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THE TORETTO FAMILY HOME

In *Fast & Furious*, the cars and the races are very important. But action heroes deserve to relax too. And this means finding peaceful moments at home. This is what Dominic Toretto does, in a house that is a meeting place not just for the family but for his whole team too.

The first time audiences had the chance to get to know the Toretto family home was in *The Fast and the Furious*. After a street race, which ends with a police raid, Dom has managed to dodge the police officers thanks to the actions of a new driver, Brian O'Conner. Along with him, he also suffers a tense clash with one of his biggest rivals, Johnny Tran. After so much excitement, it is not surprising that Dom should suggest to Brian that he drop by his house for a beer. As soon as he walks through the door his mood changes and he relaxes. While he was mixed up in a series of dangerous situations, the members of his team improvised a small party at his house.

INSIDE THE HOME

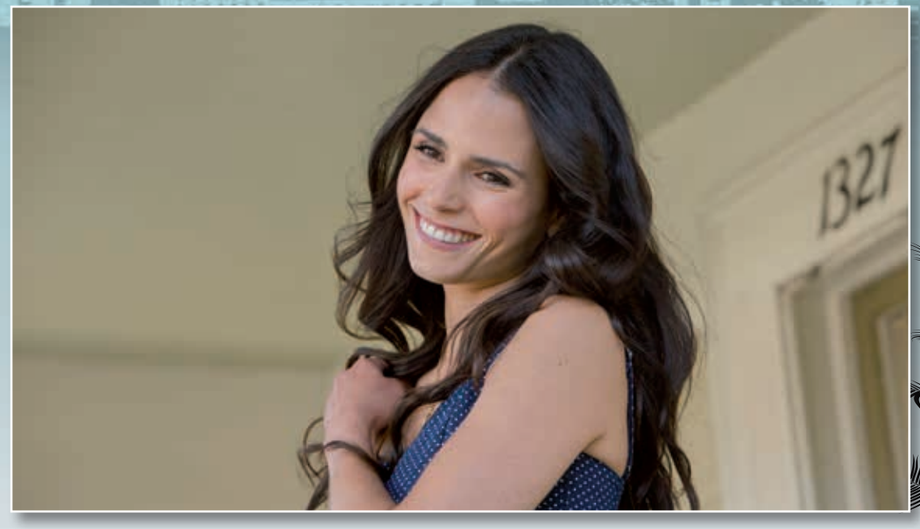
Apart from the tension between Dominic and his buddies, this sequence is hugely interesting for fans of the franchise because it is the first time they see the inside of the Toretto family home. And what is the house of the king of Los Angeles street races like? A kind of shrine to speed crammed with automobile spare parts and posters of luxurious sports cars? No way. The first surprise is that it is a real home, traditional, with white curtains, floral motifs on the walls, solid wood furniture, candles, and family photographs. There's nothing illegal or provocative. This is because it is the real Toretto family home, where Dom and Mia grew up, and which they inherited from their parents.

In that same scene from *The Fast and the Furious* we also have the chance to get some idea of the layout of the house. It is quite a large two-story house. On the first floor, we find the entrance hall, a big lounge, the kitchen and some other rooms, and we suppose the bedrooms are on the second floor. At least, we see Mia studying in one of them, and we suppose that Dom goes to another one after his girlfriend Letty says to him, "You look a bit tired. I think you should go upstairs and I'll give you a massage." And the more curious might even wonder where the bathroom is. In the movie Brian asks where it is, and Dom replies, "Upstairs. First door on the right."

A HUNDRED-YEAR-OLD BUILDING

If you ever go sightseeing in Los Angeles, a really curious experience that you might have if you pass 722, East Kensington Road is discovering that the Toretto family house … exists! It's not a film set. It's there, virtually the same as we see it in the *Fast & Furious* movies.

Letty Ortiz grew up in the same area as the Toretto family. Now she has a close sentimental relationship with Dom and is an indispensable member of his family.



Mia Toretto sets up a real home with Brian, and her brother Dom is proud of her. But it is put in jeopardy when she gets mixed up in a pitiless game of revenge.

When the director Rob Cohen was thinking about the filming of *The Fast and the Furious* he wanted to find an authentic place in the city of Los Angeles that would help him to reflect that feeling of a close-knit family that the Torettos have, ordinary people who are trying to get on, and who cling to strong values handed down by their parents. The location experts began looking for sites around the Echo Park area, a place often used by the film industry, just north of central Los Angeles. In this unusual "casting", a two-story, four-bedroom family house in Kensington Road built in 1906 got the part. Its owner had no problem with lending her home to the film crew, thinking that it would be a one-off collaboration. And she agreed to some requests by the director, like allowing them to paint the whole front of the house white, so that the cars that were parked nearby would stand out more, or that a garage be built at the back of the building for Dom's most prized possession, his legendary Dodge Charger.

THERE'S NO PLACE LIKE HOME

In other scenes in *The Fast and the Furious* we gradually discover more unusual facts about the Toretto family home. For example, at the back there's a small yard, from where you get a perfect view of the tall skyscrapers that rise in the center of Los Angeles. It has a wooden table where they have the famous Sunday barbecues, another tradition that Dom and Mia inherited from their parents.

After the first barbecue that Brian attends, as usual everybody sits down in the lounge to watch a movie, except for Mia, who has to clear the table and wash the dishes in the kitchen. It's quite a simple kitchen, unpretentious, with no expensive appliances. Brian takes the opportunity to help Dom's sister and, while he's at it, flirt with her, perhaps without imagining then that this place will eventually become their home.

After the first film in the franchise, the Toretto family home did not reappear on screen until *Fast & Furious*. With Dom now a fugitive from justice, Mia lives alone in the family home. Although we do not see her, she will reveal later that she would get frequent visits from Letty, who with enormous patience and love would try to rebuild Toretto's Dodge Charger, virtually destroyed at the end of the first film. The house once again becomes a very important place in the story. In some way it acts as the center of gravity of the main characters. Dom goes back there to be reunited with his sister, and he discovers Letty's tragic disappearance. Brian also goes back to meet Mia and resume the love affair that they had broken off.

WELCOME HOME

As if there was a strange curse on it, throughout the franchise we see the heroes of *Fast & Furious* mixed up in plots and intrigues that keep them away from home. Time and again they are forced to escape, to hide, and to fight with all their might not just to restore their honor, but also to see their biggest dream come true: to come home.

After countless adventures, in *Fast & Furious 6* we see Dom and his people get their longed-for reward. This time, after fighting on the side of law and order to ensure that dangerous terrorist Owen Shaw is safely locked up, special agent Luke Hobbs keeps his word and allows the Torettos to be released and return home, to what they call "1327", in reference to the fictional house number. The end of the movie is a real triumph. They are free, in good health, and they are home. Of course, the team celebrates it with one of their traditional barbecues. No great ceremony is necessary, or music, or guests. Just enjoying a few beers in the best possible company, the family. But if there's one thing that followers of the franchise know well, it is that in the world of *Fast & Furious* these moments of peace and harmony don't last very long.

BLOWN TO PIECES

Not long into *Furious 7*, we witness one of the most shocking sequences in the whole franchise. The Toretto family home is now occupied by Brian and Mia. They want to bring up their son Jack there, and any other children they may have. Dom, for his part, can aspire to nothing better than seeing his sister happy and watching the family grow. But, in a moment of apparent calm, while brother and sister share their happiness on the house's front porch, and Brian, a bit farther away, is helping his son Jack into daddy's car, the Toretto family home is blown to pieces by a terrible explosion. It is Deckard Shaw's revenge for his brother's arrest. There are no casualties, but part of the memories and the history of the Toretto family have disappeared forever.

The magic of the cinema, and above all the marvelous computer-generated special effects, made it possible to shoot this scene without having to touch any of the original building. Hence, every morning dozens of fans still pass 722, East Kensington Road to take snapshots and selfies, like the people posing in front of the Eiffel Tower. Because for them, it will always be the Toretto family home.

DOUGLAS A. MOWAT

Any set that is going to appear in a film, from the inside of a car to the rooms in the Toretto family home, has to pass through the hands of a decoration specialist, a profession in which Doug Mowat is a real expert. His career began in the mid 1980s, working in lesser known films. After also taking part in many made-for-TV productions, M. Night Shyamalan gave him the chance to work in the big league by entrusting him with the decoration of *The Sixth Sense* (1999), first, and *Signs* (2002), later. After more brilliant work in *National Security* (2003) and *Constantine* (2005), Doug had the opportunity to work in the fascinating world of street races, on *The Fast and the Furious: Tokyo Drift* (2006) and *Fast and Furious* (2009), bringing to the franchise a touch of indisputable talent. Shortly afterwards, he was to achieve the greatest success of his career, working at the orders of Christopher Nolan in *Inception* (2010), work that would even win him an Oscar nomination. More recently we have had the chance to continue enjoying his incredible attention to detail in movies as varied as *Jack Reacher* (2012), *Gone Girl* (2014) and *The Accountant* (2016).



In the garage at the back of the family home, Dominic Toretto hides his pride and joy: an extraordinary Dodge Charger that will become an authentic icon of his adventures.



The two official Dodge Vipers in the race held on the Circuit of the Americas (Austin) in 2014, where Wittmar and Bomarito's car gained a victory that was crucial to winning the championship.

DODGE VIPER IN COMPETITION

The latest generation of the Dodge Viper also had its racing version, the GTS-R, developed to take part in GT races under LM GTE rules. The model seemed to be in a position to get back to the winning ways of the first-generation Dodge Viper GTS, but Chrysler halted the sports program at the end of the 2014 season.

In 2014, the Riley Motorsports team entered a private Dodge Viper in the Sebring 12 Hours for Bleekemolen and Keating.

In 2012 the Chrysler Group introduced the Dodge Viper GTS-R. This car met the specifications of the American Le Mans Series (ALMS) contest, allowing it to compete in races in the GT category in 2013 and through the entire 2014 season. It kept the original V10 engine, although with the displacement reduced to eight litres and power cut back to 490hp due to the limitations required by the regulations.



With a six-speed semi-automatic X-Trac gearbox, this model marked the return of the Dodge brand to competition. It made its debut in 2012 at the Mid-Ohio race with two cars, and that same year ran in four races. In 2013 it participated in the different ALMS events and also in the 24 Hours of Le Mans, where the two cars occupied 24th and 31st positions and obtained third place in their category. In the ALMS it took a single victory, at the Road America race, with Dominik Farnbacher and Marc Goossens at the wheel. Both finished fifth in the championship, and the Dodge brand was third in the constructors' championship. In 2014, in the new United SportsCar Championship, the team won the constructors' title, while Kuno Wittmer and Jonathan Bomarito won the drivers' titles. The Chrysler Group closed its sporting program at the end of that season.



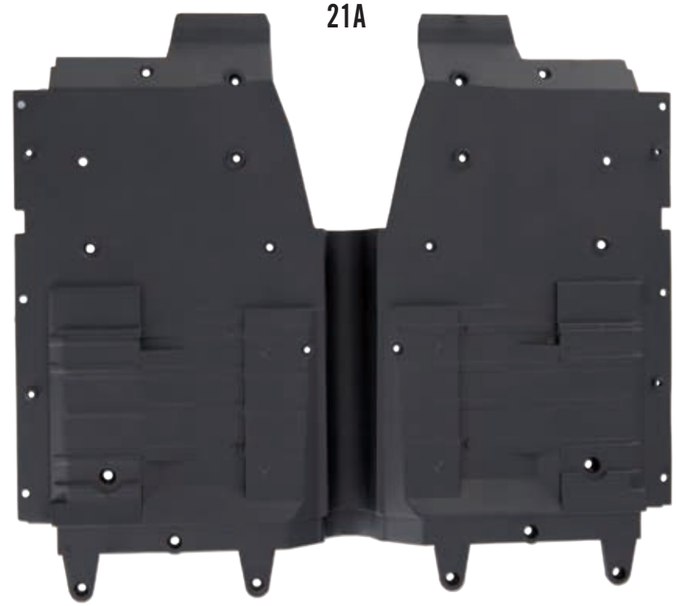
INSTALLING THE FRONT FLOOR PANEL

In this assembly session you will attach the front floor panel to the front section of the chassis. Follow our instructions and the accompanying illustrations carefully.

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.

PIECES FOR THIS STAGE

21A



AM



AP



21A Front floor panel

AM Screws 2 × 4 mm, (x 8)*

AP Screws 1,7 × 4 mm, (x 3)*

* Some of the parts are spares.

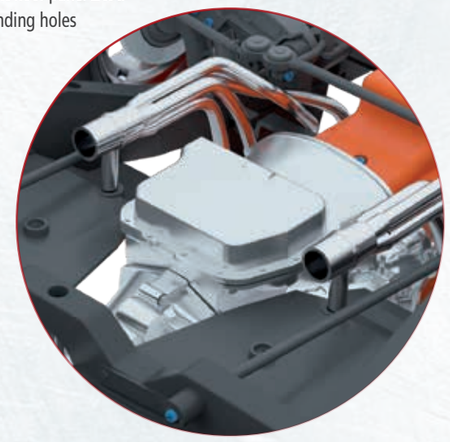
ASSEMBLY AREA

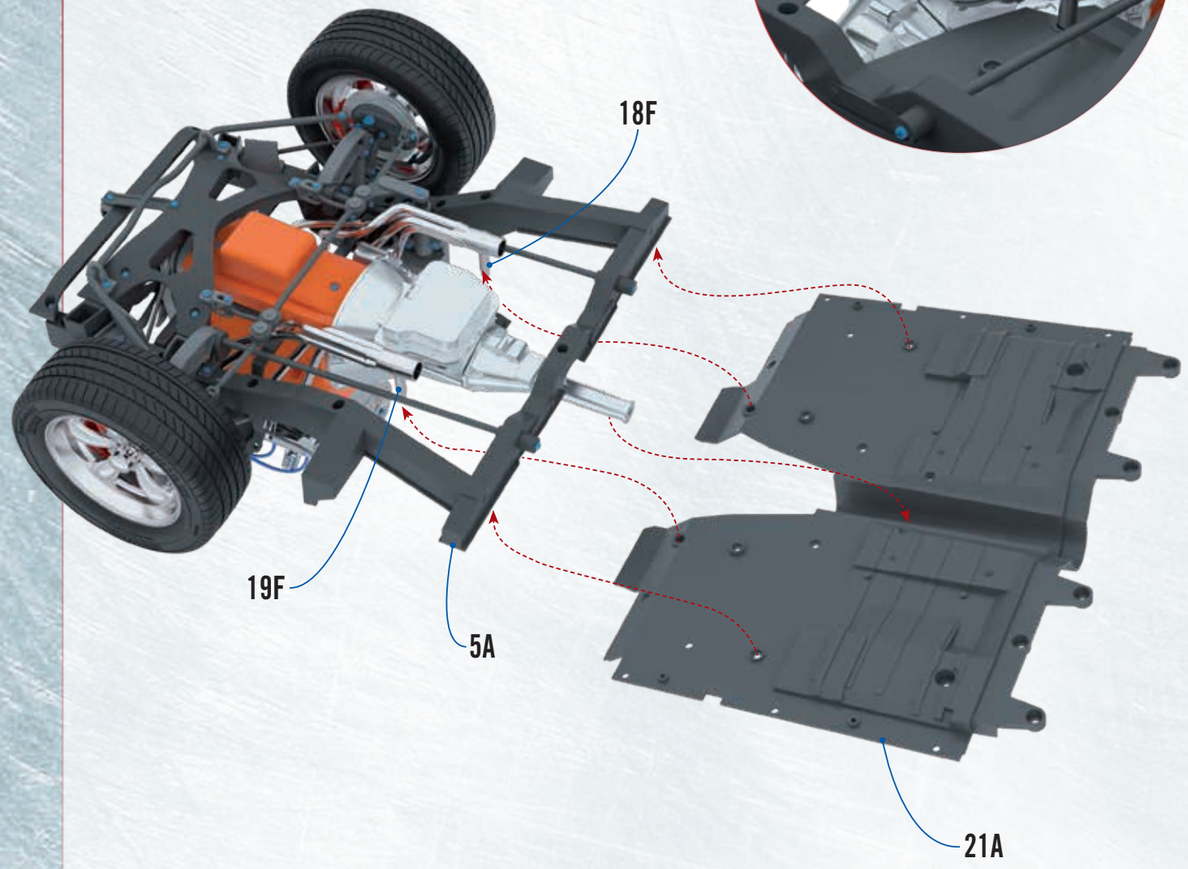


FRONT PLATFORM

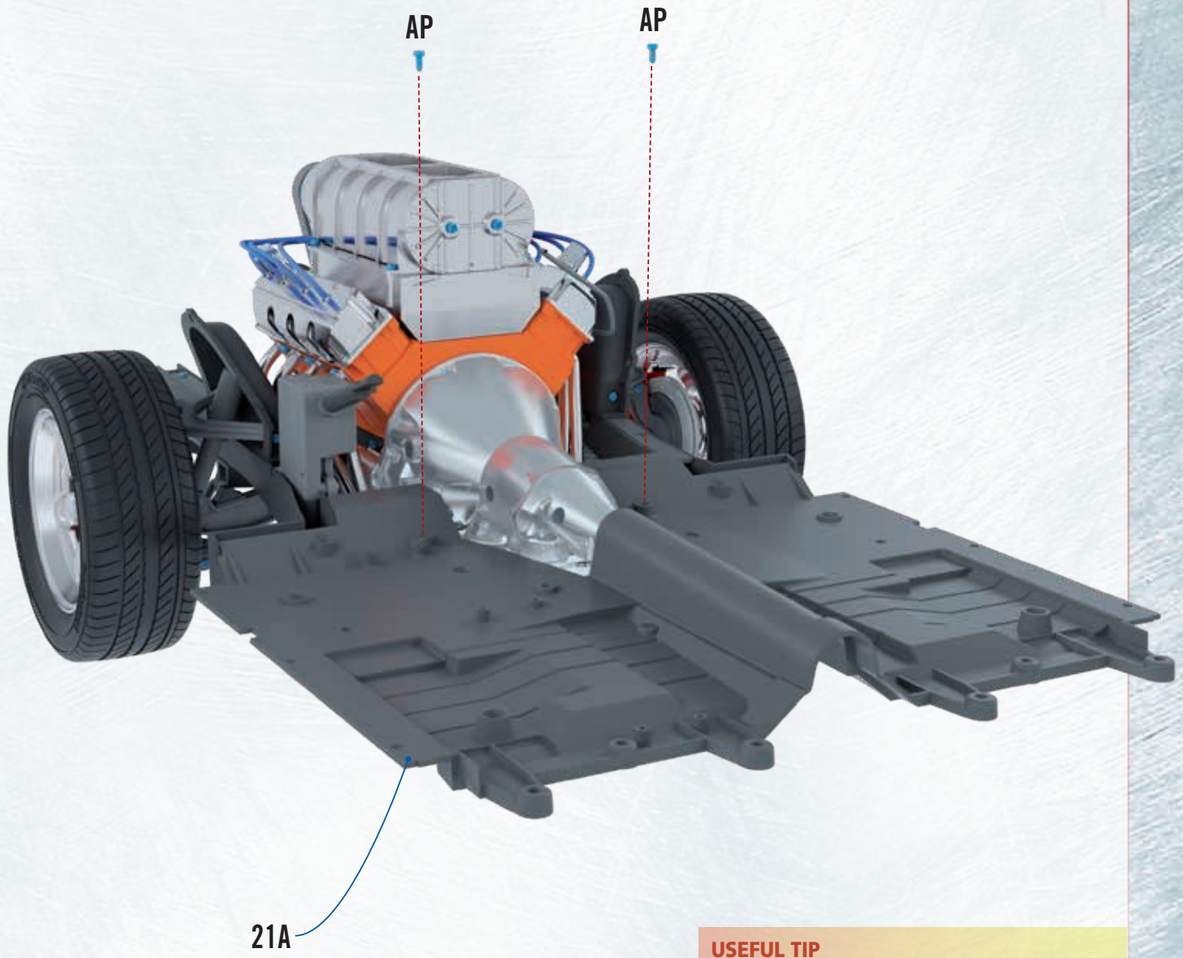
Installing the front floor panel

21.1 **TAKE** the chassis and engine block you assembled in the last session. Put the piece upside down on your work surface. Insert the pins on the top of the left and right bank exhaust collectors **18F** and **19F** into the corresponding holes in the front floor panel **21A**. At the same time, line up the holes farther back on the floor panel with the corresponding holes in the rear beam of the front section of the chassis **5A**. ▼





21.2 **TURN** the new piece back over. Insert two **AP** screws into the holes indicated in the illustration, and tighten them to attach the left and right exhaust collectors to the floor panel **21A**. ▼

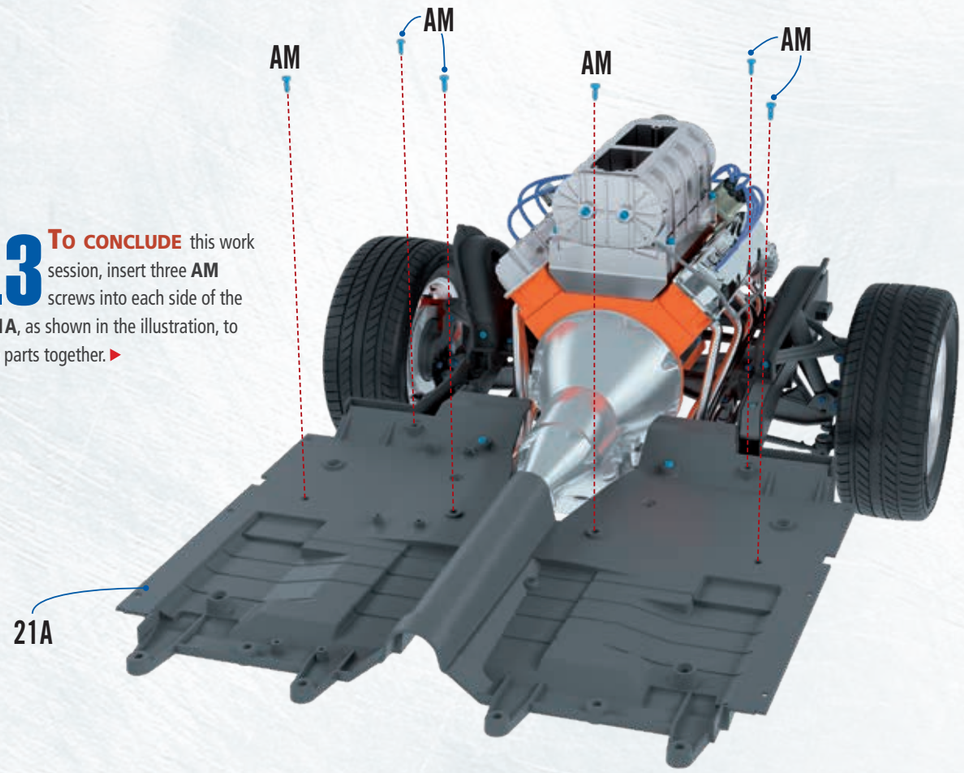


USEFUL TIP

When you assemble metallic parts like the chassis, you will use self-tapping screws. If you find that the screw will not go into the hole easily, remove it and clean away any loose metal fragments. So that the screw goes in properly, occasionally turn the screw backwards about 1/4 of a turn. The idea it to tighten it to the end of the thread, ensuring that the parts are tightly joined so that they can bear the weight of the whole vehicle.

Installing the front floor panel

21.3 **To conclude** this work session, insert three **AM** screws into each side of the platform **21A**, as shown in the illustration, to hold all the parts together. ▶

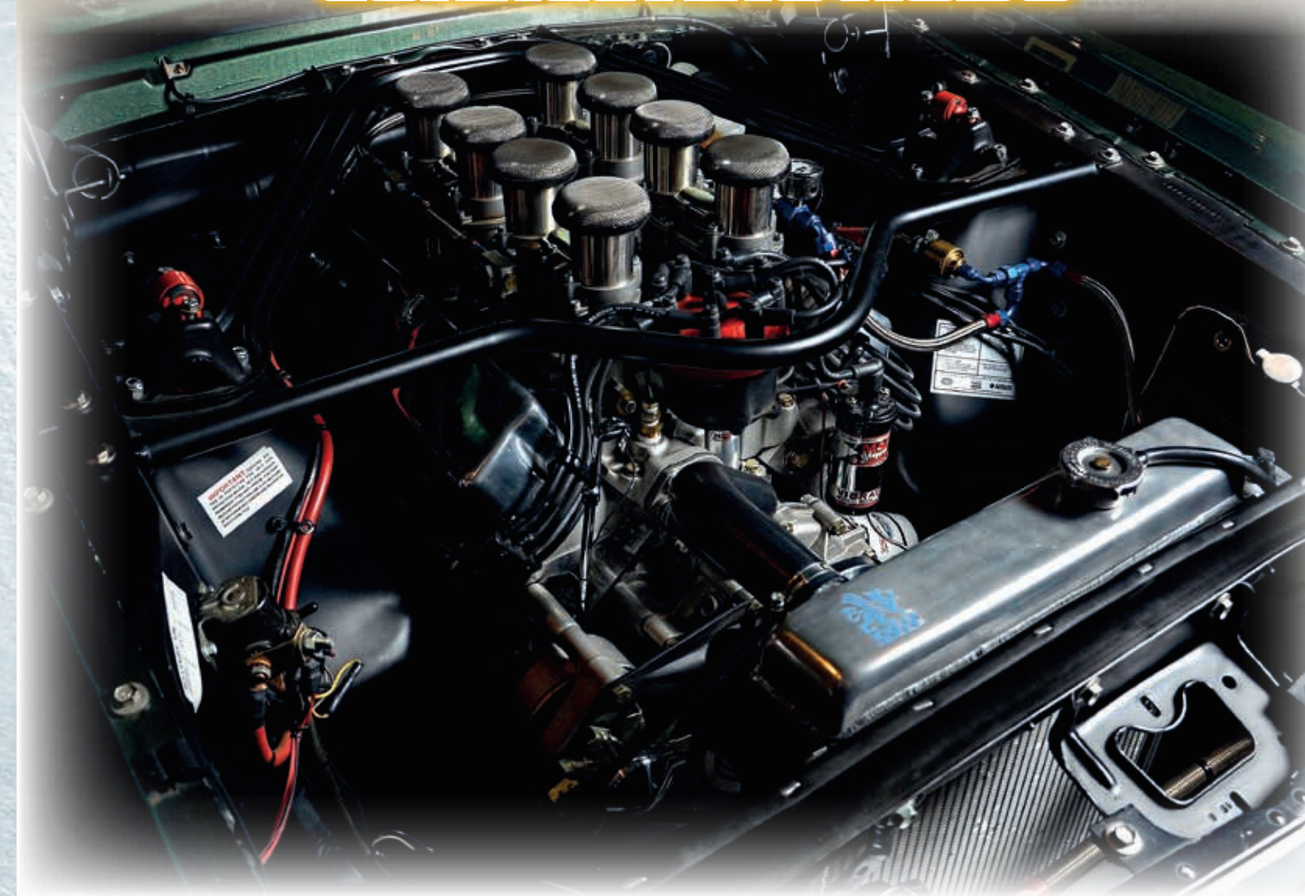


STAGE 21 FINAL RESULT



You have now attached the front floor panel to the chassis.

FOCUS ON CONNECTING RODS



Not all components are replaced solely to increase the engine's horsepower. In some cases, you need to ensure that the upgraded engine is able to withstand the new stresses by installing new parts that are strong enough to cope with the increased forces.

There are numerous mechanical parts that do not directly affect performance. Take the piston connecting rods, or con-rods, for example: replacing the stock parts with others made from different materials, or with different geometry or dimensions, won't have any effect on horsepower. Possibly, if they are significantly lighter, the engine is able to rev a little faster, as the masses being accelerated are smaller. But we are talking about a tiny difference that does not affect the power delivered in any measurable way.

But don't be fooled into thinking that replacing them is a waste of time when upgrading the engine, because nothing could be further from the truth. When substantially modifying or tuning an engine, bear in mind that while the standard connecting rods may have been acceptable when the engine was in its original condition, they probably will not be suitable afterwards.

Manufacturers make these components, like many others, in such a way that they have a reasonable lifespan. But at the same time, they keep a watchful eye on production

In high-performance engines, the connecting rods are the most mechanically stressed components, and therefore it is best to make them using high-strength steels.



On the surface of a connecting rod, letters or numbers are generally visible, indicating the size and weight of the part. These codes must not be misunderstood or ignored.

costs. In engines for everyday road use, these mechanical parts are made with less expensive materials and with cheaper construction processes compared to those manufactured for high-performance engines. So there are calculated limits to the stresses that they are able to withstand. When engine power is increased beyond these design limits, they need to be replaced to avoid them failing due to higher inertial forces and higher loads.

Increasing the engine's compression ratio can also place extra stress on the connecting rods. To give you an idea – a 20% increase in rotation speed creates a 40% increase in inertial forces! With that in mind, be aware of the powerful mechanical stresses that the connecting rods and the bearing shells have to withstand.

WHEN TO CHANGE THEM

As we mentioned earlier, standard connecting rods are manufactured with calculated tolerances. They can be re-used with confidence if the increase in engine power stays within 10% to 15%. However, bear in mind that if the original connecting rods are made of cast iron or cast aluminium, it is always safer to replace them with new ones made of forged steel, even if the power increase is minimal. Often, manufacturers make different versions of the same engine, using cast iron connecting rods in standard motors to keep costs low, while in the more powerful versions, they use steel. But take care that the steel connecting rods are not manufactured by sintering – which is the compression of materials to form a solid piece (think snow and snowballs!).

While they can be stronger than cast iron, they do not have the strength and resistance of forged steel.

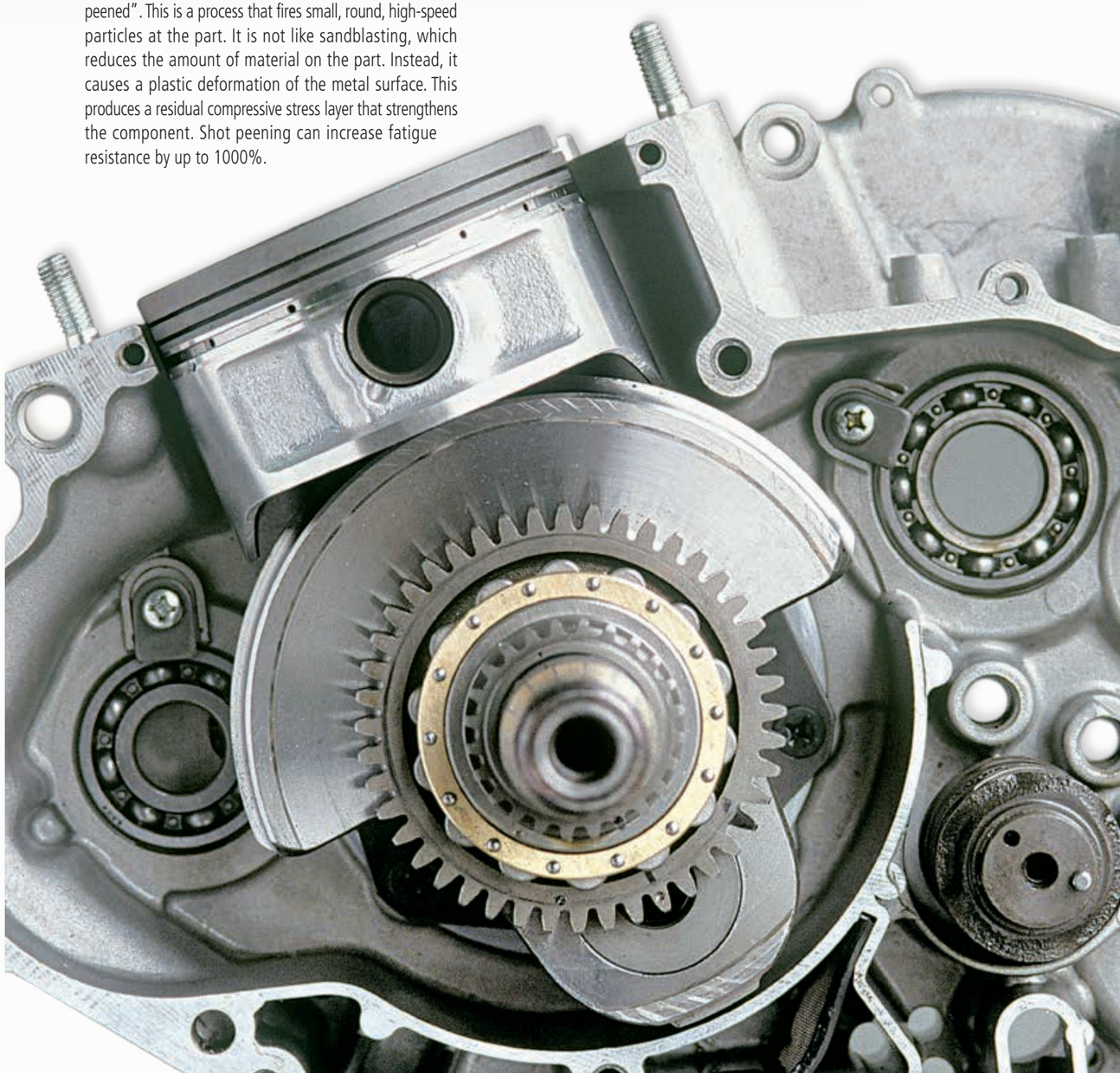
FEATURES THAT MAKE A DIFFERENCE

Connecting rods must be strong and at the same time as light as possible. But mass production often means that manufacturers have to make a choice between strength and cost. And it is generally the cost factor that wins. In an ideal world, parts like connecting rods would be "shot peened". This is a process that fires small, round, high-speed particles at the part. It is not like sandblasting, which reduces the amount of material on the part. Instead, it causes a plastic deformation of the metal surface. This produces a residual compressive stress layer that strengthens the component. Shot peening can increase fatigue resistance by up to 1000%.

In addition to having high tensile strength, the material must be very tough and have adequate "ductility". This is a measure of a material's ability to undergo significant plastic deformation before rupturing or breaking. The most suitable materials are those that guarantee the best performance after heat treatment – typically alloys of nickel, chromium and molybdenum. They are expensive, but also extraordinarily strong.

When working on unusual or historical engines, it might be necessary to make customised connecting rods if they

A very short connecting rod requires the use of a very low-profiled piston to avoid the risk of contact with the top of the cylinder head.



What if we use the original parts?

If the engine being tuned is in good mechanical condition, has not driven too many kilometres, and we have not gone overboard with the tuning, then we could probably use the original connecting rods. In this case, each of them must be carefully marked upon disassembly, so that they can be reassembled in exactly the same position and direction as they were originally located. It is best to use a marker that can write on any surface, or paint suitable for marking metal, even in the presence of oil or grease. Never score the connecting rods with anything sharp or pointed! Any scratch, mark or surface irregularity can become a dangerous trigger point for a fracture! Also, remember to check that the size and weight codes applied in the factory are clearly visible, as well as the correct assembly direction of the con-rod cap.

are not readily available as stock parts. Specialists who offer this service machine them from solid metal after taking as a reference point information about the original connecting rods. The results can be outstanding (and expensive), but there must be a very high degree of precision.

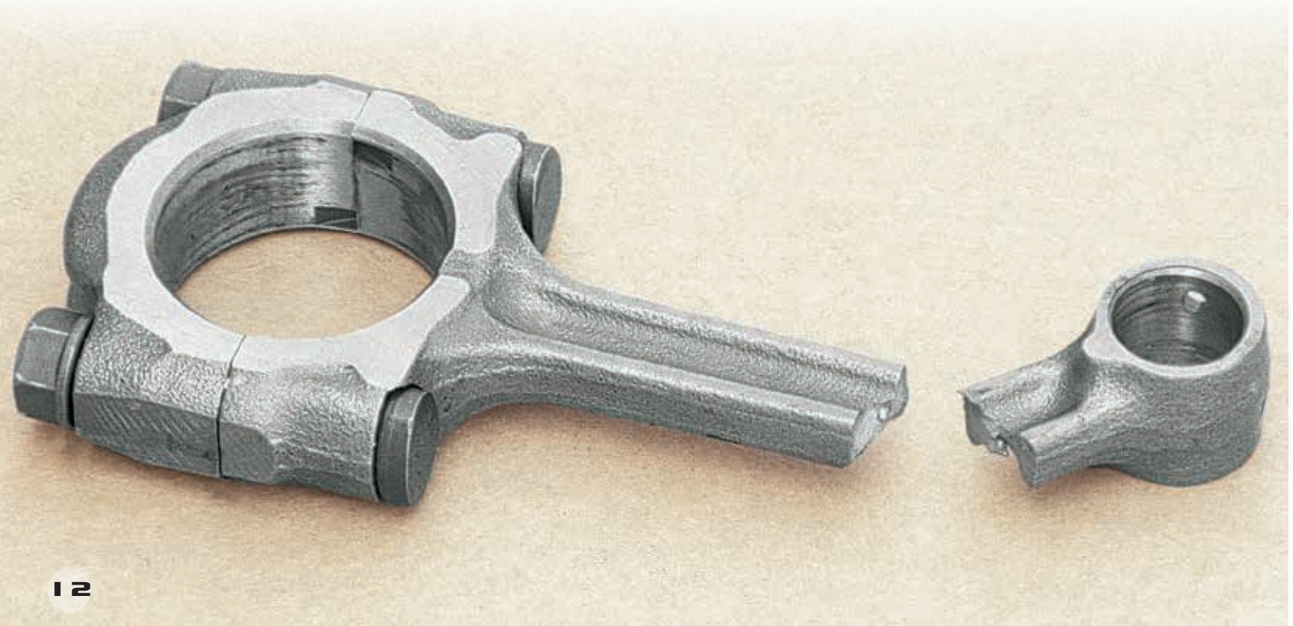
BEWARE OF THE BOLTS

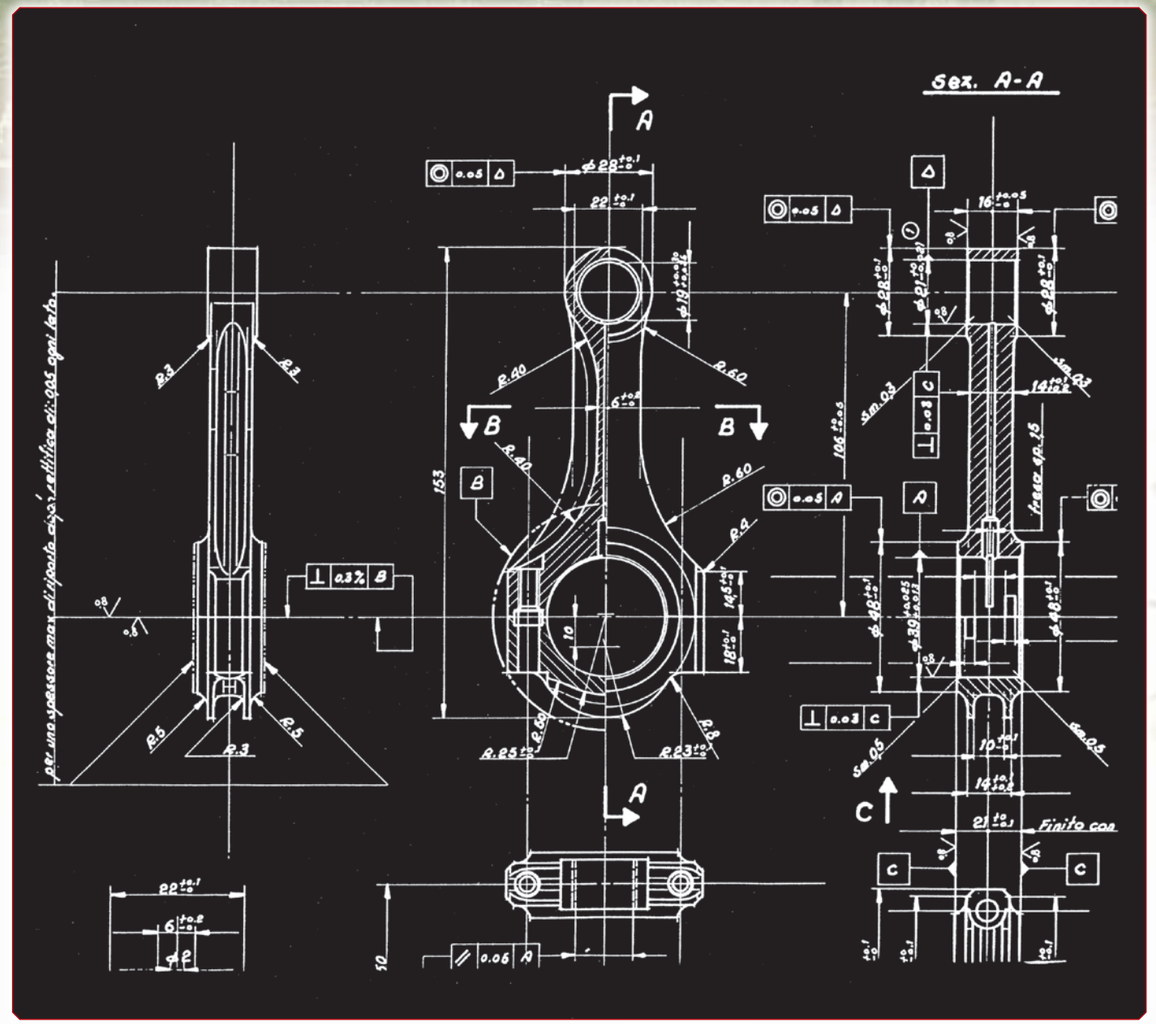
Connecting rod bolts are not standard items. They are designed and sized specifically for this type of use, and are made with materials with a tensile strength that ordinary steels cannot match. And almost always, they must be replaced each time the engine is overhauled. In every case, it is always better to change them to avoid taking risks with such a critical sector of the engine. Care must be taken when tightening these bolts. Manufacturers often specify a torque setting that must be scrupulously observed.

Connecting rod bolts often serve to ensure the correct centring of the cap at the big end, thanks to the accurately calibrated central portion of the shank.

Special con-rod bolts, used for highly-tuned engines and racing cars, are often made with "super steels" like Maraging steels, that are known for possessing superior strength and toughness. These are low-carbon steels that are alloyed with aluminium, nickel, cobalt, molybdenum and titanium. They are described by a number (200, 250, 300 or 350),

Connecting rods are strong but must be treated with great care! A failure like one this can be caused by a manufacturing defect.





which indicates the approximate nominal tensile strength in thousands of pounds per square inch. The most extreme alloy, Maraging 350, has the highest proportion of cobalt and titanium. These two elements are key factors in graduating the hardness of the steel.

LONG OR SHORT

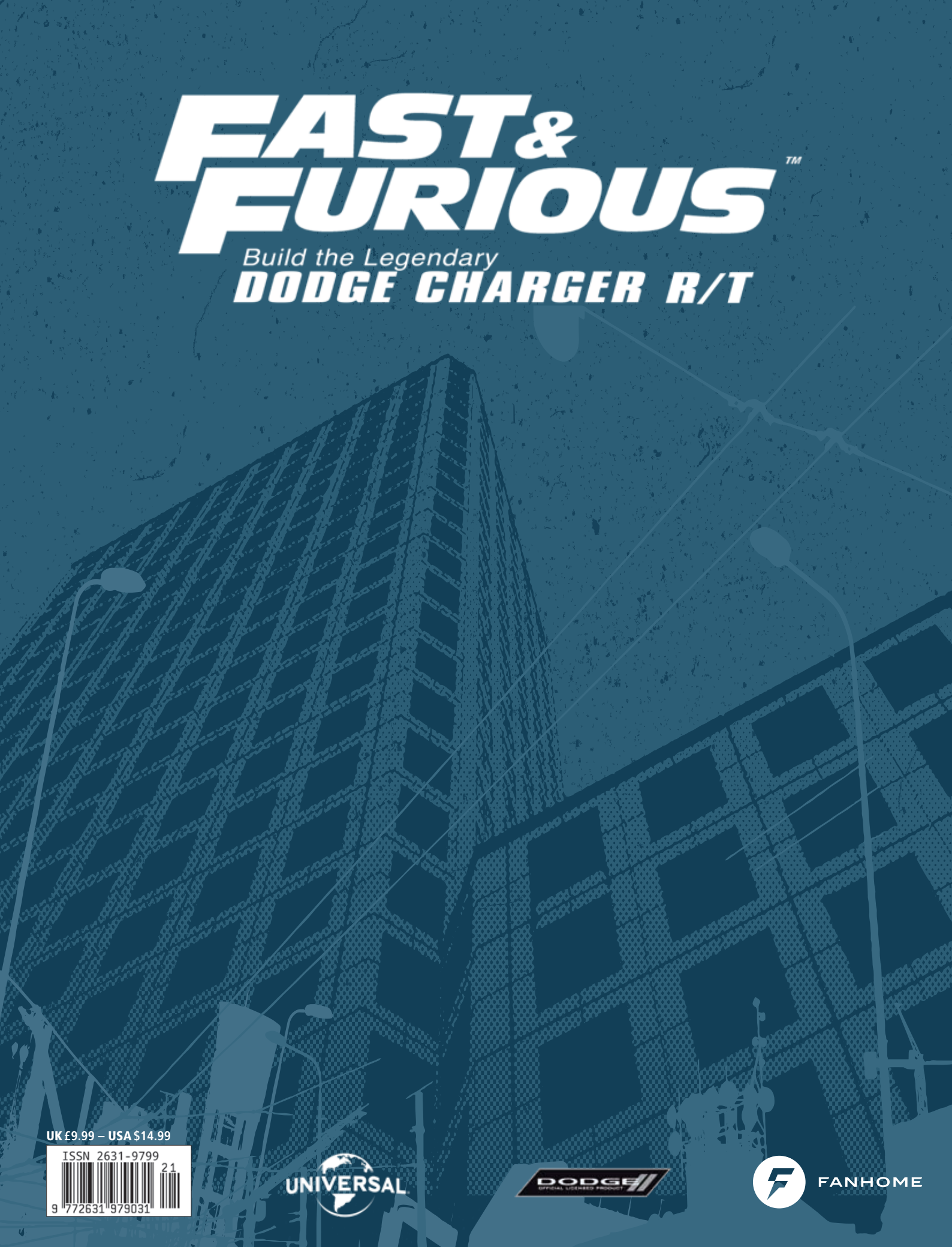
With the engine running and while the crankshaft rotates, the connecting rod works at an angle – first to one side, then to the other – relative to the cylinder axis. To be clear, the piston head is moving vertically in a linear direction while the big-end is rotating around the crankshaft axis. So there are inclined forces working on the connecting rod – so called shearing forces.

There is a fundamental relationship between the length of the con-rod and the stroke of the piston. A short connecting rod weighs less and inclines at a greater angle. This leads to an increase in the lateral pressure of the piston against the cylinder liner and an increase in the shear stresses on the con-rod. A long connecting rod, on the other hand, is advantageous because the shear and lateral forces are lower, and it allows the use of a lighter piston. Some stock engines use very short connecting rods to keep the vertical dimensions down. But it is not a bad idea, in case of substantial upgrading of the engine, to mount longer connecting rods than the original ones, combined with pistons with a lower compression height, i.e., with a shorter distance between the pin and the crown.

Some specialist firms make bespoke connecting rods for custom-built engines. In their catalogues, you might find several options, like, for example, parts made from steel or titanium.

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