FAST & FURIOUS™

85

Build the Legendary DODGE CHARGER R/T



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FAST & FURIOUS

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FAST AND FURIOUS SOUNDTRACKS

As well as the roar of the engines, the sound of the wheels skidding on the asphalt and the catchiest songs, the *Fast & Furious* franchise would not be the same without its impeccable soundtracks, composed to immerse us in a world of limitless action.

Initially, you might think that the soundtracks of the *Fast & Furious* movies are made up only of hit songs. It's true that the movies are full of extraordinary numbers that make you want to dance, and *Furious 7* is no exception. Whiz Khalifa, who got together with 2 Chainz to create that fantastic anthem in the previous movie entitled *We Own It*, does it again, now with Charlie Puth, on the memorable *See You Again*, a brilliant number, along with others like *My Angel*, by Prince Royce, or *Off-Set*, by T.I. and Young Thug. But, as with all the other films in the series, apart from the songs there is a powerful score to accompany the heroes on their adventures and which helps to lift the audience to extreme heights of emotion.

THE FIRST BRIAN

When Rob Cohen made *The Fast and the Furious* he entrusted Brian Transeau with the film's soundtrack, an enormously restless musician and composer, better known by his artistic name BT. A DJ in the 1990s known for working with innovative musical styles like breakbeat, trance and progressive house, Brian was given a magnificent

To complete the sound tracks of the saga, the greatest composers of the *Fast & Furious* universe had the opportunity to collaborate with popular artists of the modern music scene like Ludacris, seen above, who plays the part of Tej Parker.

Fast and Furious soundtracks

opportunity to express his musical experiences in an absolutely ground-breaking action movie.

"I wanted to create something special," the musician explained. "I wrote melodic numbers, obviously you have to do that for a movie like *The Fast and the Furious*, but I also wanted to create something subliminal that would make the audience feel they were inside the action, moving, flowing with it. I thought it would be great to use sound derived from the cars percussively. We used the chassis of two cars and a whole load of spare parts, and I included them in the score as if they were traditional percussion parts."

BT's captivating music contributed to the huge success of the first movie in the franchise. Nevertheless, for the sequel, *2 Fast 2 Furious*, everything swung back toward something more conventional. The director of this movie, John Singleton, had his own trusted composer. This was how the British musician David Arnold joined the *Fast & Furious* family. He not only had two smash hits to his name, *Independence Day* (1996) and *Godzilla* (1998), but he had become one of the main composers on the James Bond movies, writing for the soundtracks of *Tomorrow Never Dies* (1997), *The World Is Never Enough* (1999) and *Die Another Day* (2002), among others.

"John Singleton was protective of his cast and crew; he was protective of his ideas; and he was doubly protective of the music," says Arnold. "He understood music and musicians, and he knew what worked. He trusted his team's work implicitly and that generated a very special working atmosphere."



THE SECOND BRIAN

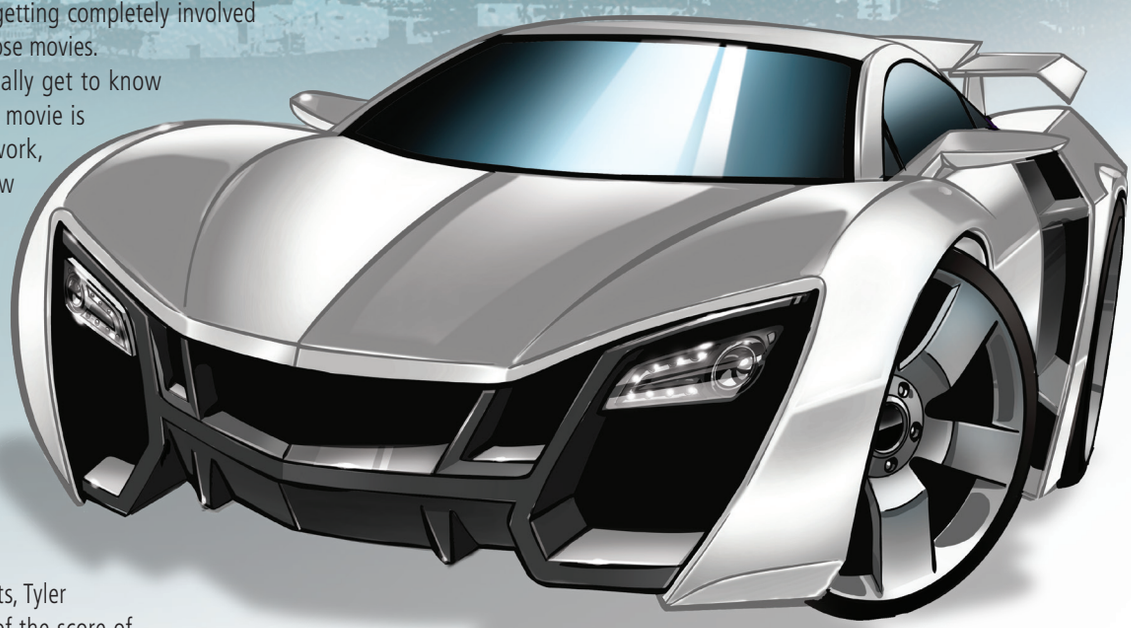
In *The Fast and the Furious: Tokyo Drift*, a young musician called Brian Tyler joined the team, destined to become an absolutely important composer for the franchise. As in the two previous films, the third one in the franchise had a lot of songs. The musical score for orchestra barely stretched to 45 minutes. Nevertheless, the director Justin Lin really liked Tyler's work and wanted to have him for the next movies in the series.

"That allowed me to enjoy the evolution of the *Fast & Furious* franchise," the composer says. "My work increased in each movie until I was writing 110-minute scores. The plots were getting more and more dramatic and interwoven, something that virtually demanded finding a leitmotif for each character. I don't think any other movie franchise has ever evolved from its origins the way *Fast & Furious* has."

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Brian Tyler was responsible for the soundtracks of *Fast and Furious* and *Fast Five*, getting completely involved in the process of creating those movies.

"It's very important to really get to know the cinema: to know how a movie is edited, how the cameras work, how the lighting is done, how to write a script, and to obtain as much information as you can about that world," the musician adds. "It is very useful to know how everything works from a different perspective when you are composing."



LIGHT AND SHADE

Due to previous engagements, Tyler was unable to take charge of the score of *Fast & Furious 6*, which was entrusted to the young composer from Madrid, Lucas Vidal. Nonetheless, Brian was back to compose the music for the seventh and eighth movies. He thought it a huge challenge to see how the plots and subplots were gradually getting more and more intricate.

"It was a real challenge for me because it was necessary to describe darker and darker moments without losing sight of the fact that they are still very enjoyable films, with characters like Tej and Roman doing their thing," says Tyler. "Writing that music and being able to weave together a soundscape in which everything fits was one of the great challenges of my career. I discovered that it needed some numbers that might be a little more positive and others that were darker. And it's always difficult to get a balance between both."

For this musician, the characters in *Fast & Furious* really are like members of his family. He understands perfectly the musical elements needed for a couple like Dom and Letty, although he admits that his way of composing has also been evolving along with the fictional heroes.

"The world of music evolves over the years because programming, synthesizers and all those things change with the passage of time. There can be no doubt that the new directions in contemporary music exert an influence, and that will always be reflected in the world of *Fast & Furious*."

BRIAN TYLER

The grandson of the famous art director Walter H. Tyler, winner of an Oscar for his work on the Cecil B. DeMille classic *Samson and Delilah* (1949), Brian Tyler grew up with a special fascination for film music. This encouraged him to learn to play instruments – he can play 40 different ones – and to write his first compositions. Every time he finished a science fiction novel that he liked, he would create a short soundtrack for it. After graduating from Harvard University, he began his professional career for television and the cinema. At first his work did not attract too much attention, until he was given the job of composing the soundtrack for *The Fast and the Furious: Tokyo Drift*, and from there he went on to become the leading composer of Universal Studios' biggest box-office hit franchise. Aside from the world of fast cars, Brian began to make a name for himself as a composer of box-office smashes when he worked on films as famous as *The Expendables* (2010), *Thor: The Dark World* (2013), *Avengers: Age of Ultron* (2015), *The Mummy* (2017) and *Charlie's Angels* (2019).

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2003 DODGE AVENGER CONCEPT

Of the two cars named the Dodge Avenger Concept, the second one, presented in 2006, cannot be considered as such because it was the pre-production version of the European model. On the other hand, the 2003 vehicle, which fused a look inspired by rally cars, with the functionality of an SUV, was a true concept car.

Very straight lines, sloping roofline, very pronounced wheel arches, and five-door bodywork. Many of the ingredients of this concept car, which the Dodge Caliber would inherit, were the inspiration for the now popular SUV coupe market segment.

The 2003 Dodge Avenger concept car first appeared at that year's Detroit Auto Show and caused a surprise due to its forceful shape. According to the brand, it was inspired by European rally cars, but with the functions of an SUV, the type of vehicle that was then becoming fashionable on the American market. With huge wheels, generous ground clearance, and sharply sloping five-door bodywork, the Dodge Avenger Concept was, to some extent, the predecessor of the SUV coupe, so popular in recent years.



The design of the Dodge Avenger interior could have been mass-produced without too many changes.

The interior of this concept car had four single seats, to which access was gained through wide-opening doors. The dashboard design was simple but maximised, with many round and curved features, in contrast to the sculpted bodywork, with its very straight lines. For propulsion, the manufacturer chose a front-mounted 3.5-litre V6 engine connected to an automatic gearbox worked by paddle shifters behind the steering wheel, in the style of the rally cars of the period. The Dodge Avenger had four-wheel drive and was the inspiration for the design of later models like the Dodge Caliber, the brand's first European model.

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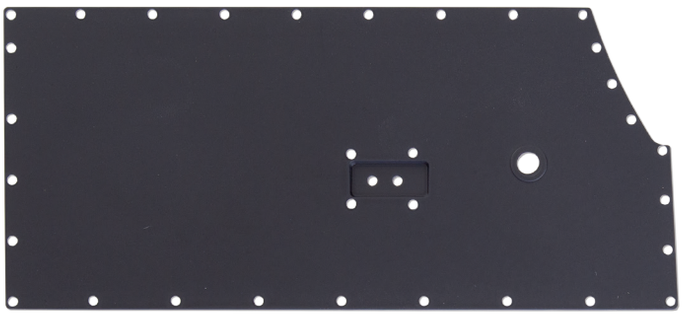


THE INNER PANEL OF THE LEFT DOOR

In this assembly session you will attach some more components to the left door. Follow our assembly instructions and the accompanying illustrations carefully.

PIECES FOR THIS STAGE

85A



85B



85C



85D



85E



85F



AP



OP



85A Inner panel left door
85B Handle base
85C Handle
85D Lower window frame trim
85E Frame trim mount bracket 1
85F Frame trim mount bracket 2
AP Screws 1.7 × 4mm (× 8)*
OP Screws 1.5 × 3mm (× 4)*

* 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

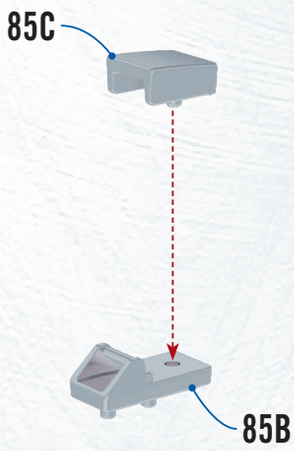


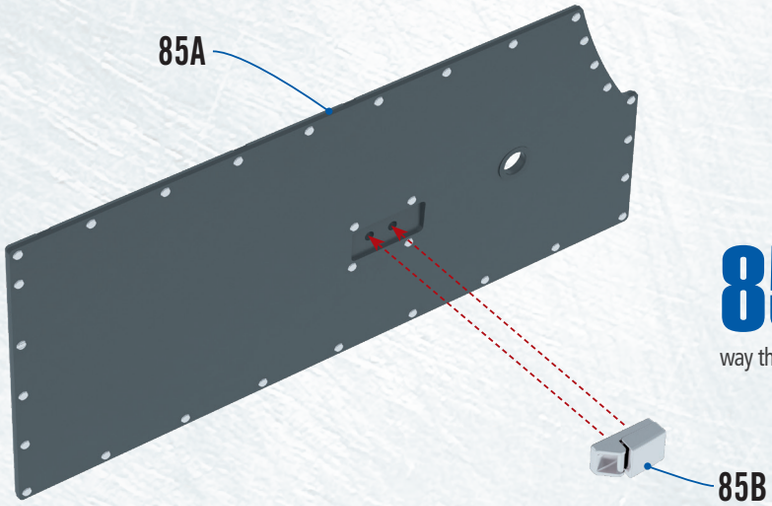
LEFT DOOR

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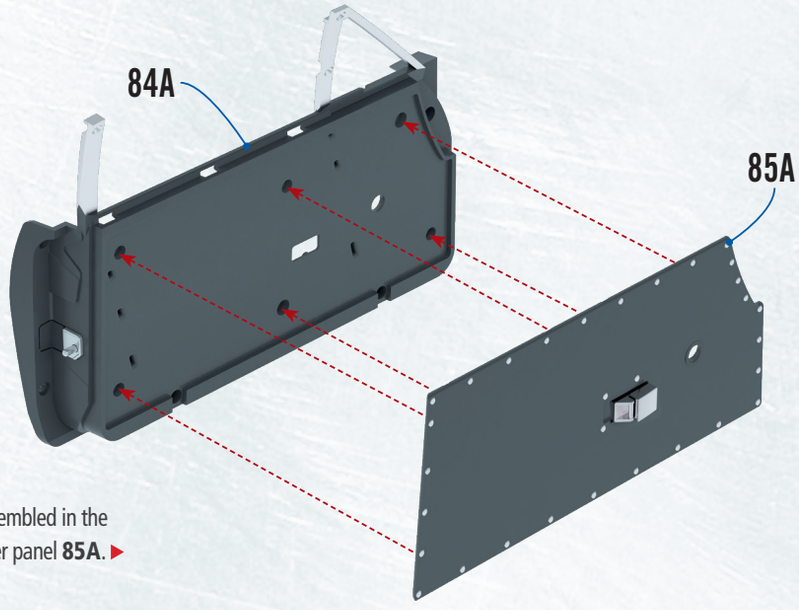
The inner panel of the left door

85.1 **POSITION THE HANDLE** of the left door **85C** on the flat side of the corresponding base **85B**. ▶





85.2 **NOW PUT THE ASSEMBLED** piece into the cavity with two holes in the inner panel **85A**. The illustration shows which way the pieces should face. ◀



85.3 **GET THE LEFT DOOR** you assembled in the previous stage and position the inner panel **85A**. ▶

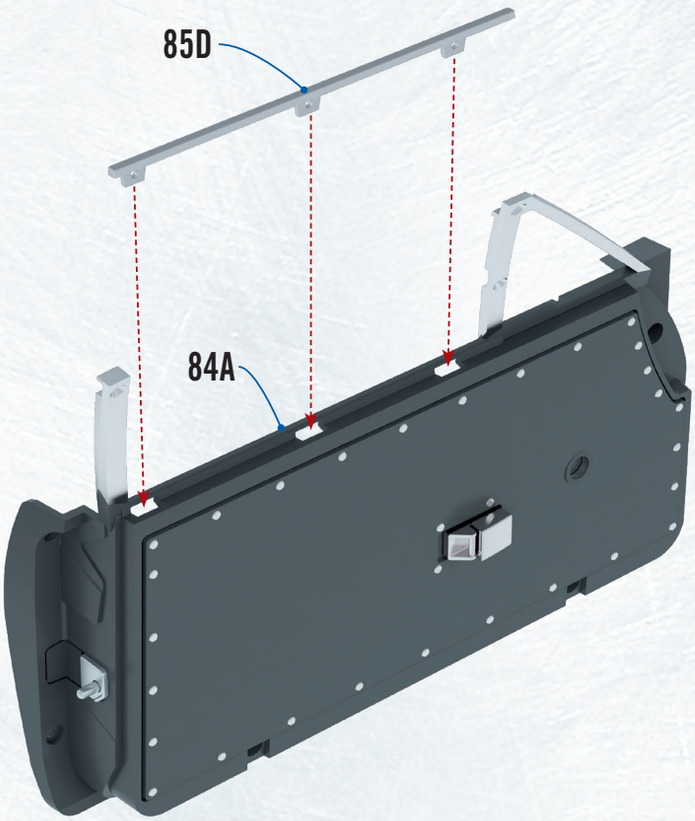
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85.4 **SECURE THE INNER PANEL 85A** with six **AP** screws. ◄

85.5 **INSERT THE THREE TABS** on the lower window frame trim **85D** into the corresponding slots in the inner section of the door **84A**. ►

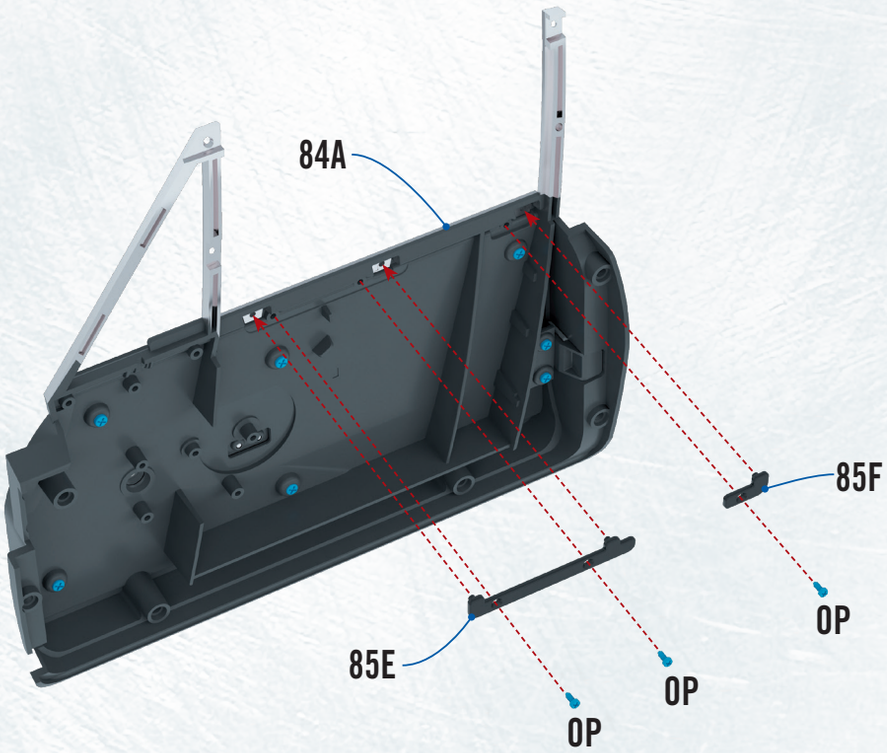


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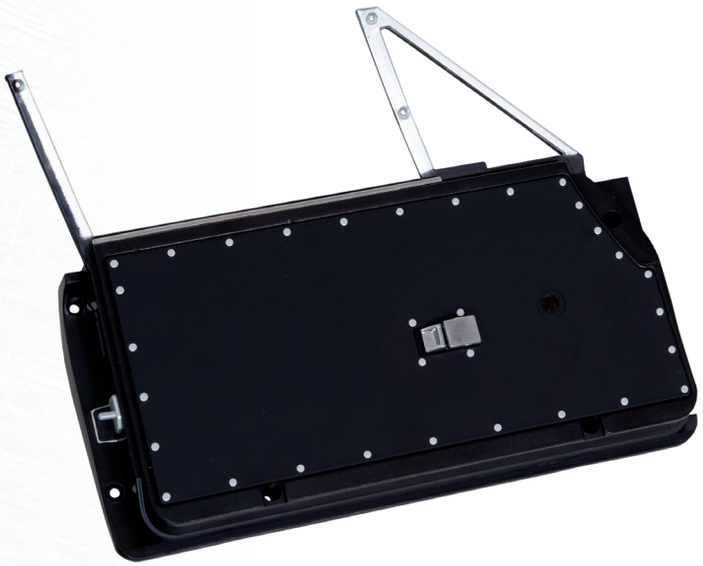
The inner panel of the left door

85.6

ATTACH THE CORRESPONDING FRAME TRIM MOUNT BRACKETS 1 **85E** and 2 **85F.** Secure mount bracket 1 **85E** with two **OP** screws and mount bracket 2 **85F** with one **OP** screw. ▼



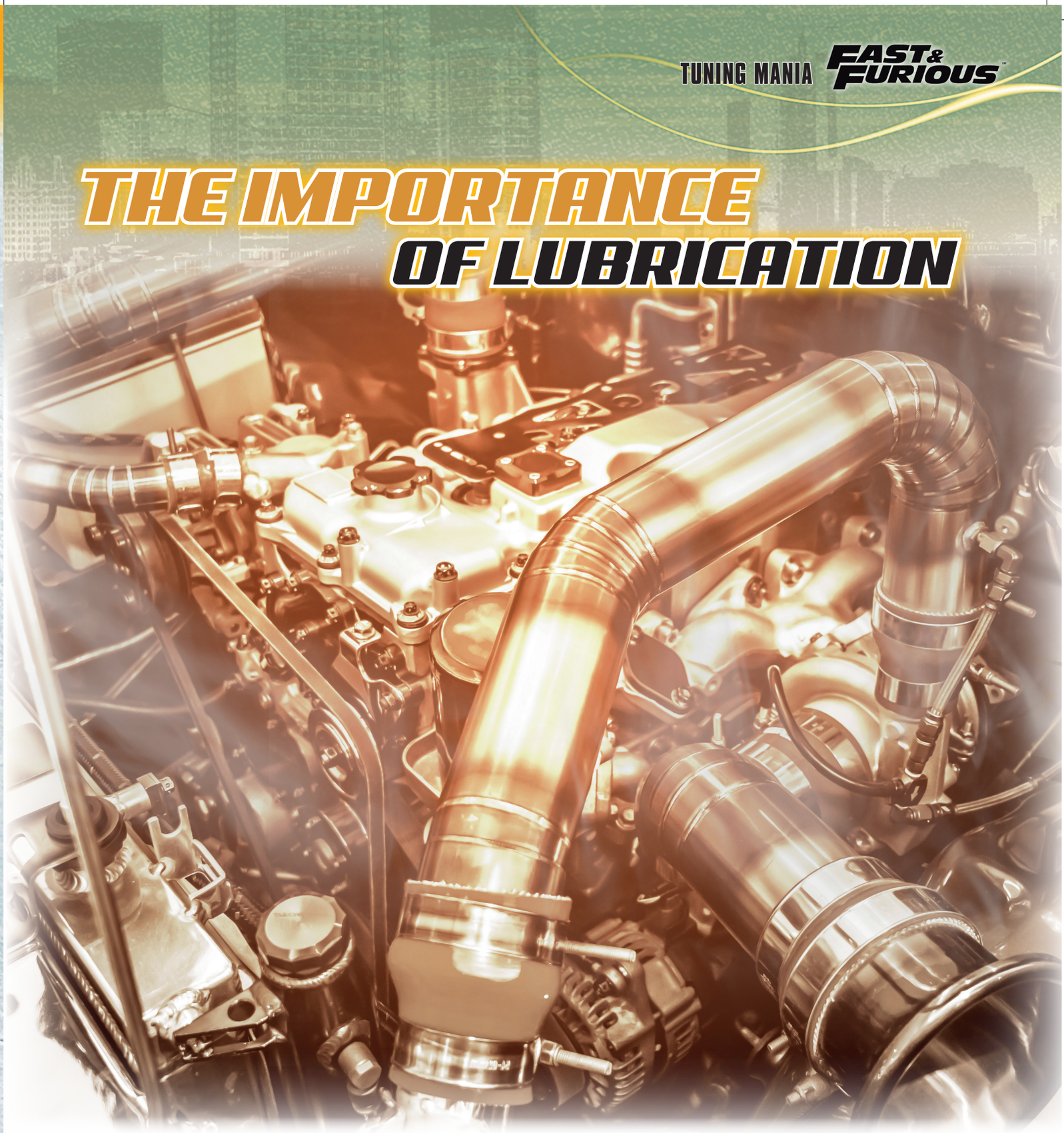
RESULTS OF STAGE 85



You have now attached the inner panel, handle and lower window frame trim to the left door.

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THE IMPORTANCE OF LUBRICATION

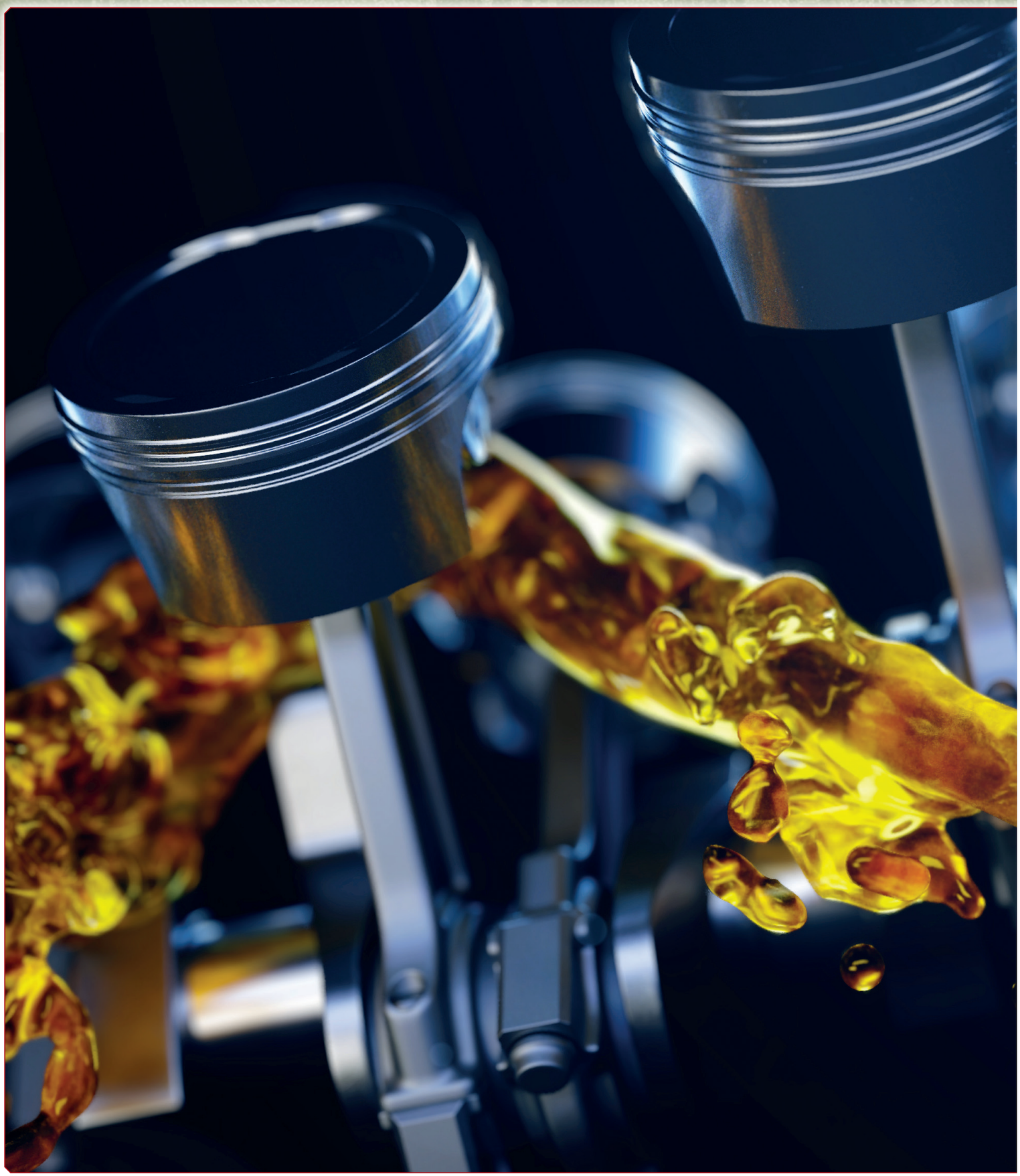


The purpose of lubrication is to prevent friction between surfaces in contact with each other in order to reduce wear and prevent seizing. If you have substantially upgraded your car engine, you will probably have to think about an upgrade of the lubrication system too. We shall look at why it could prove to be of vital importance.

We start with a series of theoretical notions. In the automotive engine sector, lubricants are normally fluids with very precise properties. In practice, they are mainly oils, and they have two characteristics that matter most: viscosity and greasiness. They need to have the ability to tolerate loads and resist pressure without escaping from the working area, and to cling to the lubricated surfaces while maintaining an

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The importance of lubrication



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In modern engines, piston cooling is entrusted to the oil. To illustrate its fundamental role, the temperature of the pistons increases by about 30°C if the rotation speed increases by 1000 revolutions per minute and by about 10°C if the average effective pressure increases by one bar.

optimum level of "slipperiness". Their job is therefore to avoid "dry" friction, characterised by direct unlubricated contact between two metal surfaces by interposing a thin layer of a fluid substance between the two parts.

THE PARAMETERS AT PLAY

Essentially, there are three factors on which lubrication conditions depend: the speed of movement, the viscosity of the oil, and the applied load. Everything would be simpler if these parameters remained constant, but in practice, they never do! Imagine, for example, the movement of a piston inside a cylinder. The pressure with which it slides against the cylinder wall changes continuously due to the inclination of the connecting rod, the variation in the forces of inertia, and the pressure of the gases. Then there is the speed of piston travel that changes continuously while it goes between zero in the dead-centre spots and up to 25metres/second as it travels up and down inside the cylinder. If we take a connecting rod bearing as an example, we can see that the load changes continuously in intensity, direction and speed, even if the engine rotation remains constant.

What about viscosity? The capacity of a lubricant to withstand a load varies according to its temperature, and the oil in an engine gets very hot! As a result, there are three lubrication regimes: hydrodynamic with complete separation of the micro-abrasions of the surfaces; mixed, with scattered contacts and a reduced layer of lubricant; and limited, with greater contact and a very thin film of lubrication.

LUBRICATION FOR A TUNED ENGINE

If we increase the performance of an engine, we also subject the lubrication system to much greater stresses than the original engine. The loads involved increase: both the inertial load if the rotation speed is increased, plus the gas pressure load if the engine aspiration has been improved or if it has been switched to supercharging.

On the one hand, therefore, the loads that the oil film must bear increase, and on the other, the thermal stresses increase. The amount of heat to be disposed of per unit of time increases, and since a good part of it must be removed from the oil, it is clear that the lubricant is subjected to high stresses. As an example, the temperature of the pistons increases by about 30°C if the rotation speed increases by 1000 revolutions per minute and by about 10°C if the average effective pressure increases by one bar. In modern high-performance engines, piston cooling is largely entrusted to the lubricating oil.

That is not all it does, because the heat generated inside the bearing shells also increases due to the greater friction resulting from the increase in the speed of rotation. It is therefore evident at this point that if the engine performance has been substantially enhanced, we need to intervene in order to adapt the lubrication system. This is also essential to prevent the oil from reaching excessively high temperatures that can have harmful consequences for the safety of the engine itself. Of course, the oil pump must also be in perfect condition.

WHAT TO DO

First, it is recommended that a temperature and an oil pressure gauge be installed if they are not already present. That way, you can monitor the lubrication of the engine at all times.

Then, if the temperature is too high, you can install an oil cooler or replace the original heat exchanger with a more efficient one. By monitoring the pressure as well, you can intervene if necessary with a relief valve. However, bear in mind that under normal mechanical conditions, the engine should never reach abnormal values. Lowering the oil temperature increases the pressure since once it is at a steady state, the viscosity of the oil is higher. Consider, too, that the pressure in the circuit is determined not only by the viscosity of the fluid, but also by the flow rate of the pump and by the resistance that the liquid encounters along its path. For this reason, it is important to avoid modifying calibrated holes, nozzles or other orifices.

HEAT EXCHANGERS AND RADIATORS

Heat exchangers provide excellent thermal control of the engine. In some cases, it is possible to fit a heat exchanger from a more powerful version of the same engine, but generally, after upgrading an engine, it is advisable to fit a radiator of an appropriate size for the requirements, assuming there is adequate space available.

In upgraded engines, the lubricant tends to reach higher temperatures than those for which the standard engine was designed. This is why an oil cooler and/or a larger water/oil heat exchanger should be fitted.

If the car already has an oil cooler as standard, but the temperature is too high, it is worth replacing it with another that is capable of dissipating a greater amount of heat per unit of time.

It is important to pay attention to the temperature gauge and to be aware that the oil temperature should never exceed 135-140°C in the sump. At the same time, it must not be too low because, in this case, the friction losses tend to be high. What is more, the oil will not be able to get rid of contaminants, such as water or petrol that has escaped past the piston rings. It is better never to go below about 110°C during heavy use.

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Solid lubricants: Grease

In many cases, the lubricant is not a fluid but a grease. This alternative is widely used for steering joints, suspension joints, bearings, and so on. Grease consists of oil dispersed in a thickener, plus a small amount of additives. The result is a semi-solid lubricant with a creamy consistency. The oil can be mineral or synthetic, while the thickener is usually made from a metallic soap. These soaps include lithium, aluminium, clay, polyurea, sodium and calcium. Compared to oil, grease has a very important characteristic - it does not drain away. Indeed, if it is of a type suitable for that specific use, it can remain in place for a very long time. It can also be sealed inside some components to ensure a long life. However, it is not suitable for working at very high speeds because it does not circulate and therefore cannot remove heat by increasing energy absorption.

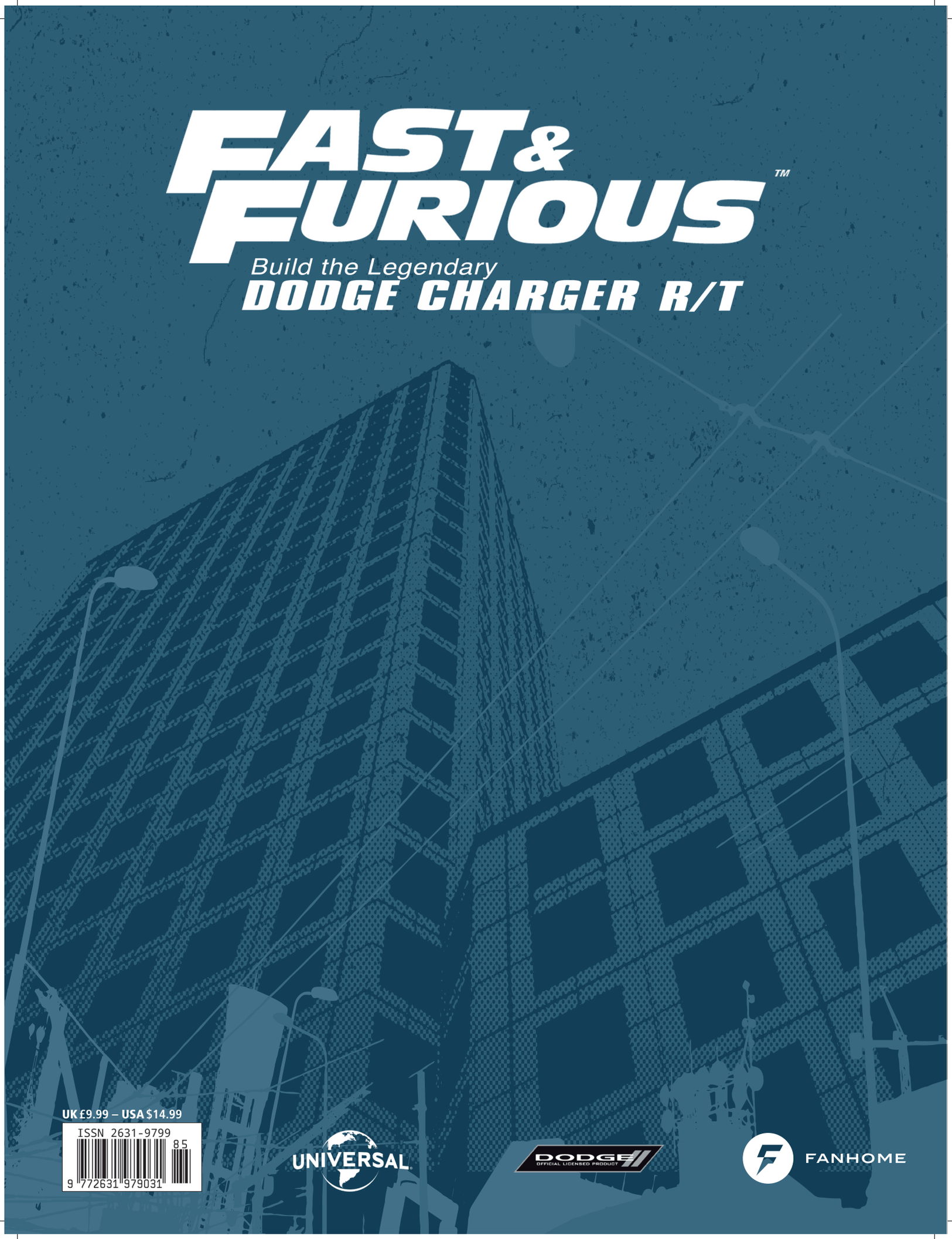


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