FAST & FURIOUS™

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FAST & FURIOUS

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VEGH, AS COLD AS ICE

In Owen Shaw's team there is a striking balance between the male and female members. One of the latter is Vegh, a cold, calculating woman who appears as the mercenary's imperfect partner and one of the main adversaries in *Fast & Furious 6*.

Owen Shaw does not only want to be surrounded by muscle-bound men with military backgrounds. He is also looking for women who, boldly and with special sensitivity, allow him to extend his reach to places where any other soldier would fail. Letty Ortiz is one of the latest additions to the team. Before her, there was Vegh, a woman who hardly expresses her emotions and who places her great intelligence at the service of the group led by Shaw.

A BRILLIANT DRIVER

In *Fast & Furious 6*, Vegh turns up along with the rest of Shaw's team when they are carrying out a robbery at Interpol's London headquarters, looking for the component parts that will enable them to create a Nightshade device, capable of knocking out a country's entire electricity grid. When Toretto's team bursts in on the scene of the robbery the members of Shaw's team rush to escape. Vegh has the job of opening up a pathway for the others at the controls of one of the fast, evasive Flip Cars, followed by her companions in a Rover. Brian, Roman and Tej set off in hot pursuit. The prevailing calm in the night-time streets of London is interrupted by the thrilling race between the cars. The mercenaries manage to neutralise the cars driven by Roman and Tej with some cutting-edge equipment, but Brian avoids the trap and stays with the mercenaries as they approach the arranged meeting place.

British actress and model Clara Paget joined the team of *Fast & Furious* to play the part of Vegh, Owen Shaw's right-hand woman.

CLARA PAGET

Given her aristocratic origins, it would be more correct to refer to this woman born in London on 12th September, 1988, as Lady Clara Elizabeth Iris Paget, since she is the daughter of Charles Paget, 8th Marquess of Anglesey. But her distinguished background did not stop her working hard to realise her true ambition: acting. Thus, after a brilliant career as a model, at the start of 2011 she made her first appearance in front of the cameras in the part of Charlotte Cameron in the TV series *Midsomer Murders* (2011). Almost immediately, she made the leap to the big screen and we saw her in *One Day* (2011) and *Johnny English Reborn* (2011), in both cases making very brief appearances. Justin Lin gave her the chance to play a meatier part as Vegh in *Fast & Furious 6*. Since then, Clara has combined her fascination with the world of fashion with her career as an actress, appearing also in the feature film *Acid Girls* (2014) and the TV series *Black Sails* (2017), for which she was transformed into the fearsome pirate Anne Bonny.

Inside a tunnel, Brian accelerates and starts crashing into the Rover with Shaw's men in it from behind, to destabilise it. Nevertheless, the mercenaries' car quickly changes lane and Brian cannot avoid being hit head-on by Vegh's Flip Car, which manages to toss Brian's car up into the air and put it out of the chase. She pulls up next to the upturned vehicle, where Brian is suspended upside-down, and gives her pursuer a disdainful wink before continuing on her way.



Clara Paget brought a cold, distant personality to the part of the always dangerous Vegh.

SPECIAL MAGNETISM

Both Justin Lin and Chris Morgan, the director and screenwriter of *Fast & Furious 6*, thought it was essential to have another woman in Owen Shaw's organisation besides Letty Ortiz. And so the inclusion was considered of Vegh, professional, implacable, and extremely loyal to her leader. When it came to finding an actress who would be able to impress enough character on this part, the casting director Lucinda Syson wanted to show the director the video of a minor comedy starring Rupert Everett and Colin Firth, *St. Trinian's 2: The Legend of Fritton's Gold* (2009), so he could have a look at an English actress called Sarah Harding. Justin didn't think there was anything wrong with the suggestion, but he noticed another of the young actresses in the film, Clara Paget, whose features he found particularly magnetic.

Although Paget had relatively little experience in front of the cameras, she had a model's elegance and sophistication, something that fascinated the director, as he thought it would be a perfect counterpoint for a woman who was actually part of a group of mercenaries.

UNDER SURVEILLANCE

In *Fast & Furious 6*, Vegh is not just a driver. In the organisation, she is in charge of carrying out intelligence and surveillance operations. After the car chase out of Interpol HQ, Shaw clearly understands that agent Luke Hobbs has not recruited his usual foot soldiers. He wants to know who they are. Vegh is given the job of providing him with a complete record of each of them: Brian, Dom, Tej, Roman … In the files, the attention of Shaw's men is immediately drawn to a photograph in which Letty Ortiz appears hugging Toretto. This sets everybody's alarm bells ringing, including Vegh's.

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Despite her quick work when gathering information about her pursuers, Shaw is not satisfied with Vegh's efforts. "Names and records aren't enough," the mercenary says. "I want personal information. Get into their lives, in their minds. Find their weaknesses and we will exploit them."

DIFFERENT WORLDS

Finding herself immersed in filming *Fast & Furious 6* was a huge challenge for Clara Paget. Her past as a student of art history in Manchester or as the face of Burberry advertising campaigns was a world away from plunging into a movie with thrilling car chases. But far from being overawed, she felt really fortunate to be able to work in the company of stars like Vin Diesel and Luke Evans.

"As I see it, I've been incredibly lucky. I really feel profoundly grateful every day," the actress said later.

Clara had to adapt her refined style, based normally on vintage items and high-class basic products, to the casual look that the costume designer Sanja Milkovic Hays prepared for her. But this was nowhere near as demanding as sitting behind the wheel of the Flip Car, an amazing experience for a woman not overly familiar with action films. Of course, Clara learned to handle the ingenious vehicle created for the occasion by Dennis McCarthy, in order to film the close-ups required by the script, although the most spectacular moments of the chase were handled by stunt performer Tilly Powell.

A DANGEROUS WOMAN

Vegh doesn't just gather information about her pursuers; she has no qualms about taking part in the action. In the movie we see her traveling to the Canary Islands with Klaus to kidnap Mia Toretto and use her as a bargaining chip for the liberation of Shaw. When the leader of the organisation shows up with Riley in the Antonov in which they hope to escape, Vegh escorts Mia aboard, ready to eliminate her. However, none of them was expecting Dom, Brian and Letty to be capable of bursting into the plane with their own vehicle up the loading ramp.

In the myriad fights that break out in and around the plane, a series of simultaneous confrontations never before seen in a movie in the *Fast & Furious* franchise, Vegh tries to keep Mia Toretto in her sights. First she chases her through the plane's cargo boxes. Then, when she finds out that Brian and Mia have managed to slip away from the plane in a car, she doesn't hesitate to go after them, driving her powerful Flip Car. At this point the airbase runway becomes a racetrack. Her intention is to crash into Brian to send him flying in his car once again. Brian is however by now familiar with that strategy and he makes a clever manoeuvre that sends the Flip Car rolling over and over on the asphalt and knocks Vegh out of the fight.

Always escorted by the mighty Klaus, Vegh assumes responsibility for sensitive missions, like the kidnapping of Mia Toretto.

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DODGE VIPER 2003-2010 MODEL

The Dodge Viper, manufactured from 2003 to 2010, had numerous improvements made to it including a more powerful engine with greater cylinder capacity, but at the same time it lost something of the radical nature of the first two generations, becoming a supercar that was high performing but more usable in everyday life.

Thanks to the air-cooling louvers on either side of the bonnet, the units that were produced from 2008 are easily distinguishable, fitted with the V10 engine giving 600hp.

In 2003, the Chrysler Corporation modified the Viper, always sold in the United States under the Dodge brand, with the launch of a new generation. It was initially a convertible, and from 2005 a coupe as well. The chassis, developed from the previous one, was more rigid, made of aluminum. The V10 engine had greater cylinder capacity, 8.3 litres, which output 500hp (510hp for the coupe). Meanwhile, the bodywork was completely redesigned, with sleeker lines. The most notable change, however, was greater comfort when driving, thanks to better soundproofing, less rigid suspension and more in-car features.



The Dodge Viper offered customers the possibility of choosing between a coupe and a convertible, like the one in the picture.

Production of the car was halted for a few months in 2007 to prepare the launch of a new model in 2008. This had a remarkable number of changes, and many experts consider it to have been the fourth generation of the Dodge Viper. The big novelty was the engine. The V10 block now had 8.4 litres of cylinder capacity and gave 600hp thanks to the adoption of a variable distribution system and new electronic controls. This Dodge Viper, easily distinguishable because of its bonnet with six large louvers for air-cooling, had a completely new gearbox, a rear axle with an electronic limited-slip differential and a new exhaust system. It was sold until 2010 in the two regular types of bodywork, coupé and convertible.

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THE REAR LEFT WING

In this assembly session you will attach the fuel cap and parking light to the rear left wing of your model. You will then attach the wing to the car body.

PIECES FOR THIS STAGE

78A



AM



AP



DM

78A Rear left wing

AM Screws 2 x 4mm (x 11)*

AP Screws 1.7 x 3 x 5mm (x 3)*

DM Screws 1.7 x 4mm (x 3)*

* Some of the parts are spares.

Editor's note: The parts shown here may differ slightly from the parts supplied with this issue. This does not affect the quality or the assembly instructions in any way.

ASSEMBLY AREA

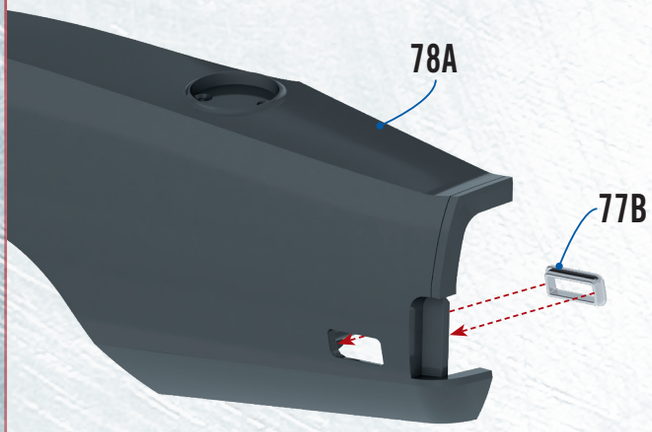


CAR BODY

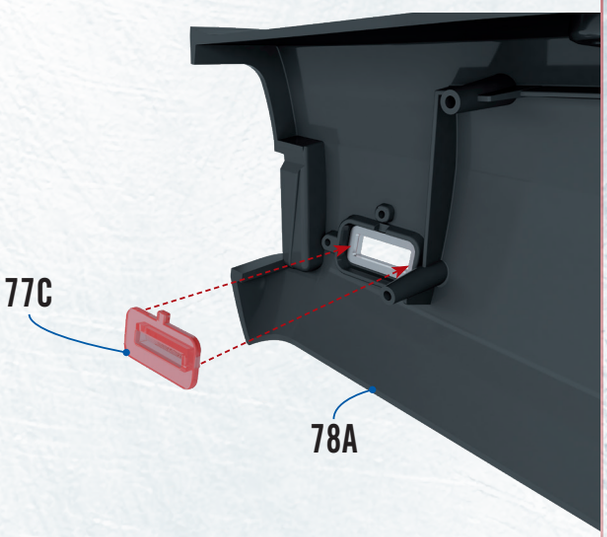
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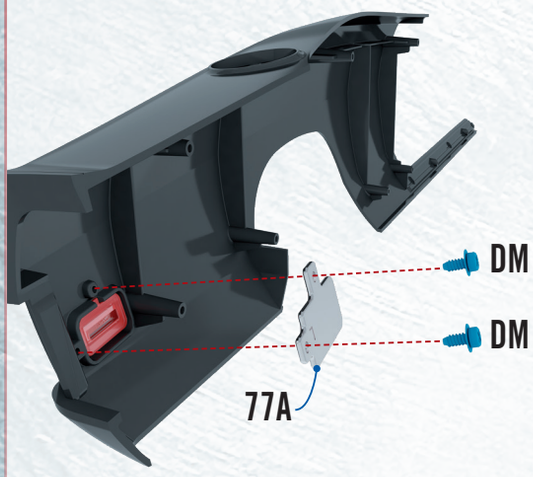
The rear left wing

78.1 **GET** the pieces from the last stage. Insert the parking light frame **77B** into the rear left wing **78A** from the inside. ▼

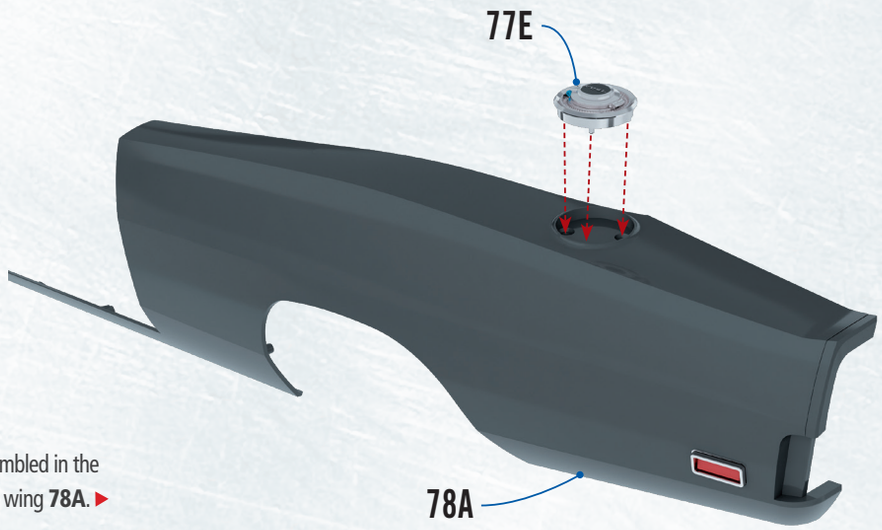


78.2 **AGAIN** from the inside, insert the lens **77C** into the frame. The interlocking elements mean that the pieces only fit together in one way. ▼





78.3 **YOU ARE NOW GOING TO** attach the parking light mount plate **77A**. Align the two holes and insert two **DM** screws to secure the plate to the wing. ◄

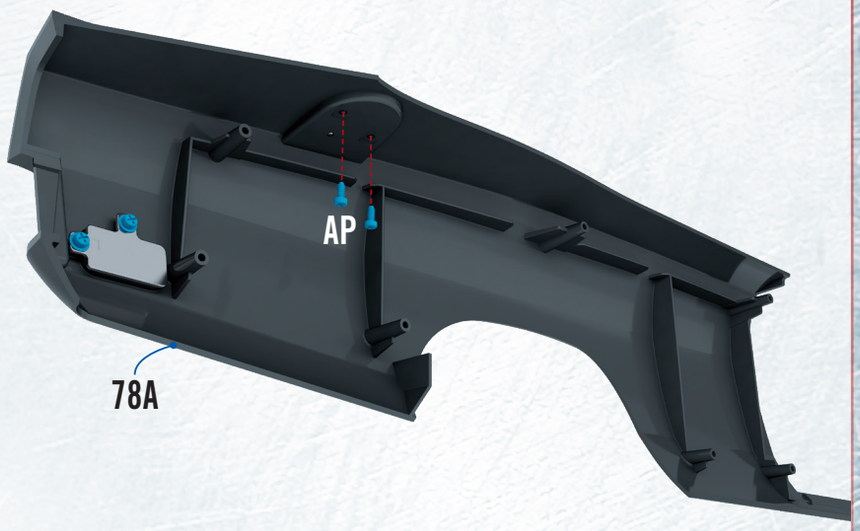


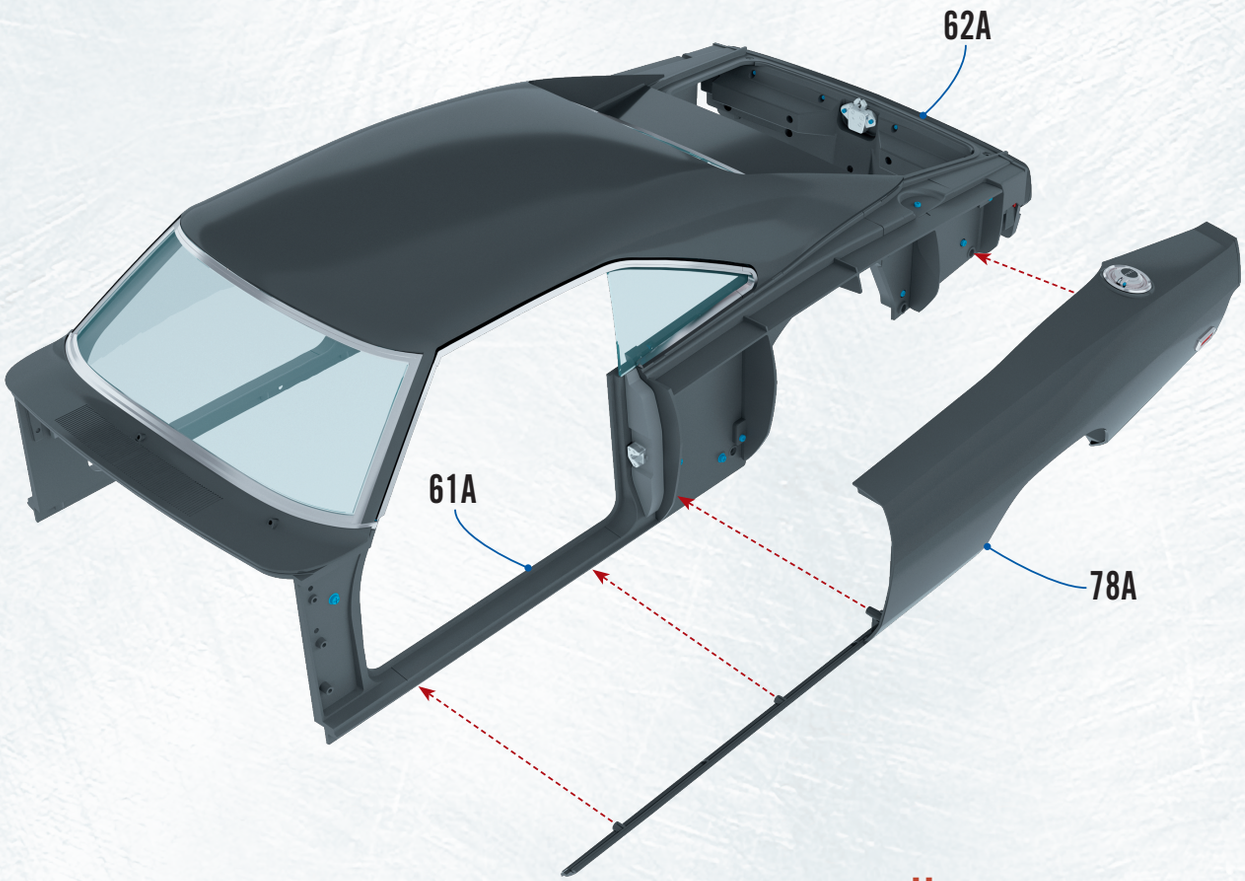
78.4 **PLACE** the fuel cap you assembled in the last stage in its housing on the wing **78A**. ►

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78.5 **To secure** the fuel tap to the wing **78A**, insert two **AP** screws from underneath. ▶

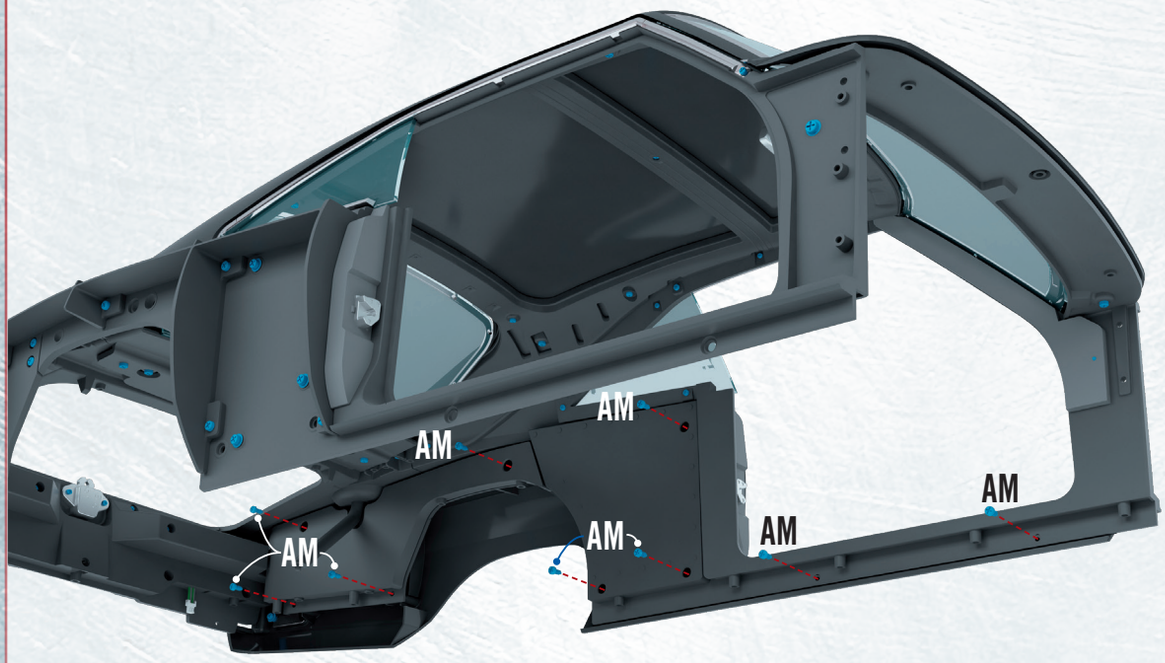




78.6 **Using** the guide pins mount the wing **78A** on the left side of the car body. ▲

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The rear left wing



78.7 **SECURE** the wing from the inside using nine **AM** screws. ▲

RESULTS OF STAGE 78



You have now attached the rear left wing with the fuel cap and parking light, to the car body.

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ULTRA-LIGHT MATERIALS

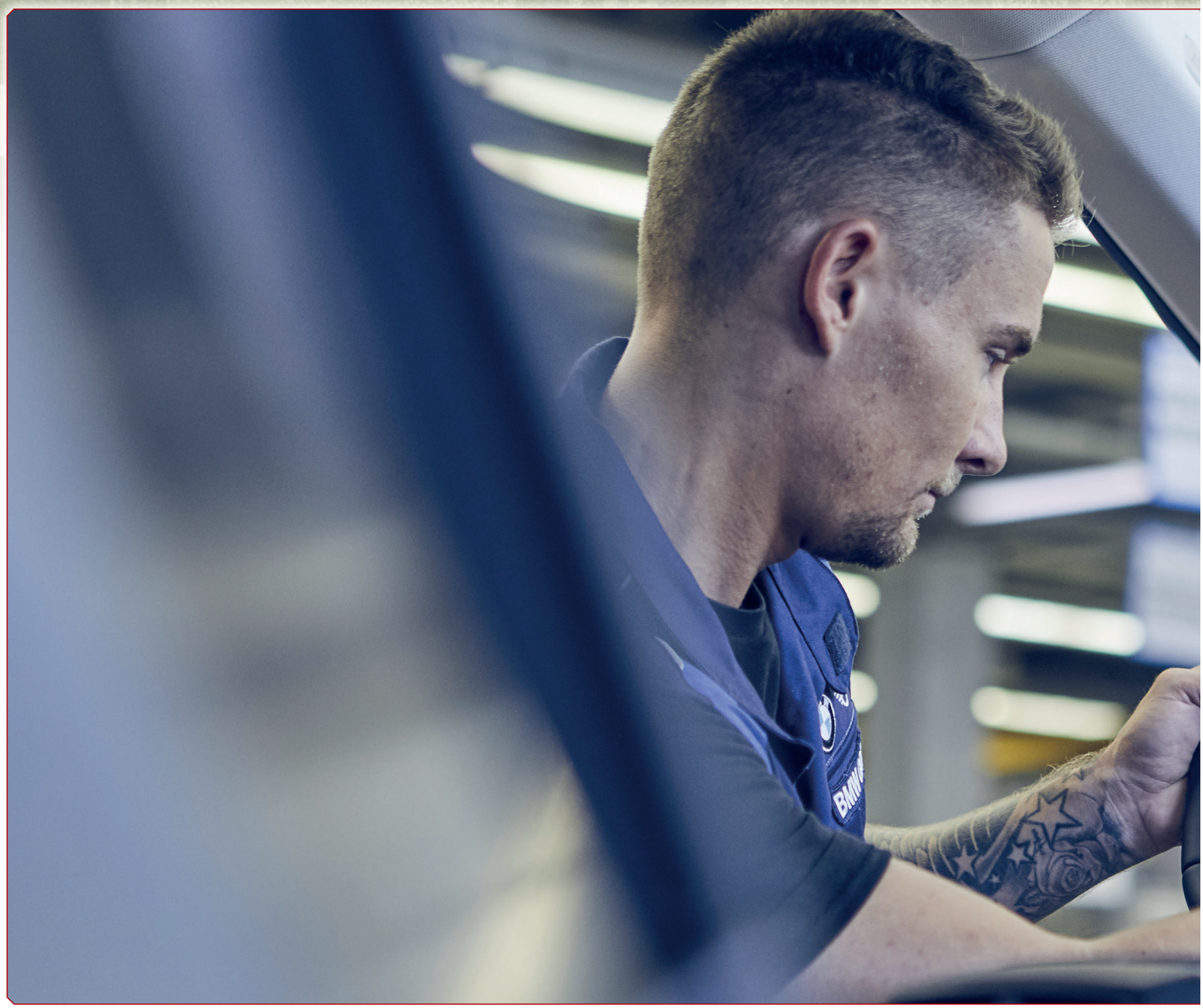


A growing need for weight reduction, and the development of new manufacturing techniques, has allowed engineers to create ever-lighter high performance components.

Let us start with a premise: when we talk about materials, rather than specify lightness we should focus our attention on "density", or "volumetric mass". On a theoretical level it is clear that if the shape and dimensions are the same (although this is not always possible, since the mechanical characteristics are different), a part made with a less dense material will always be lighter than another that is constructed with a higher density material. Take as an example titanium, a wonderful metal that is much loved by tuning enthusiasts, which allows you to make components that are considerably lighter than those made of steel. The reason is simple - its density is around 42% less than steel, and its tensile strength is practically identical. However, it suffers from lower rigidity, and therefore slightly larger sections are required. Nevertheless, mechanical parts such as connecting rods can still be made that weigh 36-38% less than steel ones. There are also other materials that have a much lower density than steel, although their mechanical advantages are often relatively modest. However, if considered in relation to their density, they become decidedly interesting. In addition, of course we must mention aluminium and magnesium, which have an even lower density and are the basis for most ultra-

The wheels of a Formula 1 single-seater are made of magnesium alloy, a lightweight material that weighs 25% less than the steel.

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light alloys. Then there are other metals, such as beryllium and lithium, with which very interesting and unusual alloys are made. We also have non-metallic materials, like glass fibres, carbon and aramid fibres, and composites; these are widely used in aeronautics and Formula 1 single-seater racing cars.

NOT JUST FOR WHEELS

Magnesium is a very common metal in nature, and it is a constituent of common and abundant minerals. Like practically all metals, it is rarely used in its pure state in the mechanical field, but rather as a component of an alloy with metals like aluminium, zinc, manganese, silicon, copper, rare earths and zirconium. Its main advantage is its extremely low density, at only 1.74kg/dm^3. This value is approximately 55% lower than that of aluminium and more than four times lower than that of steel. Magnesium has a melting temperature very close to that of aluminium, at about 650°C. Thanks also to its great castability and machinability, it is well suited to making components created with various types of casting technologies, although its mechanical characteristics are not quite as good. The tensile strength of magnesium alloys is relatively modest and the rigidity is 35% lower than that of aluminium, which is already quite low. Other disadvantages are the prob-

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lematic resistance to corrosion and the high coefficient of thermal expansion. For a long time the most famous magnesium alloys were known as Elektron. They contained three to ten percent aluminium and up to three percent zinc. More recently, a much more rigorous alloy classification system was adopted and alloys were designated by special abbreviations. Magnesium alloys have always attracted the attention of engineers, however, even today they have not managed to become widely used in the automotive sector. In the past, they have been used to make bases and gearboxes, but currently they are used primarily to produce parts for the automotive field, such as steering wheels and seat frames for production cars, as well as for some small crankcase and cylinder head covers. On racing cars, they are used to make wheels, with a weight saving of the order of 25% compared to aluminium, as well as a few other small parts. Recently, thanks to some extremely sophisticated manufacturing technology, a well-known German carmaker has started to produce a magnesium alloy crankcase for its six-cylinder engines, as well as some structural parts of the engine.

Magnesium is also used to make the internal metal structures of steering wheels and the seat frames of many production cars.

LIGHTER THAN WATER

The metal with the lowest density is lithium, at only 0.54kg/dm^3. It is used to make rechargeable batteries



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and to produce soaps used as thickeners in many lubricating greases. However, many engineers have been focusing for a few years on another use. Relatively low percentages of this element make it possible to obtain aluminium alloys with exceptional characteristics. Some are known as Lital, a trade name, while for others special acronyms are used. In particular, as the lithium content increases, so does the tensile strength. Even more significantly, the rigidity increases and the density decreases. In alloys that are currently used, the lithium content does not exceed 4% because above this level, the alloy becomes too fragile and the cost increases considerably. Furthermore, lithium is toxic, a factor that should not be underestimated.

PROHIBITED BY LAW

Unfortunately, some of the most interesting metals in the field of mechanics that are applied to high-performance road vehicles are harmful. Consequently, their use has been abolished or severely restricted. This is the case with beryllium, a truly formidable metal. It has exceptional rigidity, higher than that of steel, and a density 40% lower than that of aluminium (1.85kg/dm^3 versus 2.7kg/dm^3). It is also remarkable that its specific heat (its maximum heat capacity) is twice that of aluminium and four times that of steel. Its weak points are its very high toxicity, its very high cost, and its considerable fragility. In the aerospace field, it is used to make bolts and supports, while in the automotive sector it has found important uses in the Formula 1 sector. Of particular note were the aluminium-beryllium alloys with which pistons and brake calipers were made before the FIA banned this material.

INNOVATIVE SOLUTIONS

In addition to ultra-light materials, there are technological solutions that push the limits of rapid prototyping by exploiting methods that allow engineers to create components with a "porous" or hollow internal structure, with all the advantages of weight reduction. Examples of this are the titanium alloy connecting rods that have a porous internal structure, made by a German company. They also make valves based on an aluminium-titanium intermetallic compound with the addition of niobium and chromium. This material has a density of 3.9kg/dm^3 and a tensile strength of 800N/mm^2. Moreover, it is characterised by its excellent rigidity (very close to that of steel), although its weak point is its modest ductility. Engineers are working on improving it to make it more usable. Its main advantage is that the production process requires neither tools nor moulds and production times are very short.

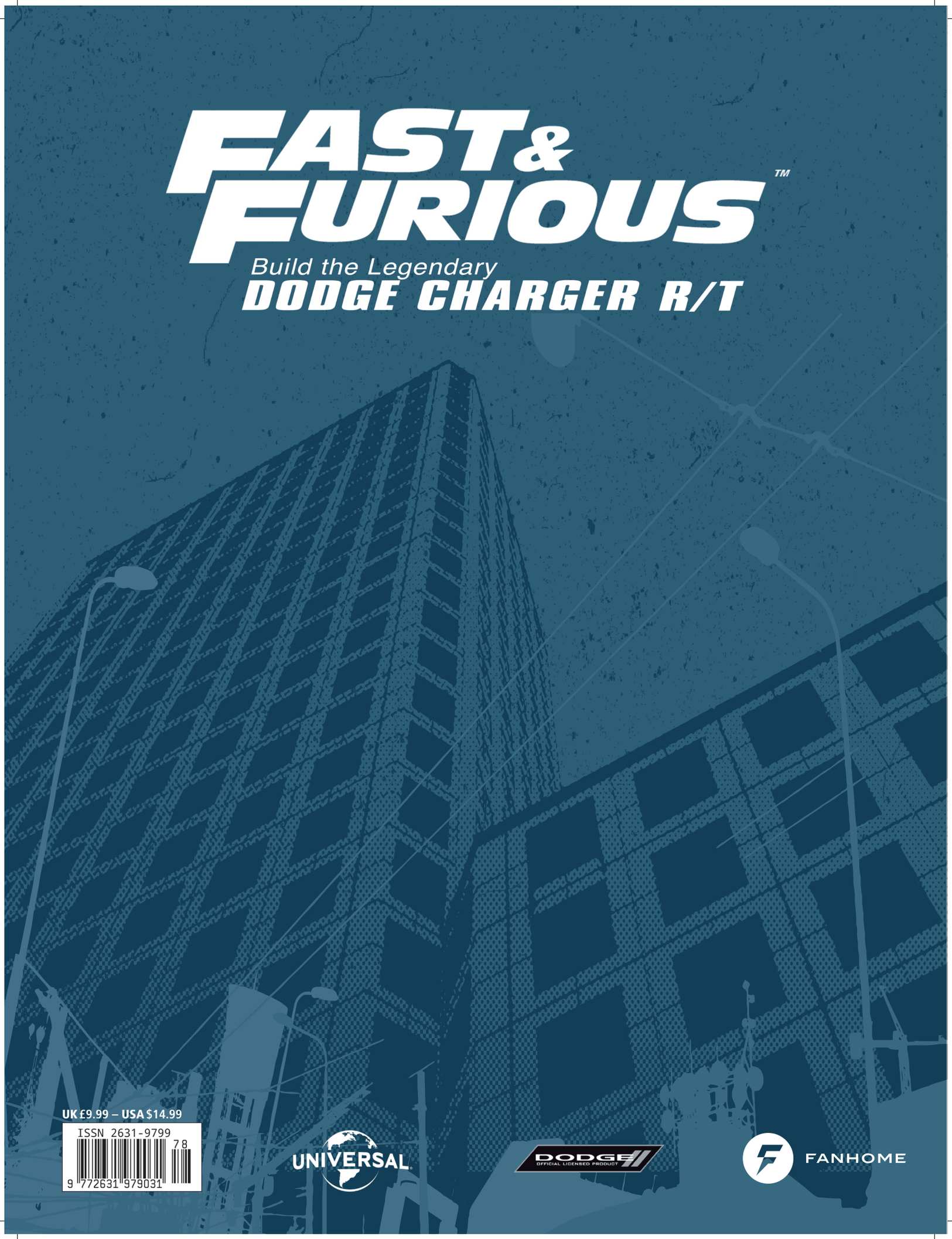
Lithium is well known for its use in common rechargeable batteries, but in reality, thanks to its very low density (only 0.54kg/dm^3), it is a phenomenal material for creating aluminium alloys with exceptional characteristics. It is a pity that they are so expensive!

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