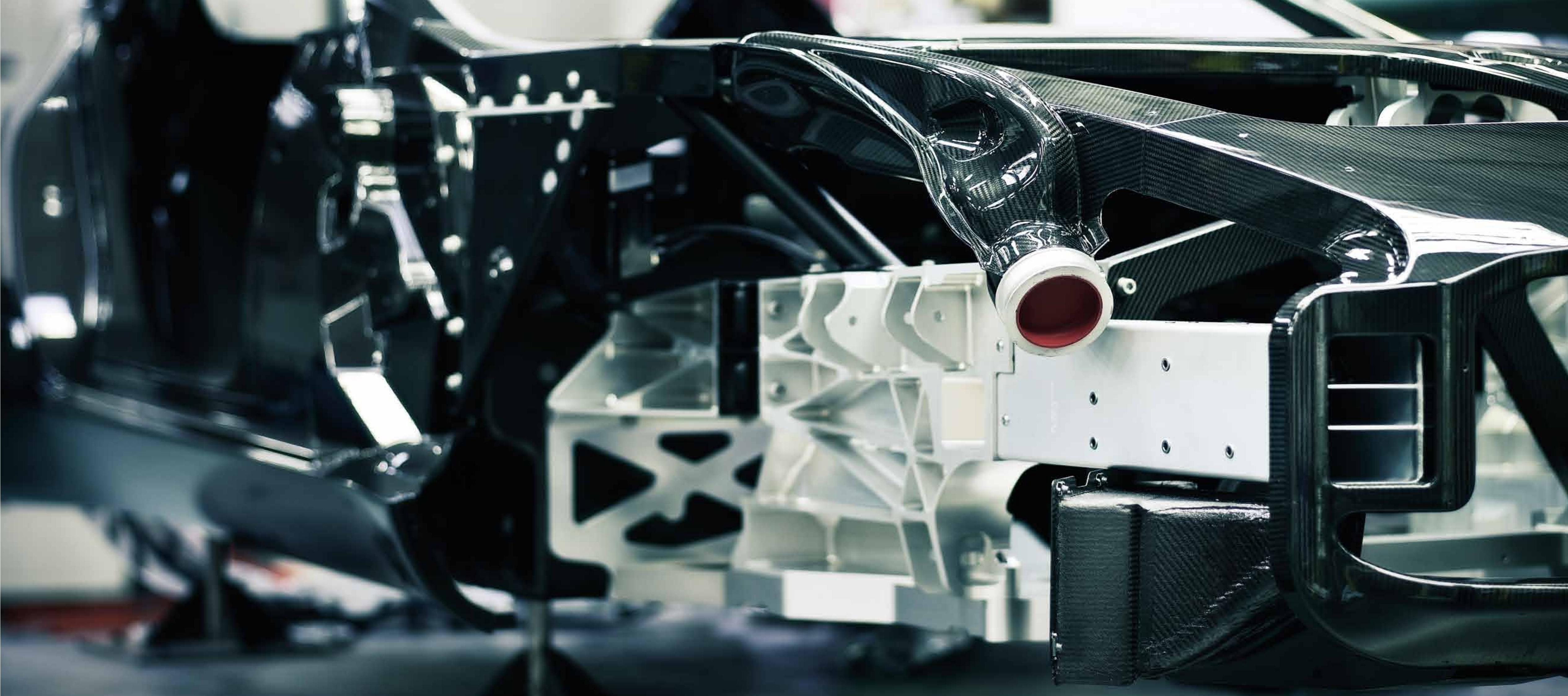
job, but a necessary one, for despite using only the very best material Multimatic's ever-vigilant inspectors still reject around 40 percent of the carbon fibre at this initial stage. With the carbon pieces cut and checked again for quality, the laborious process of 'laying-up' can commence. Layer upon layer of carbon fibre pieces are meticulously laid onto a mould, or 'tool', to create the structural shape of the chassis monocoque. This method of carbon fibre construction effectively means working from the outside in, so that the finished surface layer that forms the exposed areas in One-77's spectacular interior has to be laid into the tool first.



The part-built tub cannot be removed from the tool until the entire laying-up process—including repeated curing stages in an autoclave—is completed. This means the structural 'core' layer, complete with 330 precisely positioned individual fixing inserts and backside lamination processes, also has to be completed before the finished tub can be hydraulically released from the tool. Only then, after a dozen expert laminators have lavished nine days of work on constructing the chassis tub, can the final inspection be made. It is at this stage that any errors in that first critical stage will be visible.

As even the smallest imperfections are unacceptable, any tub found to have a flaw would be immediately rejected. In addition to leading the world in carbon fibre construction and manufacturing, Multimatic are also pioneers in suspension design and manufacture. The One-77 is the first road car in the world to adopt the revolutionary Dynamic Suspension Spool Valve, or DSSV technology, which was developed for the highest echelons of motorsport. It replaces the complex and arcane internals of the traditional suspension damper with high-precision machined components to enable the shock absorbing

characteristics of the damper to be more precisely controlled, and quickly changed by simply swapping DSSV packs, rather than the normal process of having to remove the damper units from the car. All these damper components are manufactured in the UK, to extraordinary tolerances measured in tenths of microns. Indeed the only limit to the precision with which these state-of-the-art damper components are made is the machines they are made on, for it simply is not possible to work to finer tolerances. Proof, if any were needed, that only the very best is good enough for the One-77.



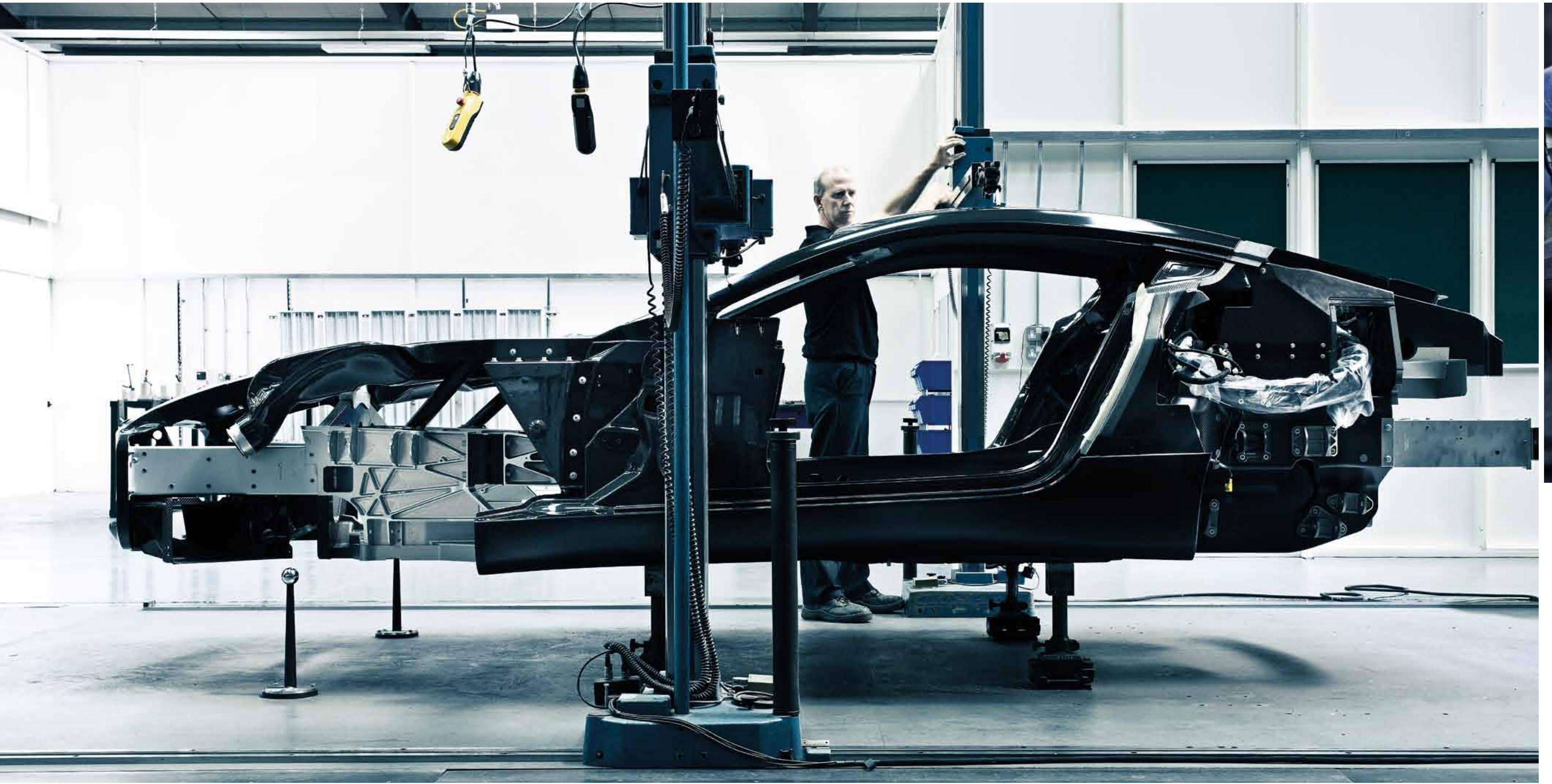
A black and white photograph showing two men in a factory setting working on a car chassis. The chassis is a light-colored metal structure with various components attached, including a front end with headlights and a rear with a license plate. One man is standing on the left, leaning over the front of the chassis. The other man is crouching on the right, working on the rear. They are both wearing dark t-shirts and trousers. The background shows industrial equipment and structures.

CREATING THE
PERFECT FORM



It was always our vision that the One-77 should take the best modern technology and combine it with the artistry and tradition of the finest hand-craftsmanship. Nowhere is that more brilliantly evidenced than its hand-formed aluminium bodywork. To a layman it seems impossible to believe that a cold, flat sheet of aluminium can be shaped into the complex curves and sleek lines that clothe the One-77, but the artisans working at Coventry Prototype Panels regard those sheets of alloy as a painter looks upon a blank canvas or a sculptor considers a block of stone. They only see potential, and strive for perfection. The ability to transform a lifeless two-dimensional sheet of metal into a glorious three-

dimensional sculpture is a skill gained only through a lifetime of dedication and hard work, yet to see these masters at work you would think it effortless. The tools of their trade are the same as they have been for a hundred years: hammers and files of all sizes and huge English wheel tools to form long, languid curves. All around the work areas you can see different elements of the One-77 literally taking shape before your eyes. There is plenty of noise and a distinctive tang of metal in the air, but wherever you look the shaping process isn't the violence of a material being bent against its will, rather you are seeing experts teasing and smoothing a material over which they have complete control.

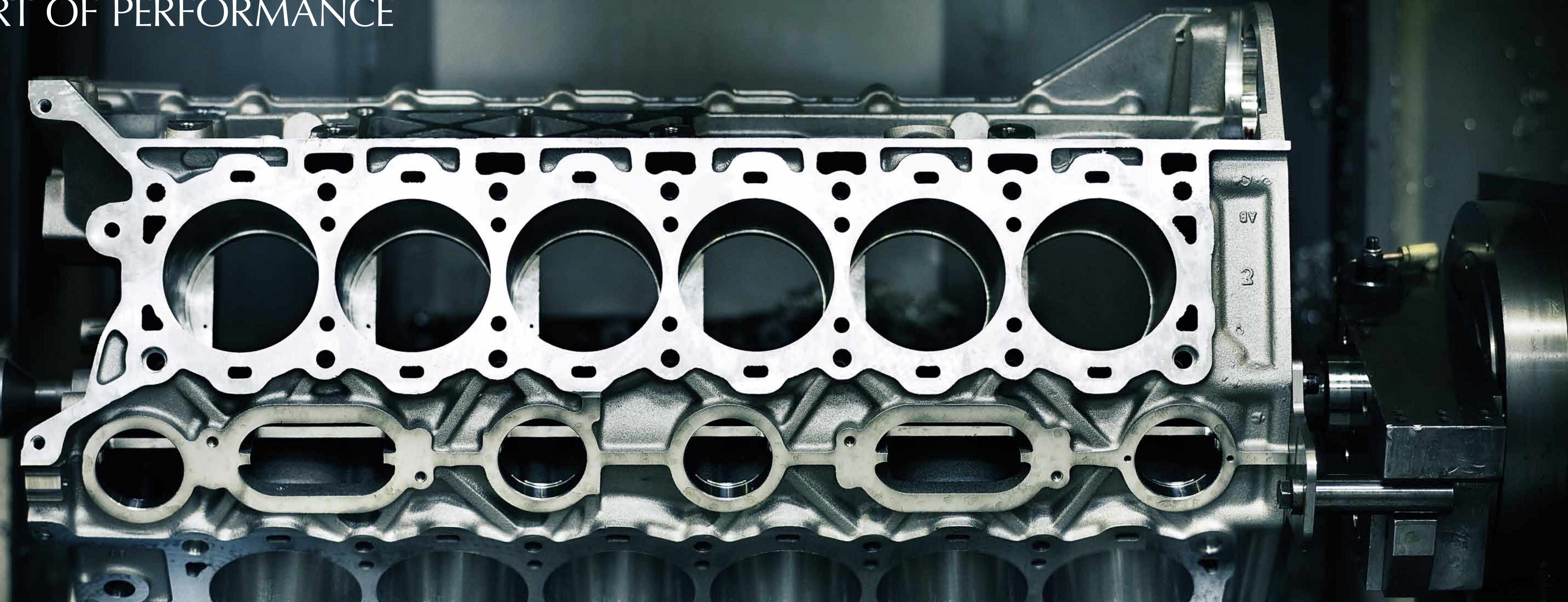


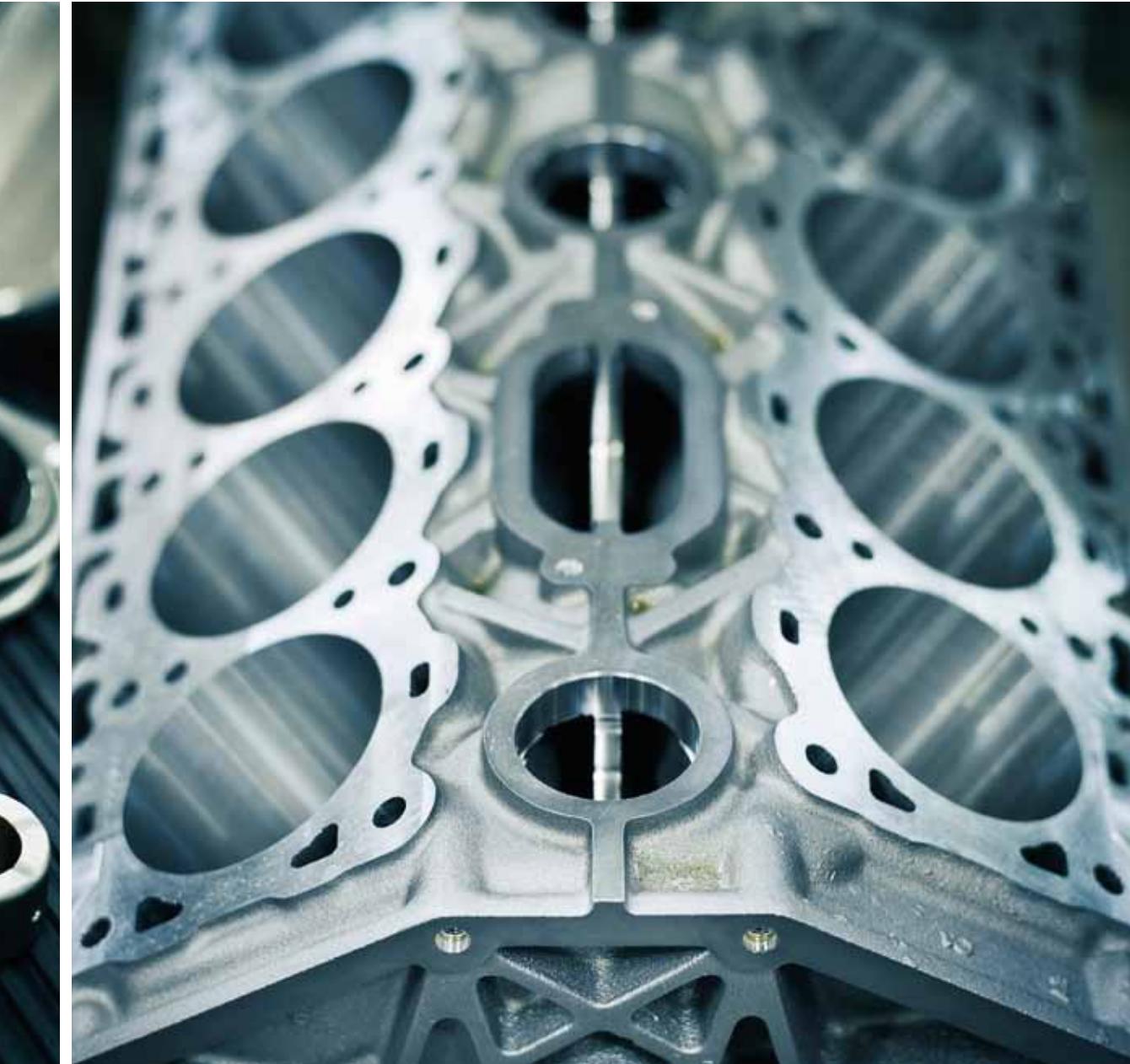
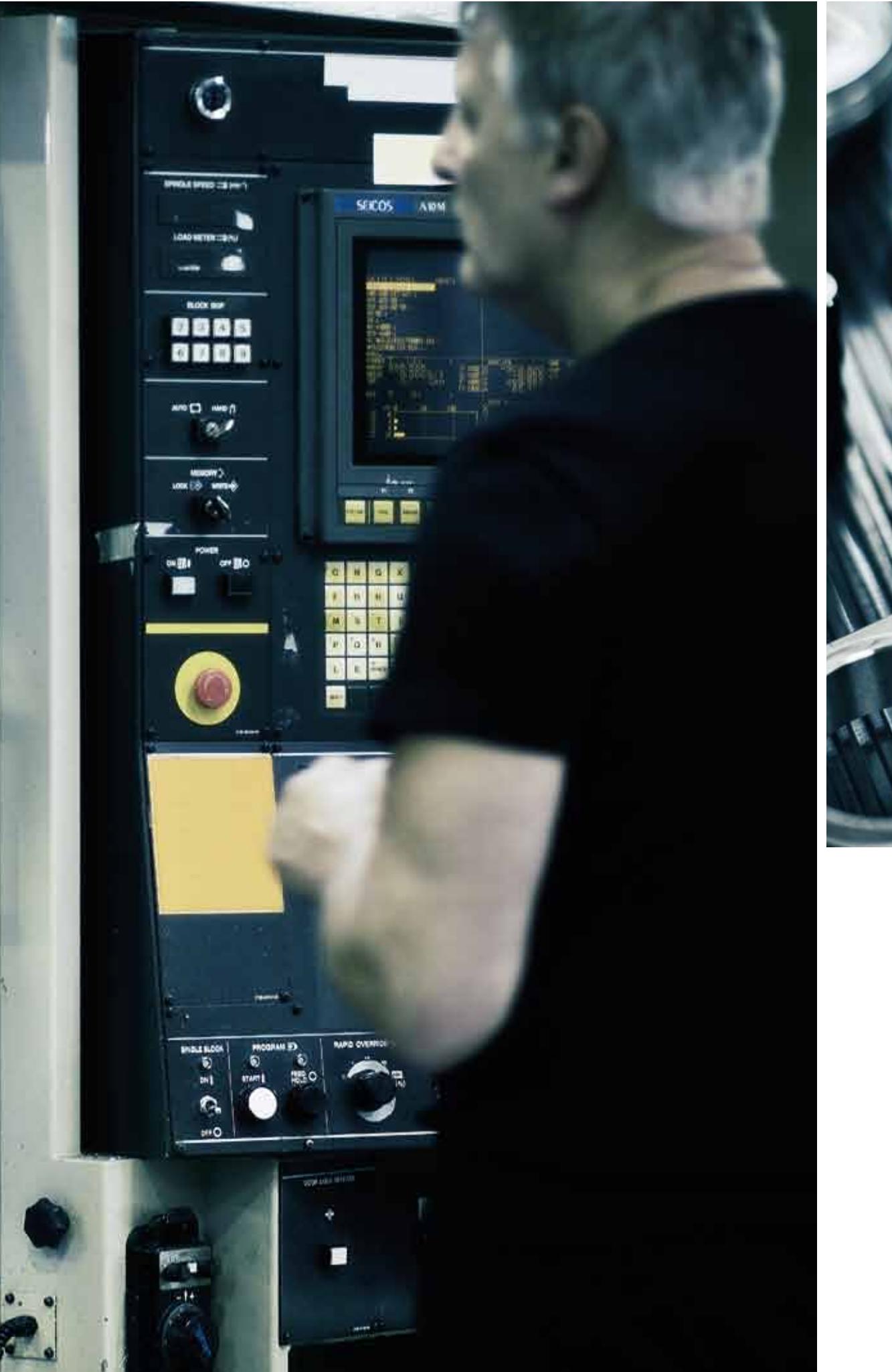
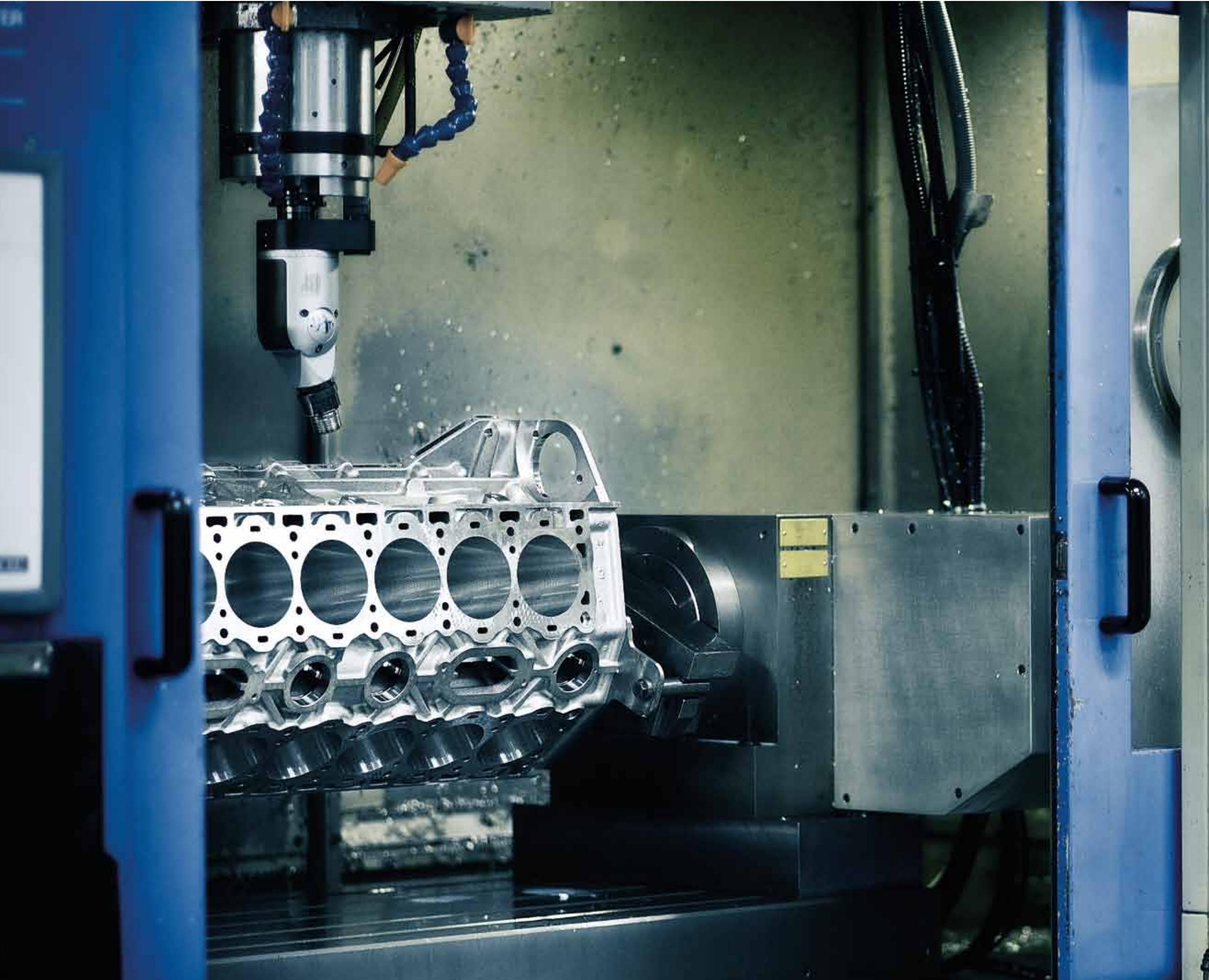
If precision, control and the ability to imagine three-dimensional shapes are all essential qualities for a master panel beater, then so too is patience. You simply cannot rush this kind of craftsmanship, which is why time is measured not in seconds, minutes or even hours as it is in mass-production, but in hundreds of man-hours. For example, the rear section of bodywork, or 'clamshell' as it is referred to, is made from five separate pieces and takes 200 hours to complete. In addition to all the One-77's body panels, every item of brightwork you see on the car is also handcrafted. As each car's bodywork is shaped by hand, all this brightwork (that is to say the grille, window surrounds and the like) all have to be

tailored specifically for an individual car to achieve a perfect fit. The front grille is the most complex piece of brightwork. Every fixing hole is hand-drilled and has a screw thread hand-tapped before it can be assembled, again by hand. The whole process takes 10 hours and requires absolute precision every stage. In total it takes more than 70 hours to create the body panels for a One-77. It then takes a four-man team a further four days to dress the One-77's base carbon fibre chassis to fit all its hand-shaped aluminium parts. It is a stage that only final minute adjustments are made and when the One-77 exhibits the perfect blend of power, brutality, grace and elegance expressed in the original design.



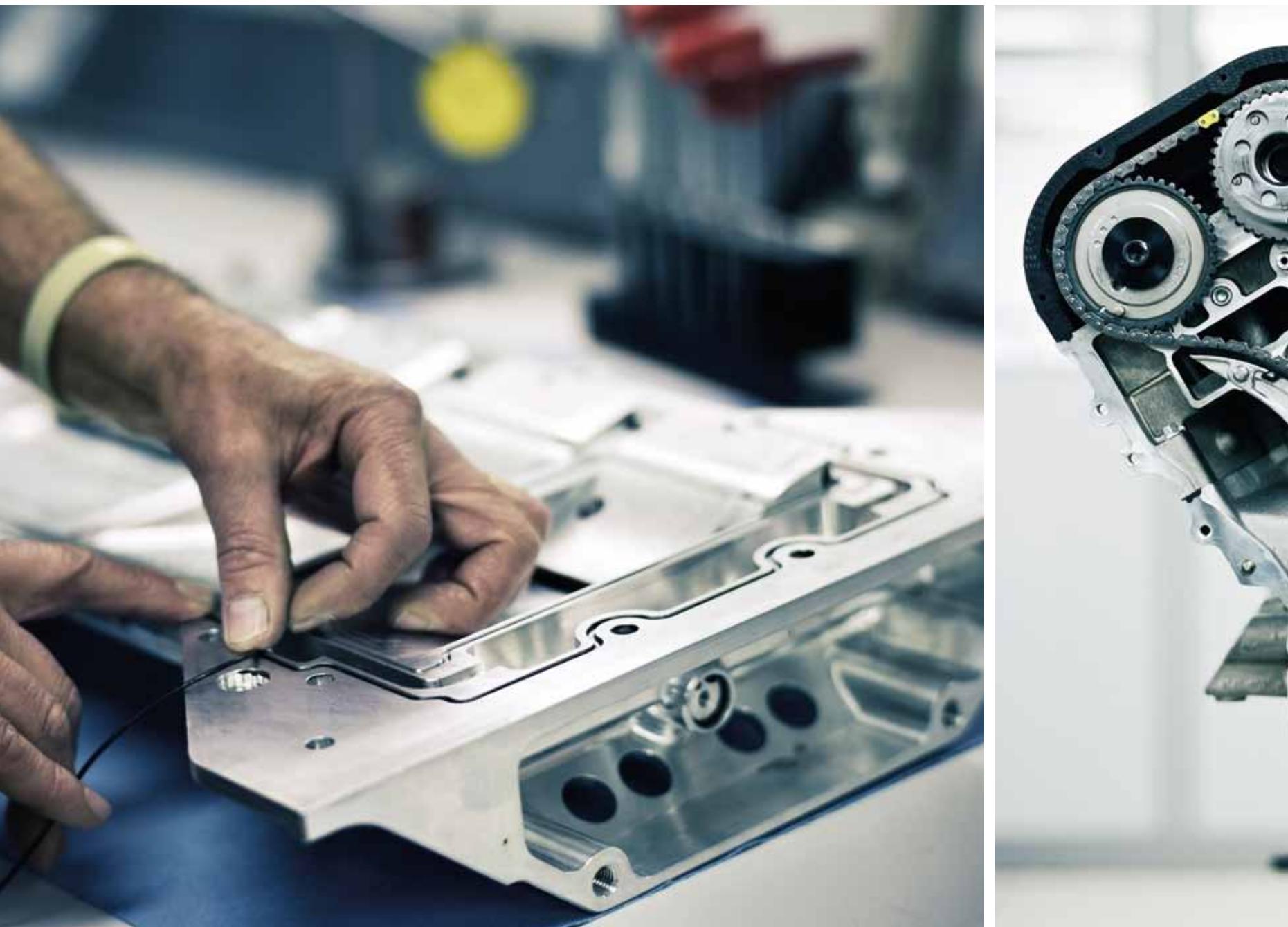
THE HEART OF PERFORMANCE





The brief was simple: take Aston Martin's acclaimed production V12 engine as far as it could go in terms of power output and weight reduction. In round figures that meant no less than 700bhp, with a 10 per cent reduction in engine mass. It was a challenge that would test the limits of the possible, which is why Aston Martin chose Cosworth—the most successful engine builders in Formula One—to collaborate on the project. Given Cosworth's peerless track record at the very highest levels of motorsport it would have been relatively straightforward to make a race engine for the road, but the One-77 project demanded so much more than raw power and torque. Like all Aston Martin engines, the One-77's engine would also have to be refined, durable, reliable

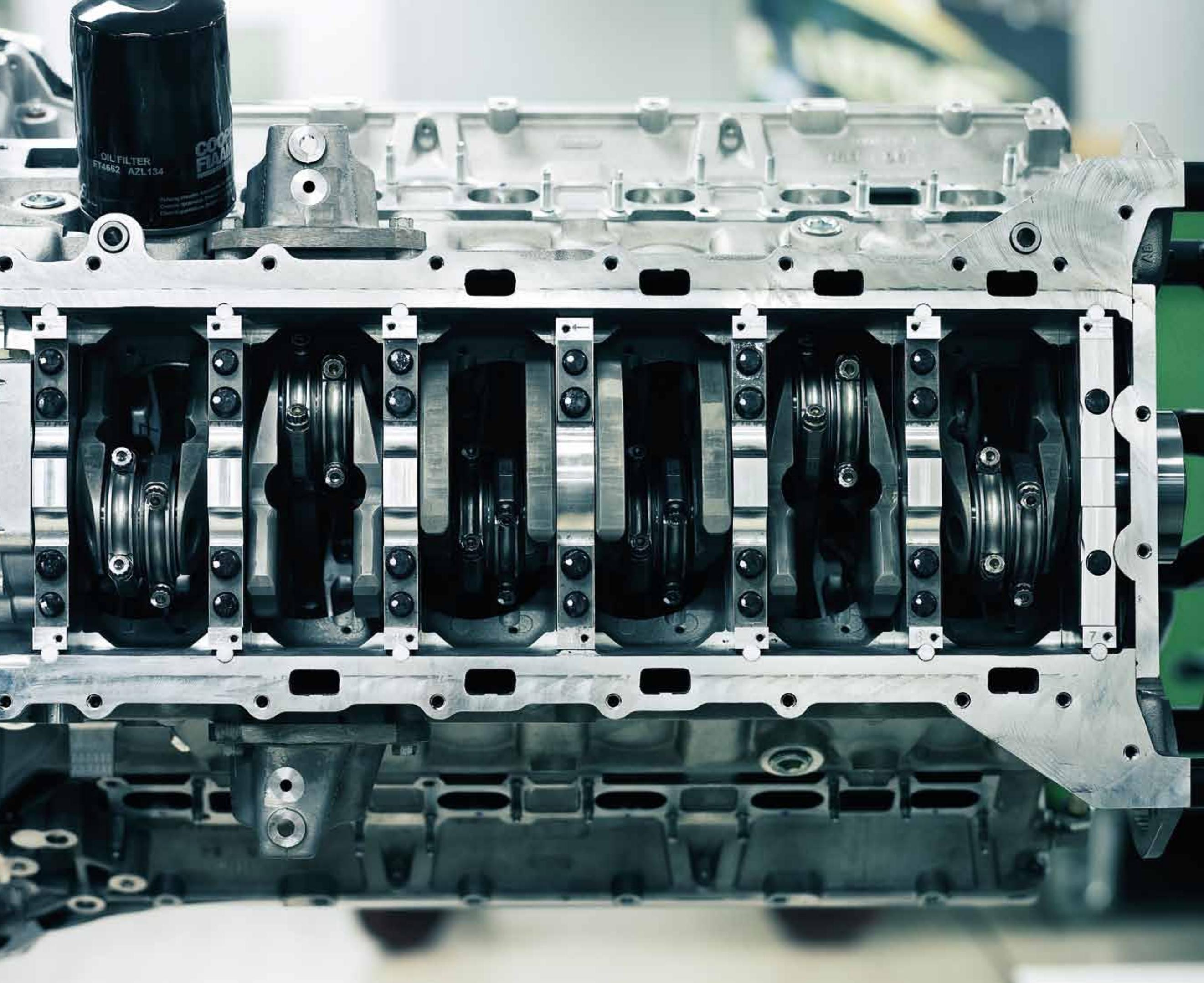
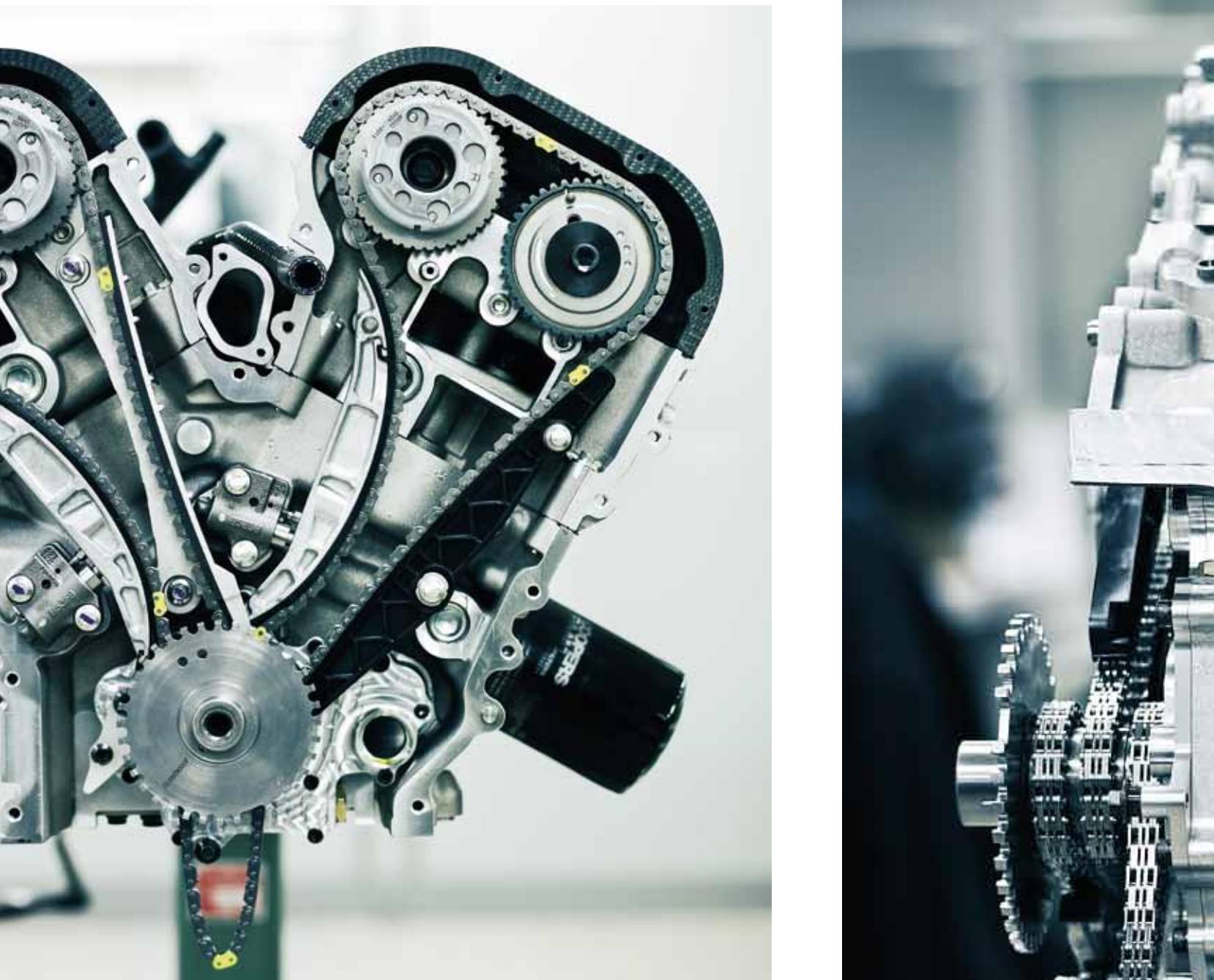
and fully compliant with the latest EU emission regulations. To achieve this the One-77 engine team employed advanced techniques and processes that were, until very recently, the sole preserve of Formula One engines. These included Plasma Iron coating of the cylinder bores to reduce frictional losses and increase power, and a special heat treatment called Hot Isostatic Pressing, which applies controlled pressure to the engine block to increase its strength. Engines are also inspected under Ultra Violet light in an effort to check for minute oil leaks invisible to the naked eye. It is all part of the painstaking 12-week process of taking a One-77 engine block from casting to finished item.

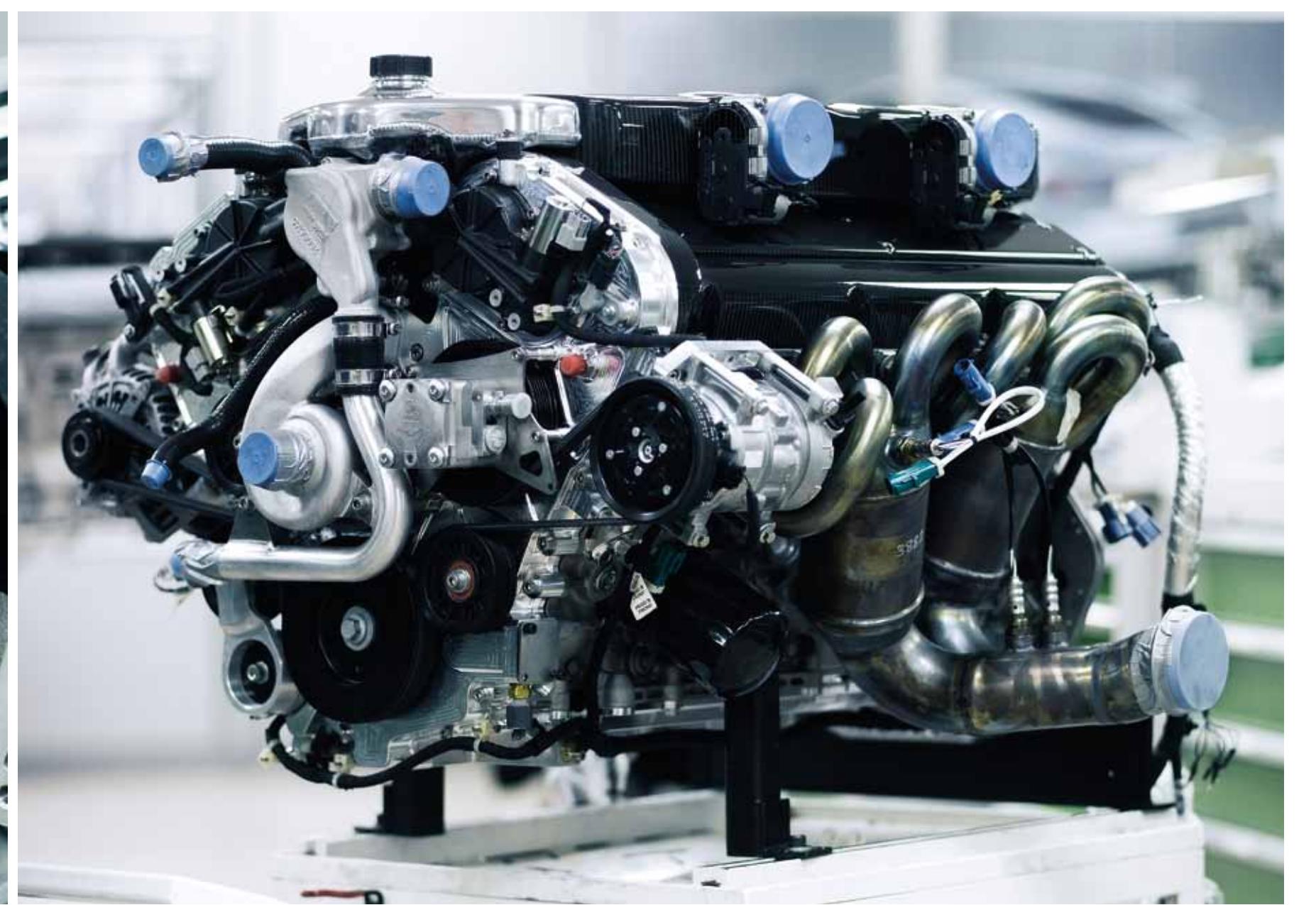
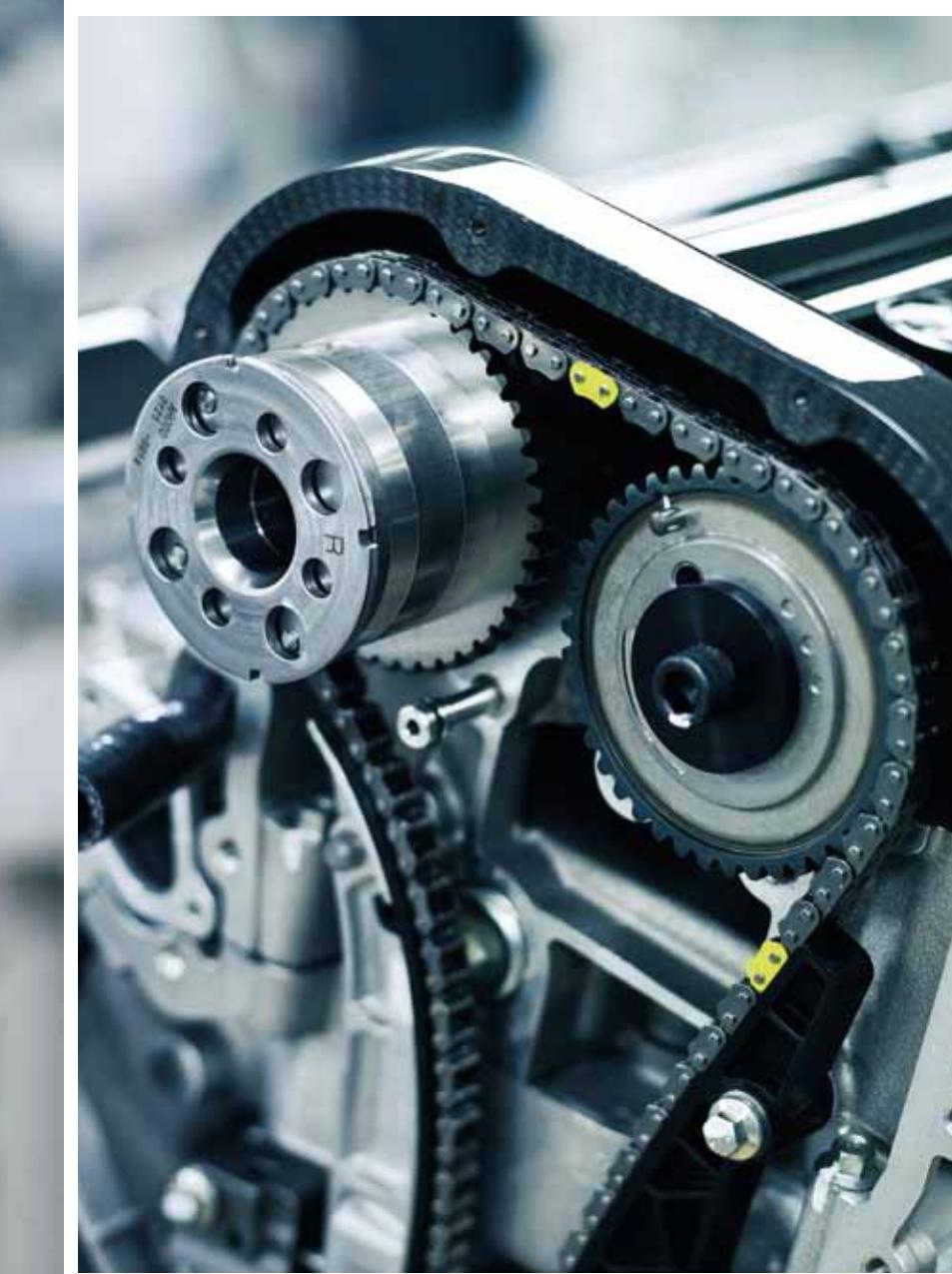
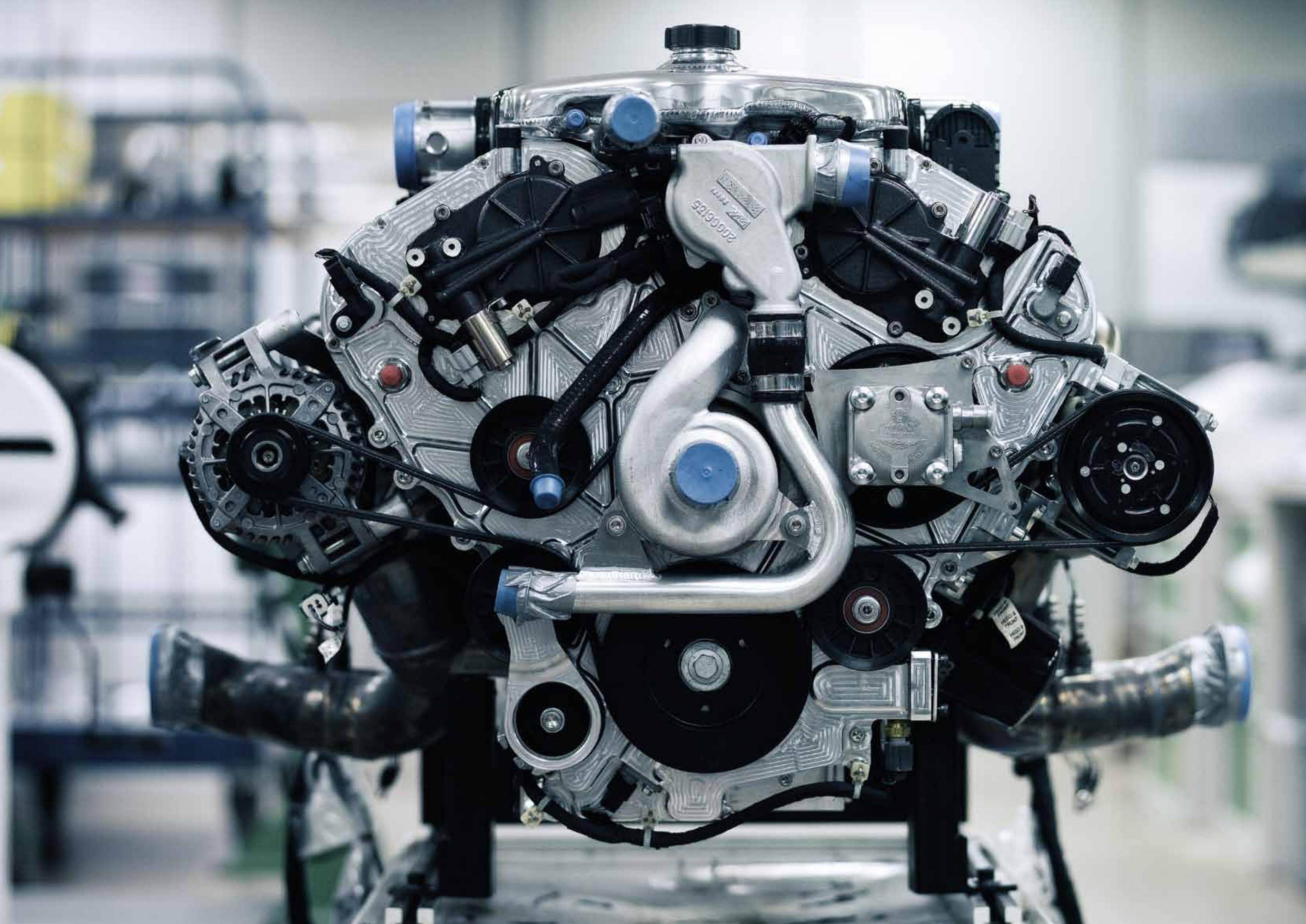


Every component used in the One-77's V12 engine is a work of art, from the intricate all-new cylinder heads to the monolithic crankshaft that is machined from a single billet of high-strength steel. Every part is honed to the finest tolerances before being assembled by Cosworth's most experienced technicians. To ensure the best possible gas flow into the combustion chambers, the throats of the inlet manifolds and cylinder head ports are precisely matched to one another. Two technicians are assigned to each engine and complete the hand-polishing process, guaranteeing absolute consistency and the highest possible quality. The finished engine is nothing short of a masterpiece.

Displacing 7.3-litres (up from the standard engine's 6.0-litres) it employs a special dry-sump oil system, which enables the engine to be mounted some 100mm lower than in any previous V12-engined Aston Martin for a super-low centre-of-gravity. To further optimise the One-77's dynamics, the engine is also set behind of the front wheel centreline, which takes Aston Martin's front-mid-engined philosophy to a whole new level, resulting in six of the engine's twelve cylinders sitting out of sight beneath the base of the windscreen. Since its first momentous run on the engine dyno test-bed—where it immediately produced an impressive 700bhp—the engine has been subjected to

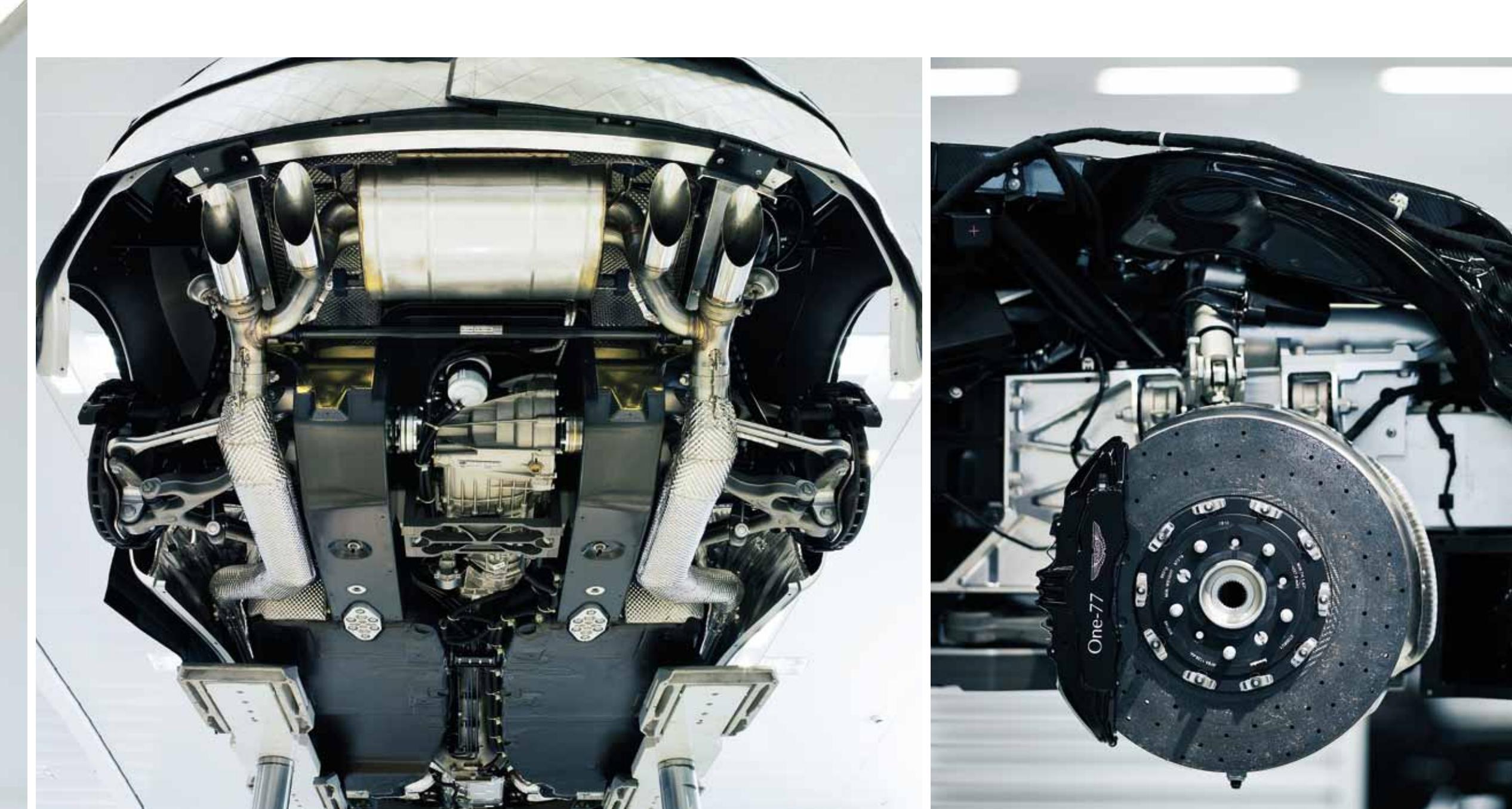
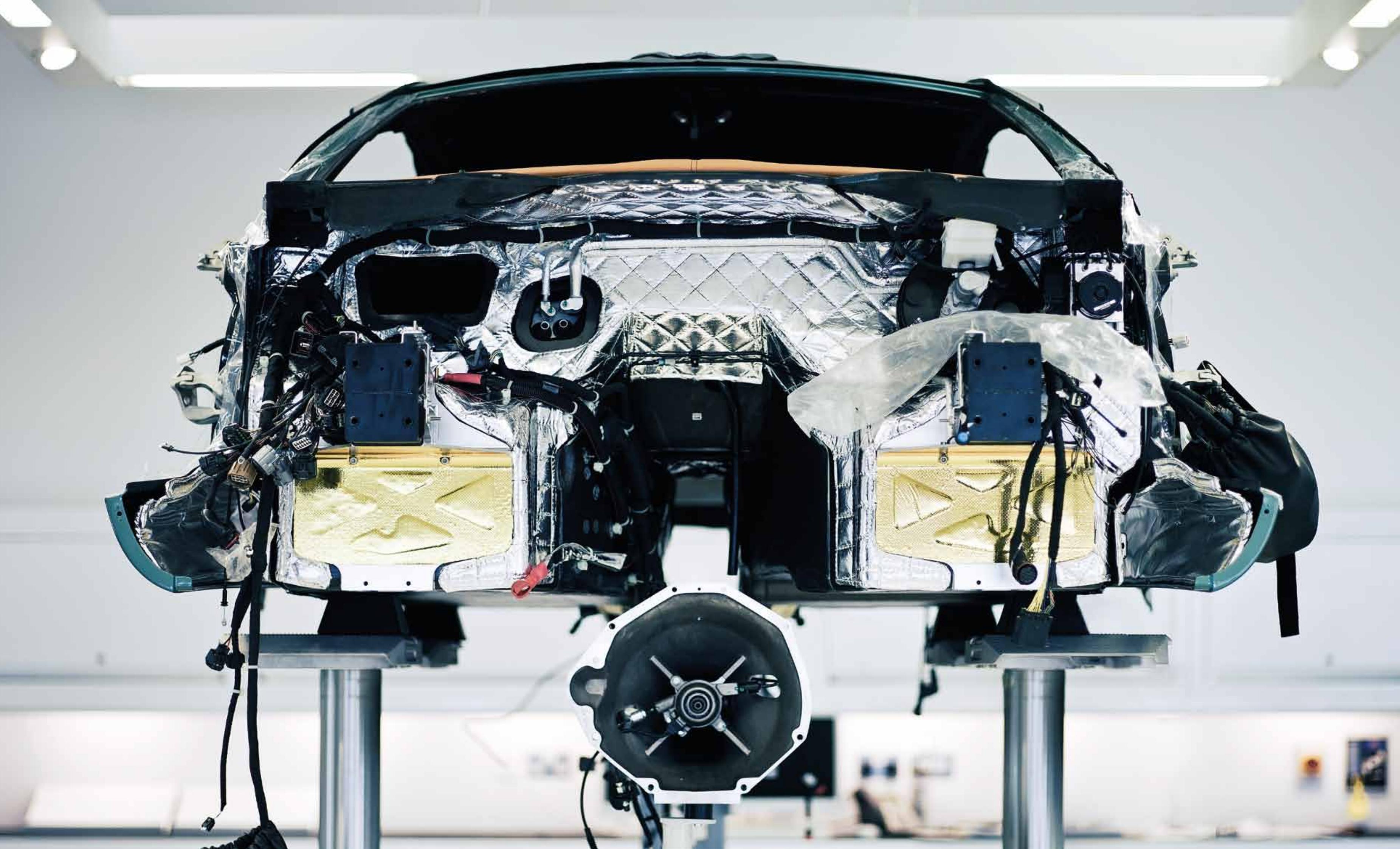
constant testing and improvements, including a gruelling dyno test in which the engine was held at peak power and peak torque output for 150-hours. Most normal production engines fail three-quarters of the way through this punishing test, but the One-77's V12 passed without an issue. And what of the original targets? Comprehensively exceeded, with a remarkable 25 per cent reduction in engine mass and a certified output of 750bhp and 750Nm of torque: figures which make the One-77's V12 the most powerful naturally aspirated production engine in the world today and a fitting powerplant for the ultimate Aston Martin road car.



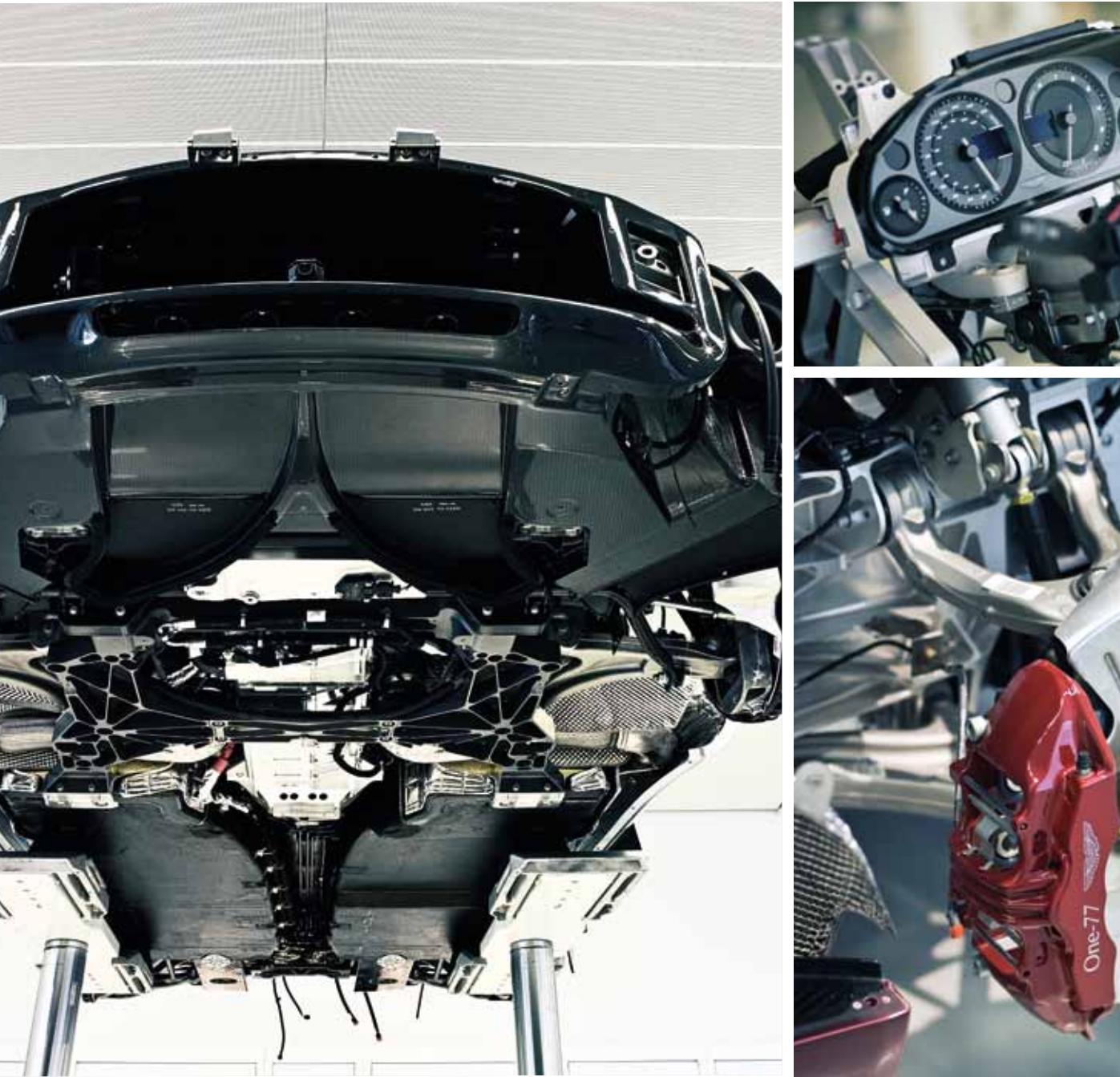
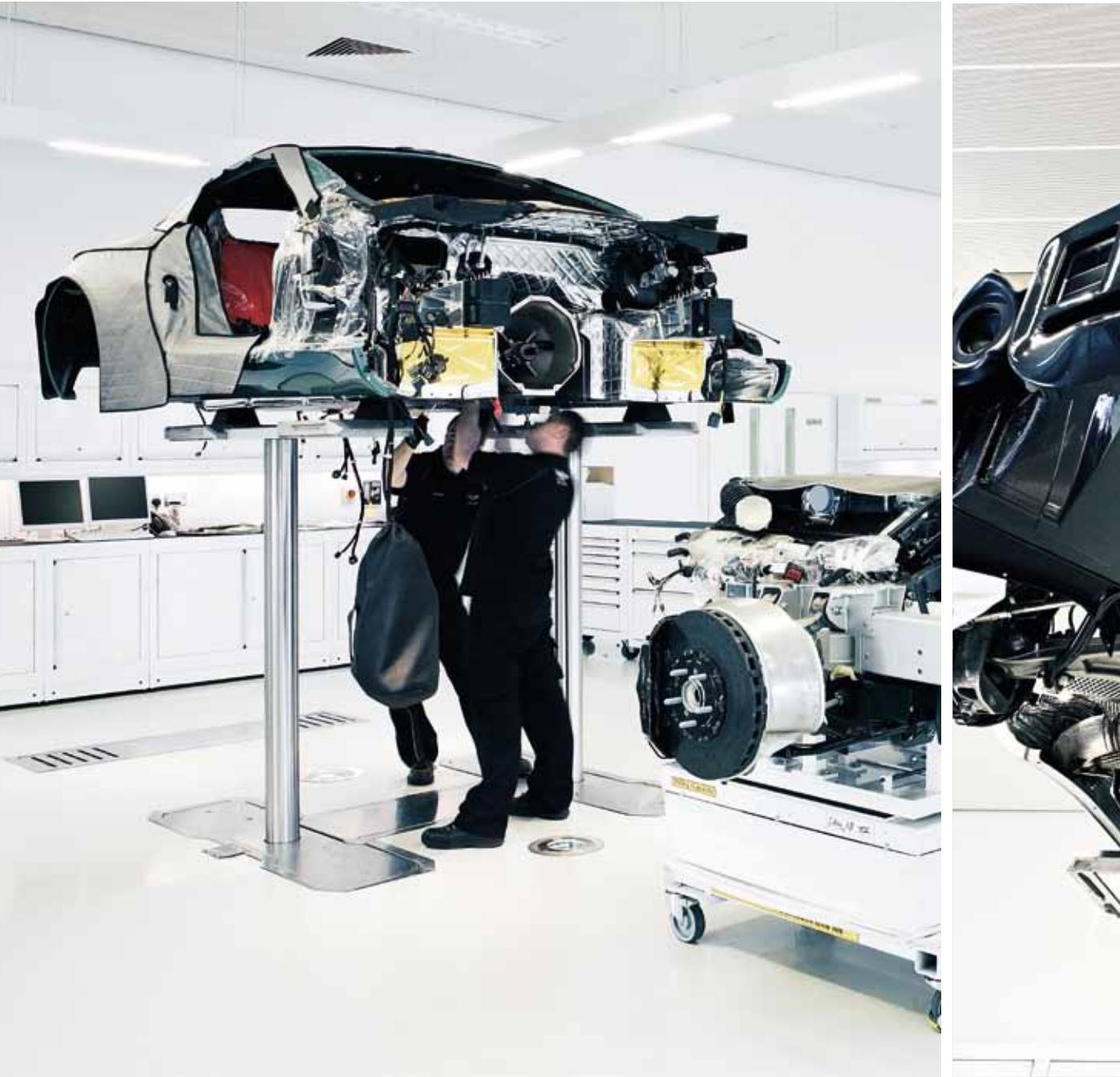


THE DREAM MADE REAL

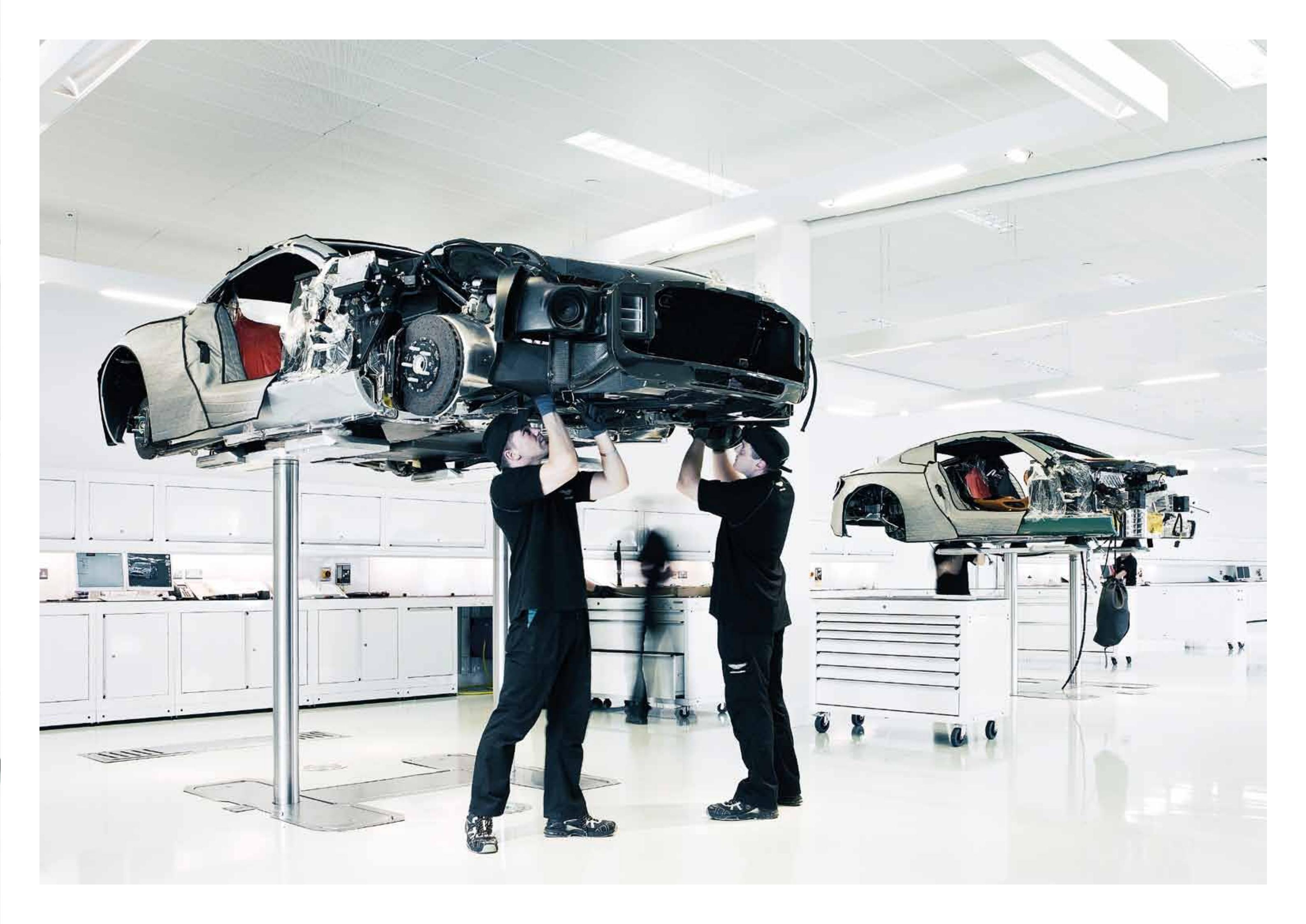
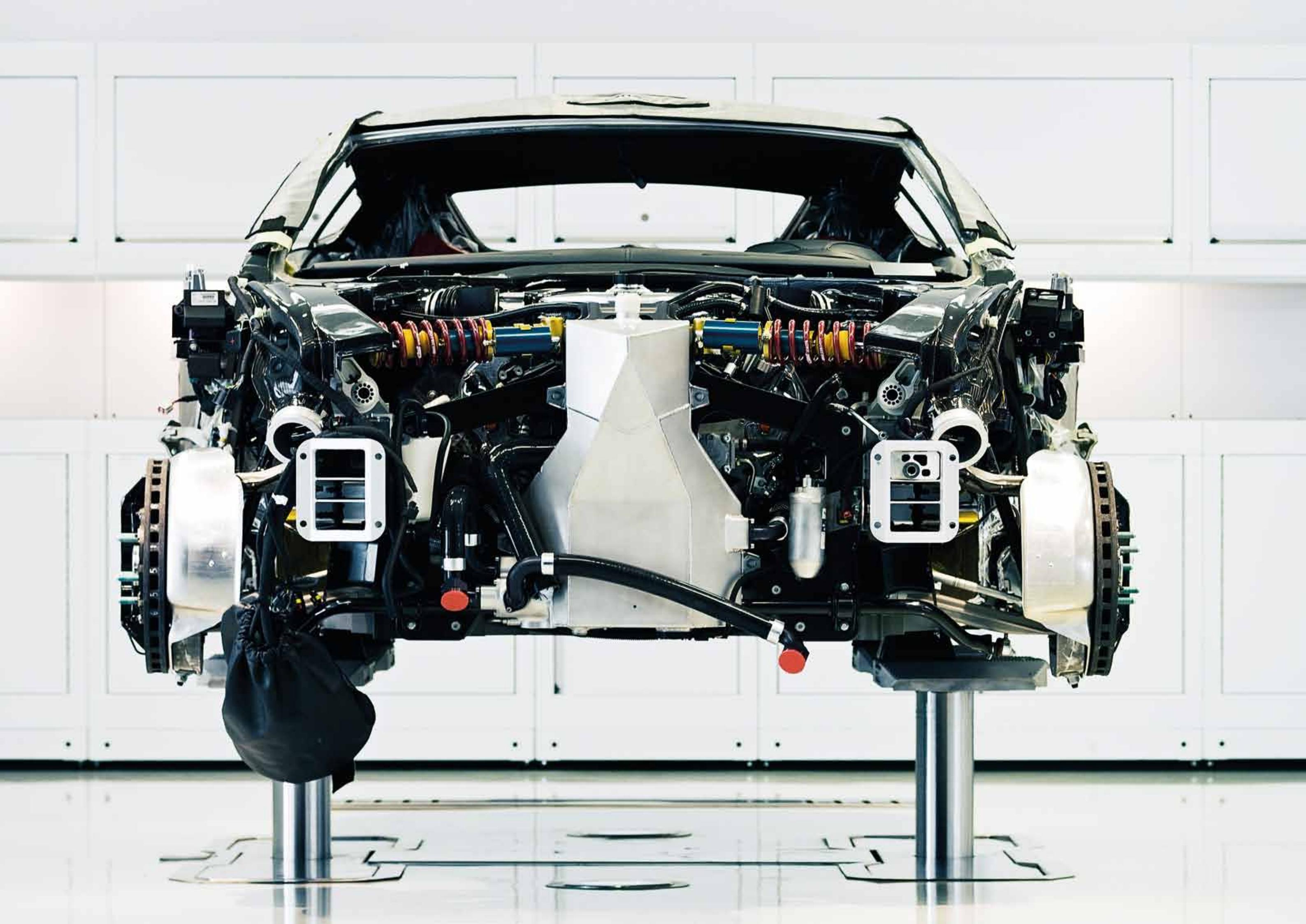


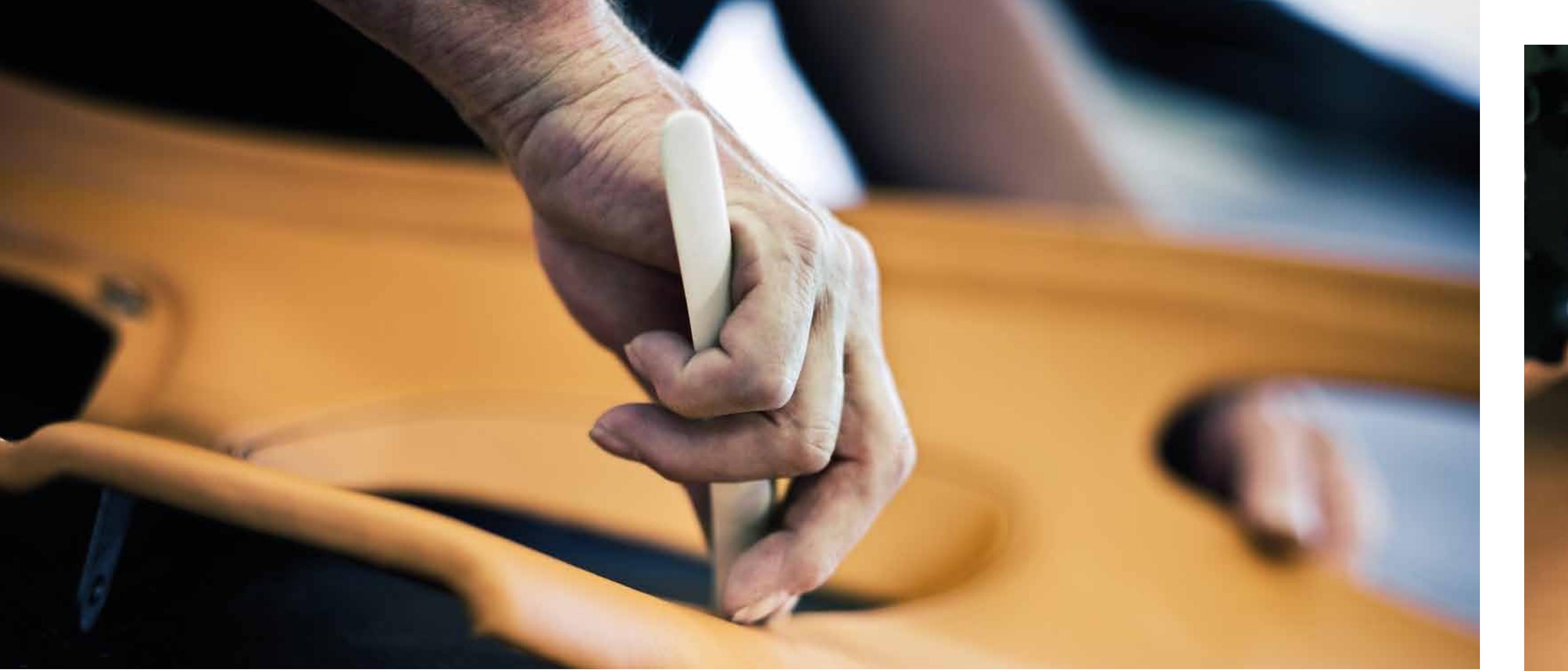


The culmination of the One-77 production process takes place at Aston Martin's Warwickshire Head Quarters. Separate from the main factory building, the One-77 build area is the perfect environment in which to create seventy-seven individual works of art. With a handpicked team of expert technicians, engineers and interior trim specialists, the One-77 production facility is a hushed hive of industry. After a final hot-test to ensure everything is perfect, the lovingly assembled V12 engine is at last mated to the paddle-shift six-speed transaxle via a carbon fibre prop shaft contained within a magnesium torque tube casing. This completed drivetrain is then installed into the carbon fibre tub, which now wears painted body panels for the first time.



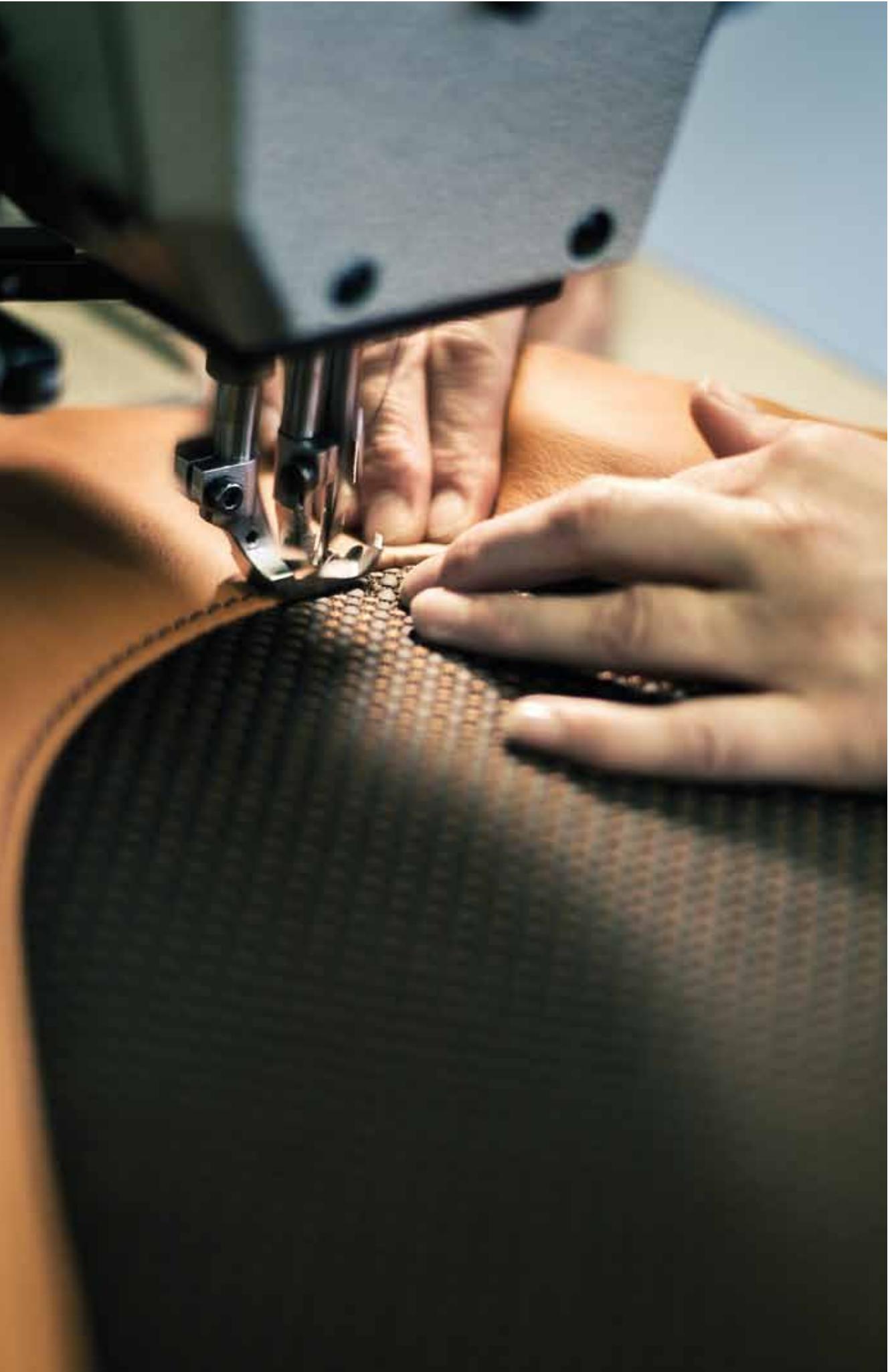
With the 'dirty' work completed, each One-77 then moves to the 'clean' build area, where the suspension components, brakes and interior are fitted methodically. A maximum of four One-77s can be found in this area at any one time. They remain in position until fully built, with engineers coming to the car rather than the car coming to them as is the case on a regular series production line. As the build process nears closer to completion, more and more of the One-77's highlights become concealed beneath the body and trim. It is a great shame such wonderful workmanship, exotic materials and intelligent engineering has to be hidden from view, but the fact every component has been finished to the same exacting standards, whether it will be visible or not, is what makes the One-77 such an exceptional car.





The final element of the One-77 to be completed is the part you will be spending most of your time enjoying: the interior. Having made your precise specification from around one million possible combinations of colours, finishes and trim detailing, the interior is trimmed and built-up by hand at special workstations within the 'clean' assembly area. The first section to be installed is the facia, followed by the centre console and finally the seats. Studded with jewel-like highlights to draw your gaze, and made from the finest natural materials, the One-77's interior manages to be both sporting and luxurious; sumptuous and cosseting where it needs to be, but never excessive or over-styled. Authentic and tactile in every

detail, what looks like metal or leather is metal or leather. We are sure you will enjoy many unforgettable moments in this utterly bespoke and uniquely personal driving environment. With the final assembly completed all that remains is for each One-77 to be test driven by the Chief Programme Engineer, Chris Porritt, for it is he who knows the car better than anyone. Porritt and his team have lived and breathed One-77 for three years, yet its power to enthral remains undiminished. Indeed it is not unusual to see members of the team stealing a glance back at one of the finished cars as they walk across the build area. Having taken delivery of your own One-77 we think you will understand that emotion.











ASTON MARTIN LAGONDA LIMITED
Banbury Road, Gaydon, Warwick CV35 0DB, England
www.astonmartin.com