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MONICA FUENTES: FLIRTING WITH DANGER

The new female lead of the second movie in the franchise evidently intends to follow in the footsteps of her predecessors. She looks determined, tough, and, above all else, brave. Her name is Monica Fuentes, a law enforcement agent who is constantly flirting with danger.

One of the most obvious new things about *2 Fast 2 Furious* was a new female lead, Monica Fuentes, an intrepid undercover agent played by the popular actress Eva Mendes.

"Monica Fuentes is an undercover agent who finds herself in a complicated situation," says Mendes. "She has to make a decision. On one hand, she risks her job if she makes the wrong decision; on the other, however, she endangers her life if she makes the right one. It's a very important moral dilemma. I think this makes the character fascinating."

UNDER SUSPICION

Agent Fuentes works in the Customs Service, which, along with the FBI, is on the trail of a powerful Argentine businessman established in Miami, Carter Verone, who they suspect is involved in drug trafficking and money laundering activities. To reveal Verone's shady business, Fuentes managed to win his trust and join his organisation to help him with logistical matters. But after a year living in Carter Verone's house the investigation has ground to a halt, and agent Bilkins of the FBI has even begun to suspect that she might have gone over to the other side.

Actress Eva Mendes brings to life the role of undercover agent Monica Fuentes, the main female protagonist in the second edition of the *Fast & Furious* saga.

EVA MENDES

The daughter of Cuban parents, Eva de la Caridad Méndez was born in Miami in 1974, and she was brought up by her mother in the city of Los Angeles. After appearing in several music videos and working as a model, she began her career as an actress in the late 1990s playing minor parts. Her appearance in *Training Day* (2001), alongside Denzil Washington, and especially her role as Monica Fuentes in *2 Fast 2 Furious*, made her one of the most promising Latino actresses in Hollywood. Besides appearing as one of the faces of the Revlon cosmetics advertising campaign, Eva starred in many hit movies, like *Hitch* (2005), *Ghost Rider* (2007), *The Women* (2008), *Last Night* (2010) and *Lost River* (2014). As well as her career as an actress, she has worked as a singer and she was the creative director of the CIRCA Beauty makeup brand. In 2011 she reappeared as Monica Fuentes in a surprising cameo appearance in *Fast Five*.

Brian O'Conner, also established in Miami after handing in his badge over the events in *The Fast and the Furious*, finds himself forced to take part in the investigation together with an old childhood friend of his, Roman Pearce. Both of them will join Verone's organisation as his new drivers and will liaise with Monica Fuentes. The situation, delicate enough as it is given the risks they are taking and the possibility of their true identities being discovered, is complicated right from the start by the immediate attraction that Brian and Monica feel for one another.



A STAR IN THE POLICE

Before starting filming, Eva Mendes spoke to the director of the movie, John Singleton. He assured her that the relationship between Monica and Brian would not relegate her character to simply being the male lead's love interest. "I wanted my role to be that of a strong independent woman," says the actress. "I want to play determined women, who have their own way of thinking. Especially in a film like *2 Fast 2 Furious* that will be seen by a very young audience. I don't want to be the female victim who is rescued by the strong masculine hero. A woman can save herself and her lover at the same time."

With the aim of preparing her character as fully as possible, Eva Mendes got in touch with the Miami Police Department. There she realised that the policewomen were very feminine, even though they carried a gun. "They don't need to play tough, because they are. Thanks to my conversations with them, I was able to gradually mould the character of Monica Fuentes. I had the chance to talk to some people about dangerous situations in which several undercover agents from the department were involved. It was frightening."

NOT DRIVING

After a few weeks of intense preparation, the actress felt totally ready to act as an undercover agent who risks her life with each decision and movement she makes. In fact, the danger of being discovered at any moment helped to make the movie much more exciting. In spite of that, Eva Mendes wished she could have added one more risk to her role: driving a fast car.

Although the popular film star admits that she had to retake her driving test several times until she got her licence, when she was just 18 she got her first car: a powerful 1966 Ford Mustang. She liked speed and tried to emulate the young guys who were taking part in races and doing dangerous stunts with their cars. Then one night she nearly had a serious accident when driving in the hills around Malibu. The incident made her realise the danger, but not enough to dampen her passion for cars.

"In the first draft of the script for *2 Fast 2 Furious*, my character had a scene in which she was driving a car, but in the final version it had completely disappeared. I got a bit mad about that," she admits with a smile, "because when I realised that I was going to be in the franchise I always hoped I would be able to film a scene driving a fast car."

MAKING AN IMPACT

Despite not being able to take part in any of the races in the movie, Eva Mendes' character, an undercover agent, certainly made a huge impact on the fans of the franchise. So much so, that although everything seemed to indicate that the adventures of Monica Fuentes ended with the action in *2 Fast 2 Furious*, the people behind the franchise had an incredible surprise in store for fans when she made a surprising reappearance in a post-credits scene in *Fast Five*. Set in the offices of the Diplomatic Security Service in Washington, Monica goes over to agent Hobbs's desk with a dossier about an unusual robbery in Berlin. Inside, there is a photo of one of the suspects, none other than Letty Ortiz, who was presumed dead. Monica looks at Hobbs and asks him, "Do you believe in ghosts?"

Besides this spectacular twist, some in the media have even speculated about the possibility of the character of Monica Fuentes one day starring in her own spin-off, along the lines of *Fast & Furious Presents: Hobbs and Shaw*. If this happens, she might get her wish to see herself on screen driving at top speed.



Before starting filming, actress Eva Mendes contacted Miami Police Department to gather some reference information with which to build the character of Monica Fuentes.



The Dodge Caravan was one of the first minivans in the world and it became one of the brand's biggest sales successes.

DODGE CARAVAN

In the middle of the 1980s, the Chrysler Group invented the minivan concept, stealing a march, by a few months, on the European Renault Espace. The launch of the Dodge Caravan and its brother, the Plymouth Voyager, revolutionised the world of family cars and opened up a new segment of the market that every manufacturer would enter.

The spacious interior of the Dodge Caravan with its 2+2+3 seating arrangement.



Executive Lee Iacocca was mulling over the idea of launching a car with the space of a small van combined with a car chassis and the equipment typical of a large four-door sedan. Previously, when working for Ford, he had presented a similar project to Henry Ford II, which he rejected. When he went to Chrysler, Iacocca once again teamed up with engineer Hal Sperlich and the two of them perfected the T115 project that in 1984 would be launched with the names Dodge Caravan and Plymouth Voyager.

It was a family vehicle, just under four and a half metres long, with sliding side doors and three rows of seats arranged 2+2+3. The bench seats on the second and third rows (of 2 and 3 places) could be folded down or removed from the car, and if the user so wished, the one with three seats could be used as the second row.

With four- and six-cylinder petrol engines, and fully equipped, both models were an immediate sales success. The public appreciated their finish and the dynamic performance typical of a sedan, but, above all, the interior space they offered and the possibility of adapting that space to their needs. With this vehicle the MPV or minivan concept was born, which all manufacturers in the USA adopted, and in Europe, where the Dodge Caravan and Plymouth Voyager, under the Chrysler brand, arrived in 1988.



MIDDLE SECTION OF THE CHASSIS

In this assembly session you will attach the middle section of the chassis to the front section you have already mounted on your model.

PIECES FOR THIS STAGE

30A



LM



30A Middle section of the chassis

LM Screws 2,3 × 4 mm, (x 8)*

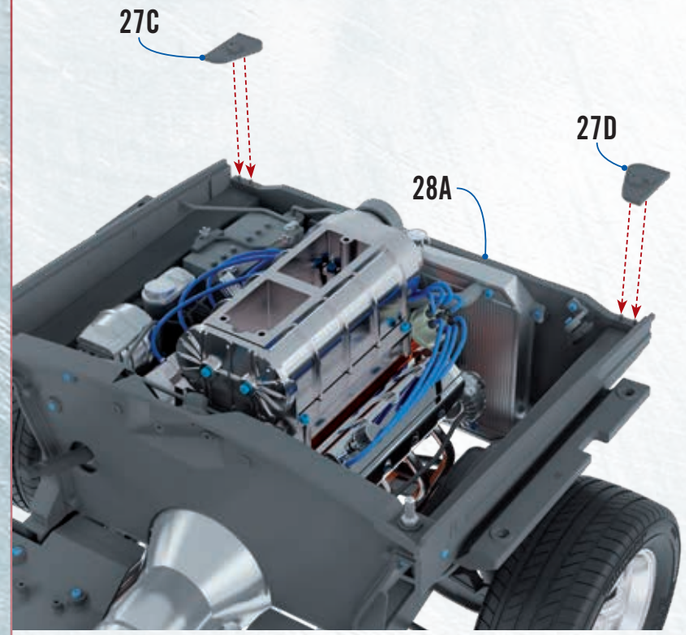
* Some of the parts are spares.

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

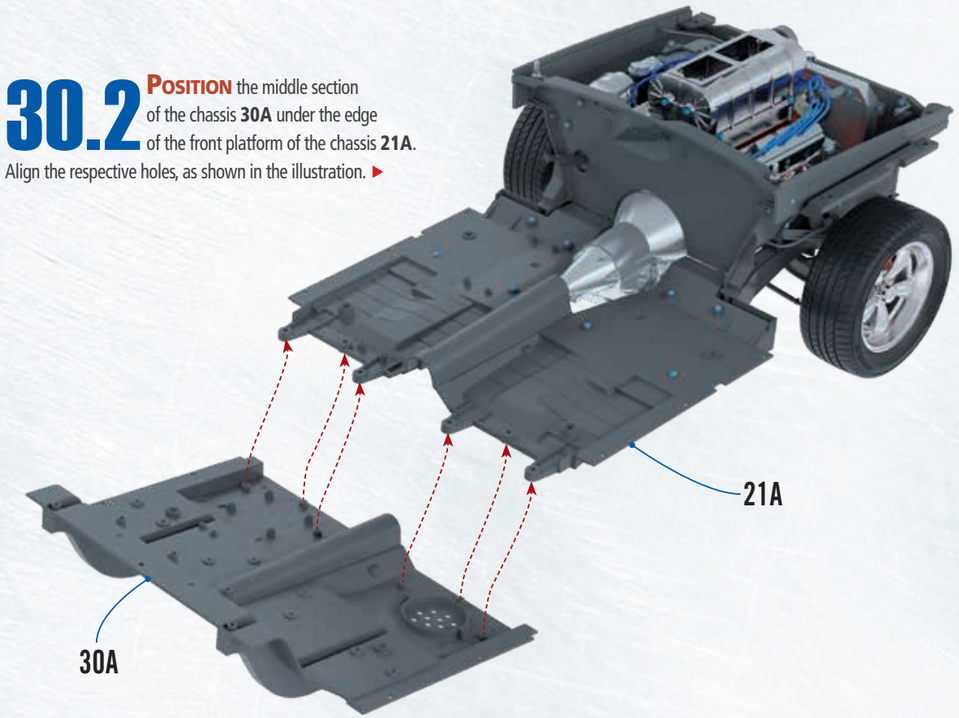


MIDDLE SECTION OF THE CHASSIS

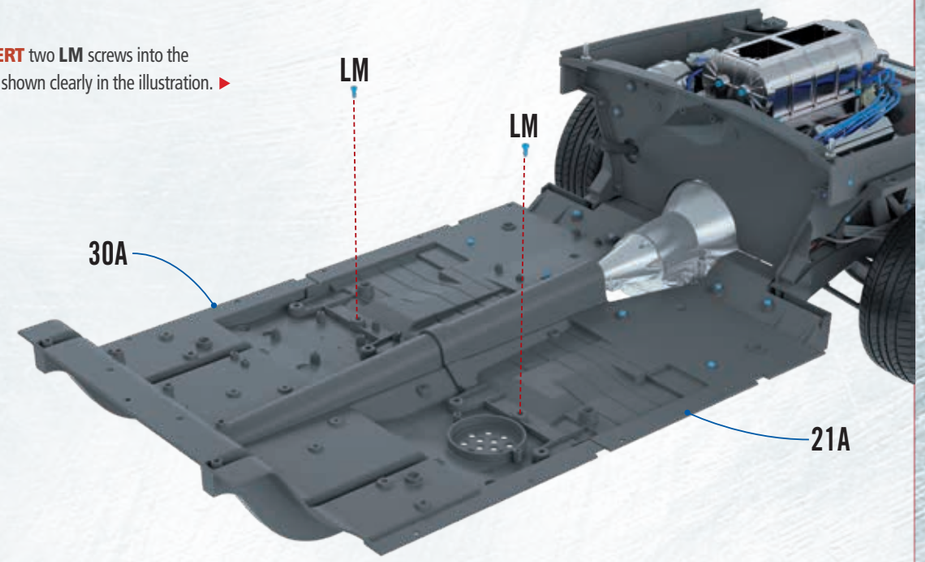


30.1 **GET** the mount brackets for the crossbar in the engine housing **27C** and **27D**. Position both brackets onto the corresponding pins on the front panel of the engine housing **28A**: bracket **27C** goes on the left side, and **27D** on the right. ◄

30.2 **POSITION** the middle section of the chassis **30A** under the edge of the front platform of the chassis **21A**. Align the respective holes, as shown in the illustration. ►

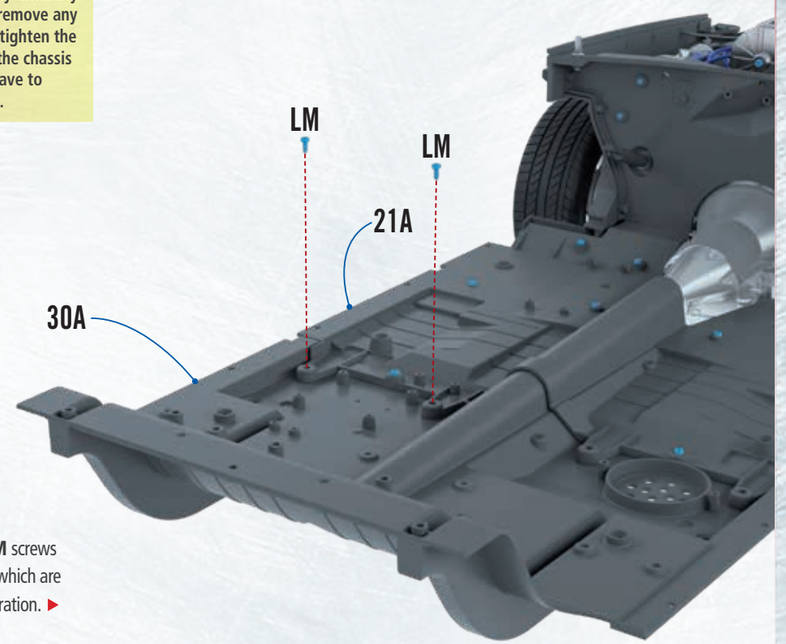


30.3 **INSERT** two **LM** screws into the holes shown clearly in the illustration. ►



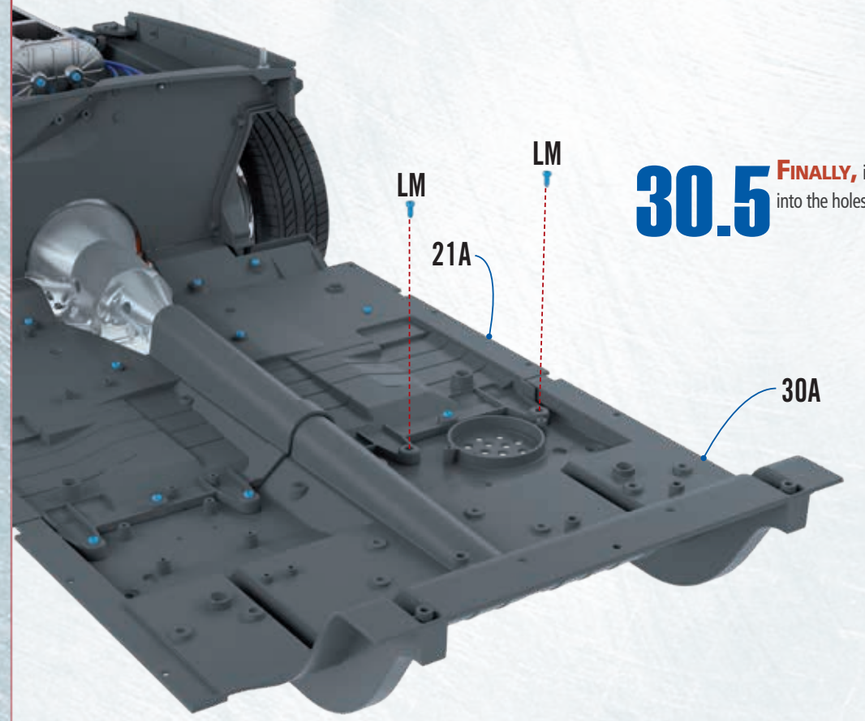
USEFUL TIP

Self-tapping screws are used to join the metal parts, like those of the chassis. If you encounter any difficulty in tightening them, take the screw out and remove any burrs.Then resume tightening. The aim is to tighten the screw all the way; all the different parts of the chassis must be joined together perfectly, as they have to support the weight of the completed model.



30.4 **INSERT** another two **LM** screws into the mounting holes, which are shown clearly in the illustration. ►

Middle section of the chassis



30.5 **FINALLY,** insert another two **LM** screws into the holes shown in the illustration. ◄

STAGE 30 FINAL RESULT



You have now attached the middle section of the chassis to your model. Keep the piece in a safe place for when you need it in the following assembly stages.

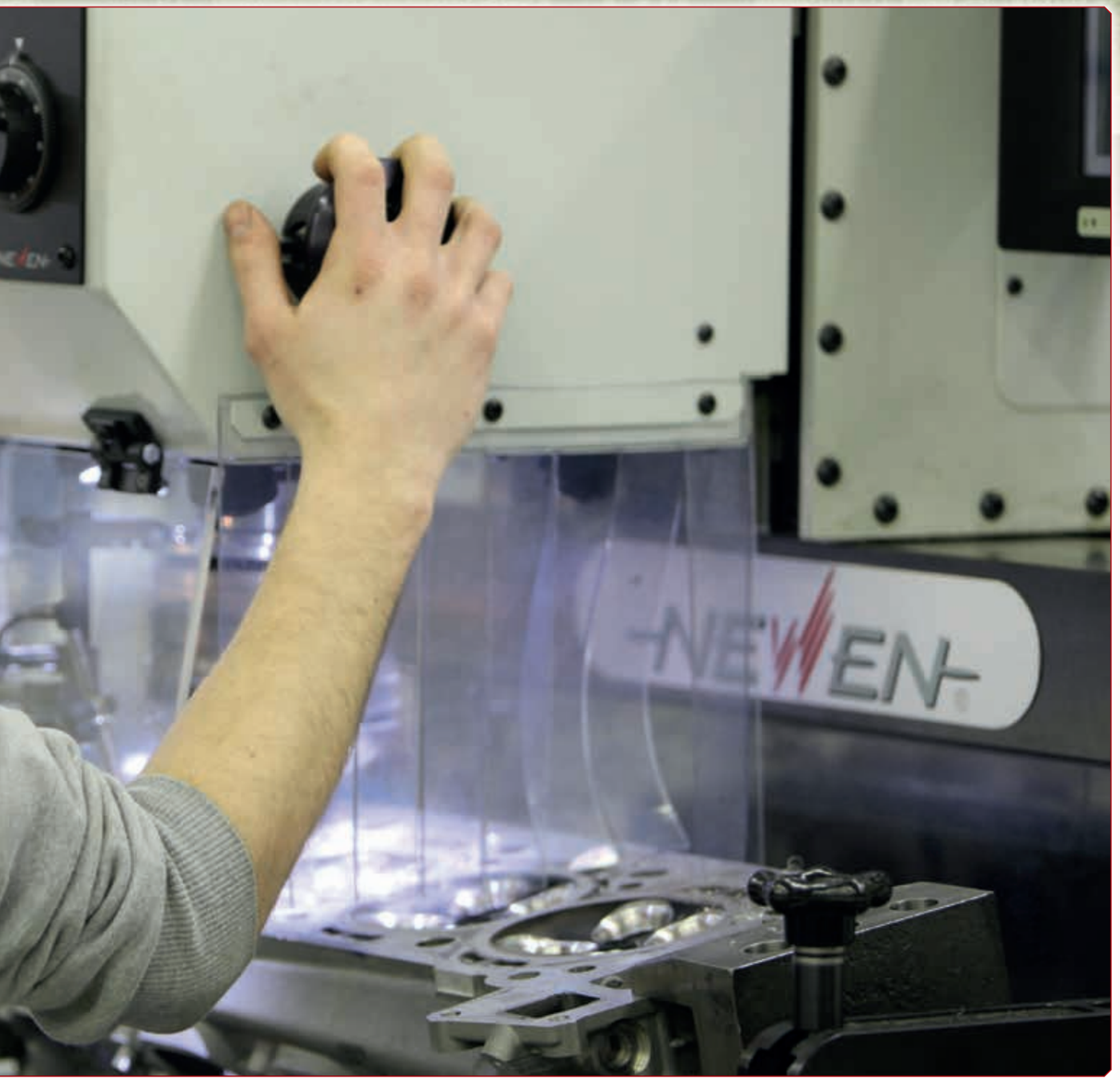
INCREASE THE DISPLACEMENT



For Americans, cubic centimetres are never enough when it comes to power! Let's find out what you need to do to increase your engine's displacement and gain power and torque!

In the collective imagination, a higher displacement always equates to more power. It is an idea that is not entirely wrong, even if today there are small turbo-charged engines capable of giving a hard time to normally-aspirated units of much larger dimensions. To deal with the topic correctly and then see in practice how to increase the displacement, let's start with a little theory. The displacement is the volume generated by the piston inside the cylinder when moving from the TDC (Top Dead Centre, i.e. the highest point reached by the piston of the first cylinder of the engine during the compression phase) to the BDC (Bottom Dead Centre, that is, the point where the piston is furthest from the head). The value obtained (unit displacement) must be multiplied by the number of engine cylinders to get the total displacement. It is expressed in cubic centimetres (cc) or litres.

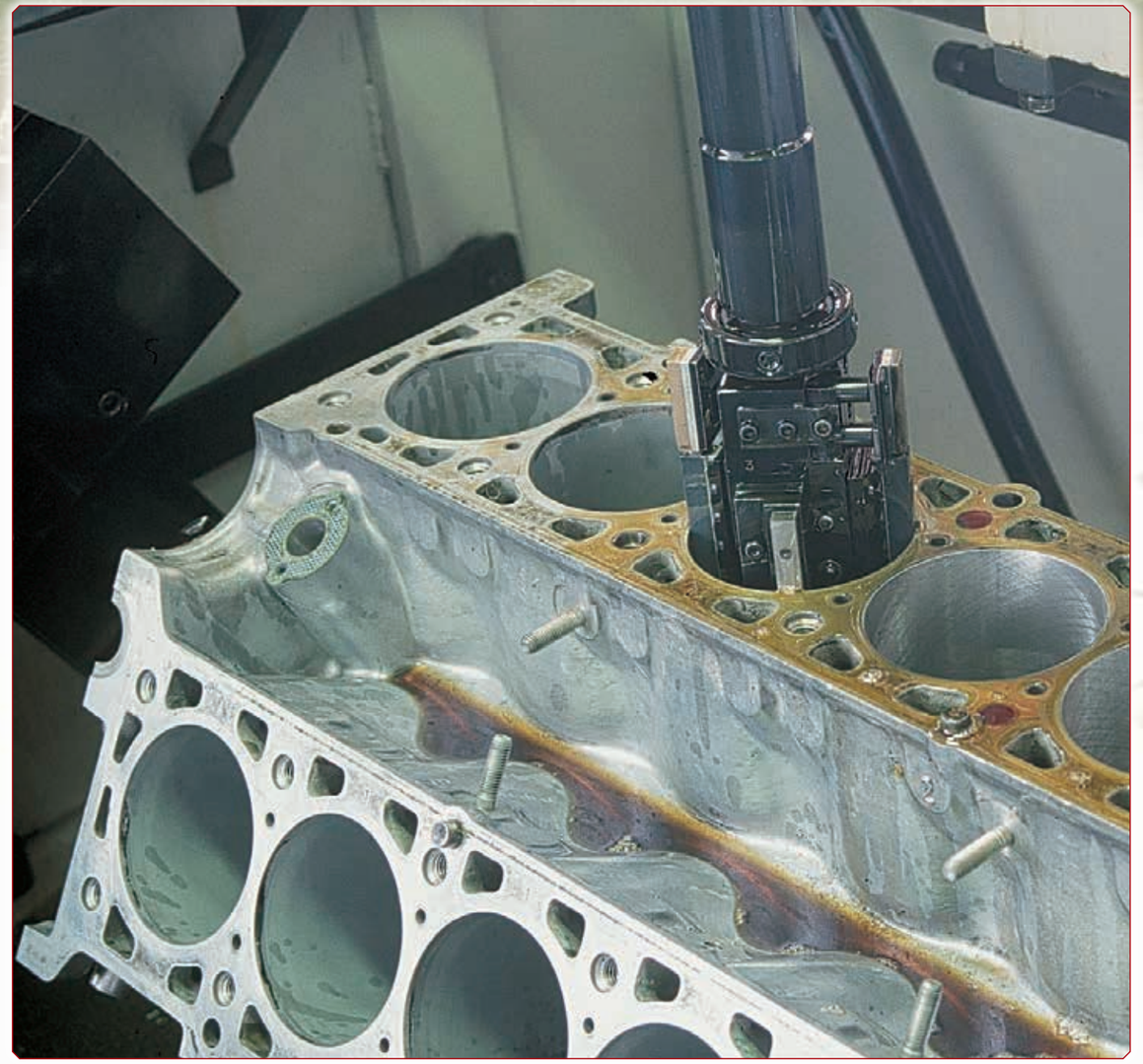
If we want to increase the displacement of our engine, we can do it in two ways: by modifying the bore (that is, the diameter of the cylinders) and/or by increasing the stroke.



The displacement is obtained by multiplying the area of the cylinder base by the piston stroke, and then by the number of cylinders in the engine.

According to the Americans, who have always loved large displacements (think of the big V8s that you see everywhere), the fastest way to increase performance is to increase displacement. It is true if we stick to normally-aspirated engines. But if we start supercharging the engines, things change. Pushing a greater quantity of the air-fuel mixture into the cylinders than the engine would normally be able to suck by itself is, in a sense, equivalent to increasing the displacement. At a constant engine speed, the power that an engine produces is tightly linked to the quantity of air-fuel mixture that it is introduced into the cylinders at each intake phase. Add to that the efficiency with which the combustion energy is used or transformed into mechanical energy.

So it is clear that increasing displacement is only one of the ways to increase performance. But it is, indeed, a way to increase the amount of air-fuel mixture at each intake phase and generate more powerful combustion.



Another advantage is that the combustion pressure will act on a larger area of the piston crown, and generally, the piston will have a longer stroke, thus increasing the torque too. And so each revolution of a larger engine will produce a more efficient power curve. There are two main ways to increase the cubic capacity of an engine: increasing the bore or increasing the stroke (or in some cases, both). You may not know that many manufacturers use these variables to produce entire families of engines that use the same cylinder block and cylinder bank assembly. This knowledge can be very helpful to anyone interested in increasing the displacement of their engine. It means that if our engine is a "smaller" version, we may be able to increase the displacement simply by fitting the components from a "larger" version.

INCREASING THE BORE

The term "bore" indicates the internal diameter of the cylinder liner. So to increase it, we must modify the diameter of the cylinder. The first potential obstacle is the thickness of the walls. We need to check that there is enough material in the cylinder block to remove. In other words, the thickness of the liner walls is sufficient to allow the bore to increase. In most engines, we cannot go beyond 1 mm of increase.

The extent of the cylinder boring is closely linked to the thickness of the cylinder walls: Usually, it is possible to increase by about 1 mm, maximum 2 mm.

In rare cases, it can reach 2 mm. For example, in engines with dry liners (sometimes called sleeves), typically in aluminium monoblocs, they are made of cast iron or steel with a significantly reduced thickness. The liners are inserted inside the cylinder under pressure. If, after checking, we find that there is not enough material to remove from the liner, we can always decide to remove the liners altogether and bore out the monobloc to accommodate bigger liners. Of course, at the end of the job, we will have to fit pistons with a larger diameter than the standard ones, with all the characteristics necessary for correct operation.

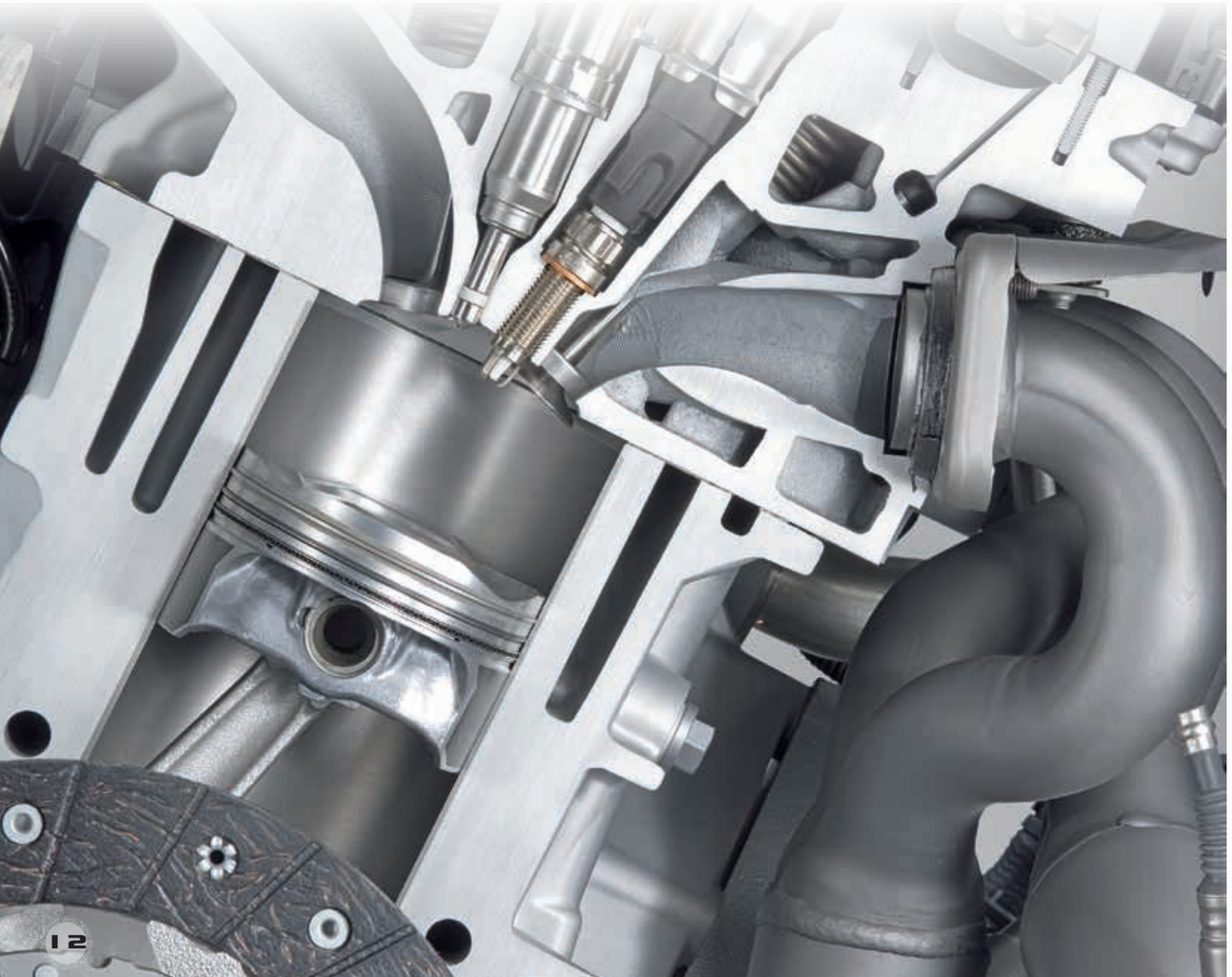
When we increase the stroke with a new crankshaft that has a larger crank radius than the original, we need to install shorter connecting rods. This is the only way for the pistons to be in the correct position at TDC (Top Dead Centre).

MODIFYING THE STROKE

Undoubtedly, modifying the stroke would allow us to obtain excellent results in terms of increase in volume. But the crankshaft would have to be replaced, as that is the component that determines the stroke. It is a relatively expensive operation because we would also have to change the connecting rods to prevent the piston from hitting the cylinder head. With accessories, the bill could easily come to around £2,500 just for that job. Alternatively, if there are different versions of our engine with a different stroke, we can consider purchasing a crankshaft for that version. In most cases, it is sufficient to mount the shaft, connecting rods and pistons from another version of the base engine. In other cases, the situation can be more complicated because the bigger version's cylinder block could be a different height.

CONSEQUENCES NOT TO BE UNDERESTIMATED

If we have decided to increase the displacement, we must bear in mind that the maximum volume inside the cylinder will increase (piston at BDC), but the minimum volume will remain unchanged (piston at TDC). In other words, we will change the capacity of the combustion chamber and also increase the compression ratio. As the volume of the cylinder increases, if we do not do anything to the head, leaving the dimensions of the valves and ducts unchanged, there will be a slight deterioration in the engine's "breathing". The effect will be negligible in most cases but will worsen with the increase in volume. It is no coincidence that larger cylinder engines with the same crankcase use larger valves. Furthermore, if we have decided to increase the stroke, let's not forget that there is a higher average piston speed at the same rotation speed than in the past, i.e., mechanical stresses and friction losses tend to be slightly higher.



Ready-to-use kits

The most effective method, and the most expensive, is to modify both the bore and the stroke, by replacing all of the components, i.e. machining the cylinder liners, bigger pistons and a crankshaft with increased stroke. Combine that with shorter connecting rods and all the machining done inside the monobloc. To make it easier, there are ready-to-use kits on the market, with all the specific components needed for each engine. They include some very high-performance parts, like forged pistons and inverted H connecting rods, and everything needed for assembly. In the USA they are called "stroker kits" and are widely used in America to rebuild V8s. Prices are relatively affordable. In fact, we are only talking about spending around $2,500 (£1,800). It is quite different in Europe, where the cost of the kits can rise to over £5,000 plus the rectifying work.

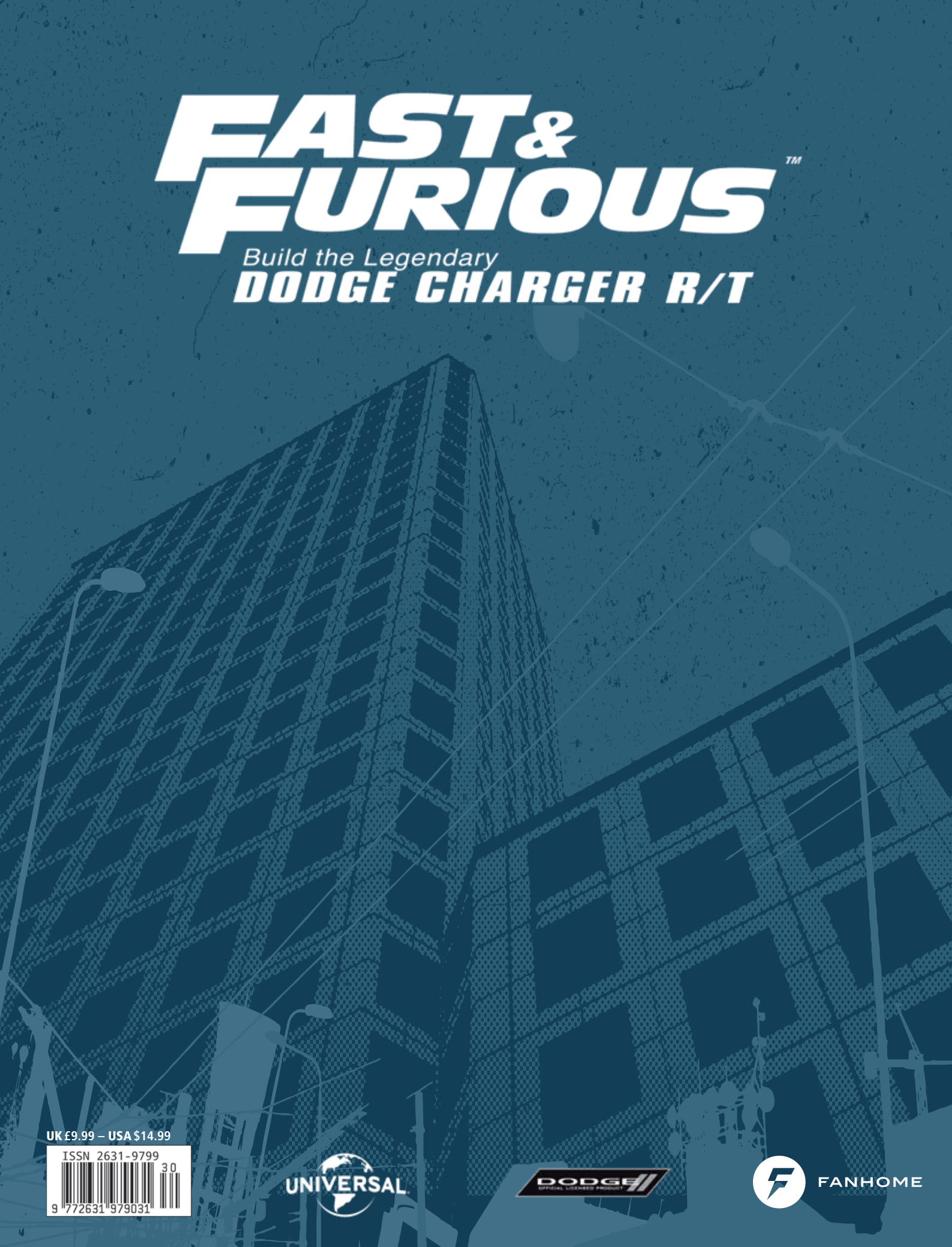


FINAL CHECKS

When making significant changes to components that can affect the engine's proper operation, it is always best to carry out a series of checks before, during and after assembly. For example, when we change the stroke, we always have to check the piston crown's position at Top Dead Centre. We need to make sure that it is the same as the original pistons before the engine is reassembled, and is the same for all the cylinders. Otherwise, we will modify not only the compression ratio but also the squish height. When we replace the crankshaft or connecting rods, we must always install new bearings and make sure they provide the correct clearance.

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