FAST & FURIOUS™

27

Build the Legendary

DODGE CHARGER R/T



UNIVERSAL

FANHOME

DODGE

FAST & FURIOUS

Build the Legendary
DODGE CHARGER R/T



United Kingdom
Published by De Agostini UK Ltd c/o Royds Withy King, 69 Carter Lane, London EC4V 5EQ

USA
Published by De Agostini Publishing USA, Inc. c/o Becker, Glynn, Muffly, Chassin & Hosinski LLP, 299 Park Avenue, New York, New York 10171

ISBN: 978-1-4439-5170-8
FFN27: 21 03 10

ISSN 2631-9799 (Print)
ISSN 2732-4583 (Online)

Picture credits: NBCUniversal Archive; Alamy; FCA Archives; BMW Media; Marco Boccolini

Fast & Furious Franchise © 2021 Universal City Studios LLC. All Rights Reserved.

Dodge, HEMI and related logos, vehicle model names and trade dress are trademarks of FCA US LLC and used under license by Premium and Collectibles Trading Co. Ltd. ©2021 FCA US LLC.

Printed in Poland

CUSTOMER SERVICES
United Kingdom
Call 020 3991 1199 or email support@uk.fanhome.com or ask your newsagent to reserve future issues for you to collect.

USA
Call 1-800-978-1455 or email support@usa.fanhome.com

The price of this issue includes the magazine and the attached pieces for model assembly.

TO OUR READERS
The publisher reserves the right to modify any components as required during the course of the collection. Not suitable for children under the age of 14. This product is not a toy and is not designed or intended for use in play. The collection is complete in 110 parts. Items may vary from those shown.

WARNING
Any reproduction, even partial, of the contents of the magazine is prohibited without permission from the Publisher. the model and the magazine that accompanies it are strictly for private use, and within the family, in accordance with Article L122 - 5 10 of the Code of Intellectual Property. Any reproduction other than that provided for in Article L122 - 5 20 of the Intellectual Property Code is prohibited. The magazine and/or elements of the collection may not be distributed, loaned, resold, rented or exploited for commercial purposes. All rights reserved.

The driving sequences in the Fast & Furious motion pictures were filmed with professional stunt drivers, under carefully-controlled conditions, for entertainment purposes only. No attempt should be made to duplicate any of the racing activities or sequences depicted therein. Universal neither condones nor endorses the use of this or any related product in any manner whatsoever other than in strict accordance with applicable federal, state and local laws and speed limits.

More information at www.fanhome.com



WELCOME TO THE PARTY!

Driving fast is not the only thing in life. You also need time to relax and have fun with your friends. The stars of *Fast & Furious* know this only too well and they love a good party.

When a race is organised in the world of *Fast & Furious*, participants and fans know that the event is going to be much more than a simple race between fast cars. The events are an excuse to have a good time, see friends, listen to some music and show off the latest novelties with which people have tuned their cars. It is a real social gathering by fans who, besides races, likes and dislikes, or beliefs, share the passion for speed.

"It's a basic atmosphere," said director Rob Cohen while filming *The Fast and the Furious*, after attending some real gatherings in Los Angeles. "They have created a world of their own, with certain rites, protocols that they repeat, and even a different style of language."

RACE WARS

Just after the start of the first movie in the franchise, Cohen offered us a first racers' gathering, in an industrial zone of Los Angeles. After that, he wanted to take it a bit further and organised the Race Wars. The director and his team of writers had the idea of creating an event that would be highly reminiscent of the heavily attended SEMA Show, which once a year congregates thousands of people interested in cars and spare parts in Los Angeles. Cohen wished to give it a more clandestine look and adapted part of San Bernardino international airport to look like an abandoned military base that the drivers use to race in. Invited through the social networks, the movie team managed to get about 1,500 people there ready to show off the most extraordinary automobiles.

For the sequence of the luxurious *Fast & Furious 7* party, actress Michelle Rodriguez wore this elegant Hays designer dress instead of the typical urban clothing that her character, Letty, usually wears.



A new edition of Race Wars or any other meeting where great drivers compete is always an opportunity to have a party.

But Race Wars is not just a competitive gathering, as would also be seen later in another scene at the start of *Furious 7*, where Toretto went in the hope that racing there would help Letty get her memory back. It is actually a massive party, which has by now virtually evolved into an event similar to the ones organised by X-Games. While some of the drivers compete, the others relax with friends, dance and enjoy an extraordinary atmosphere, full of young people having fun, and also the parallel shows in which motorcycles and cars perform incredible acrobatics.



The actress Nathalie Emmanuel plays the part of Ramsey, a woman who stands out whether she is behind a computer keyboard or at a sophisticated party.

A FIXTURE OF THE FRANCHISE

Parties associated with the world of racing have appeared throughout the franchise as an essential part of the racing culture. At the start of *2 Fast 2 Furious*, we once again see a night-time gathering of racers very similar to the one in the first movie, despite the fact that the action has shifted to Miami. But perhaps the more festive spirit is reflected later on, during a curious jet ski race, organised by Tej Parker, where the people were enjoying the beautiful weather in Florida.

THE MOST INTERNATIONAL PARTIES

When it came to planning *Tokyo Drift*, the creators of the franchise came up with the possibility of fantasising about what kind of parties associated with fast cars would be thrown in the different parts of the world. In this particular movie, it was Tokyo's turn; the main character, Sean Boswell, goes there and encounters a racing world that is completely new to him. But, despite new racing techniques, the parties surrounding the races turned out to be like those he was pretty familiar with. Boswell was put in contact with the racing underworld and taken inside a parking lot, where dozens of young people were dancing and having fun surrounded by their powerful tuned cars.

At the start of *Fast & Furious*, we witnessed another racers' gathering in the Dominican Republic, where Toretto and his gang had just pulled off a heist to supply the people most in need with fuel. On that occasion, the techno music that had surprised us in Tokyo gave way to Latin rhythms.

FROM LONDON TO HAVANA

In *Fast & Furious 6*, after Letty reappeared Toretto tracked her down in London. And, of course, in such a sophisticated city there had to be a much-talked-about party. In this case, the event was more like a commercial motor show than anything else, although of course it was full of great music and beautiful people having fun. The party served as a prelude to a race afterwards in which Dom and Letty hurtled through the streets of central London.

But if it's sophisticated and exotic parties you want, just look at the one the whole team goes to in *Furious 7*. On the trail of a dangerous new technological device called the God's Eye, Toretto and his team find themselves forced to travel to the United Arab Emirates. There, in Abu Dhabi, the capital of one of the richest countries in the world, they are faced with the challenge of going to an elegant party organised by a Jordanian prince on the 80th floor of an impregnable skyscraper. Of course, they all have to wear their finest clothes in order not stand out at a party as exquisite as it is extravagant, in which gold-painted women dance as if they were statues coming to life with the music.

The sequence of the party in the penthouse in Abu Dhabi was complex to film, but most of the cast had a great time, wearing the elegant dresses and suits designed for the occasion by such prestigious figures as Tom Ford or Herve Leger. The cast were joined by rapper T-Pain, who was the DJ at the party, and by dozens of extras, dancers and stunt performers, all dressed up to the nines, whose job was to show the audience how billionaires amuse themselves. Although the exteriors were filmed in Abu Dhabi, the party scene was recreated on a studio set in Atlanta, suitably adapted so that, at a given moment, the super luxury W Motors Lykan HyperSport that the protagonists have to steal from the Jordanian prince could go into action.

But international parties don't always have to be the fanciest affairs. The start of *Fate of the Furious* was set in the center of Havana, the luminous capital of Cuba. There, in a superb neighborhood setting, Dom Toretto was challenged to take part in an exciting race and celebrated with a party in the streets.

Matthew F. Leonetti

If there is one thing that catches the eye in *2 Fast 2 Furious*, it is his brilliant camera work. Behind that warm and cheerful smile is none other than Matthew Frank Leonetti, a prestigious veteran director of photography in Hollywood. Born in Los Angeles in 1941, he began working as a cameraman in the 1970s. His long career as a director of photography began in the 1980s, the highlights being his work on such well-known action films as *Commando* (1985), *Red Heat* (1988), and *Another 48 Hrs.* (1990), directed by Walter Hill, with whom he worked closely. He was also noted for creating the images of some science-fiction films, like *Strange Days* (1995) and *Star Trek: First Contact* (1996). Since his formidable camera work on 2 Fast 2 Furious, Leonetti has continued to show us his great talent in many other box-office hits, like for example *The Butterfly Effect* (2004), *What Happens in Vegas* (2008), and *Carte Blanche* (2011).



Costing several million dollars, the Lykan Hypersport is the centre of attention at a lavish party celebrated in Abu Dhabi during *Fast & Furious 7*.



DODGE ZEO

By about the year 2010, the motor industry was coming to terms with the unstoppable process of switching to electric propulsion. For this reason the Dodge ZEO was unveiled at the 2008 Detroit Motor Show, a completely electric sports car that was a sign of the brand's intentions.

The Dodge ZEO was presented in 2008 with bold bodywork painted bright orange.

Having decided to be part of the move towards electricity-powered automobiles, in 2008 the Dodge brand designed a conceptual prototype that presented the formula of a non-polluting sports car for the future. The Dodge ZEO (Zero Emissions Operation) was a four-seat four-door coupe (the rear doors were remarkable for their cinematic look). The interior, typical of a concept car, was notable for its minimalist design and some very lightweight seats. The dashboard had been reduced to a single screen behind the steering wheel.

Its 200 kW electric motor was powered by a 64 kWh lithium-ion battery under the floor of the vehicle. Placed at the back, the motor turned the rear drive axle and enabled this conceptual model, which was never mass produced, to accelerate from 0 to 100 km/h in 5.7 seconds and reach a top speed of 209 km/h, an extremely interesting performance for an electric sports model. The Dodge ZEO was said to have a range of 483 km.

The Dodge brand does not presently have any electric models, although the FCA group is working on the electrification of some of its platforms.



The doors opened upwards and fitted together with one another, without a center pillar, a design difficult to apply to mass production.

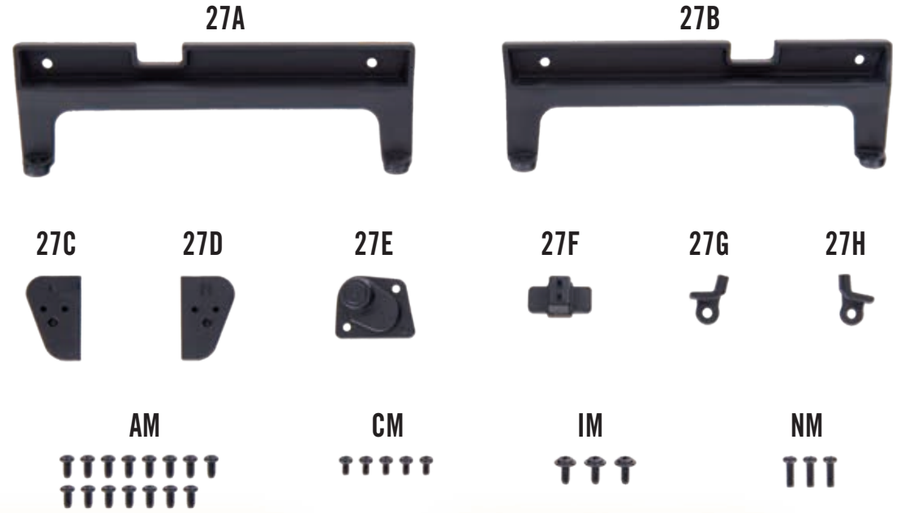


ATTACHING THE ENGINE HOUSING TO THE CHASSIS

In this assembly session you will attach the firewall and the side panels of the engine housing to the chassis. You will also mount the front wheel arch reinforcement plates.

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



27A Front left wheel arch reinforcement plate
27B Front right wheel arch reinforcement plate
27C Left mount bracket for the crossbar in the engine housing
27D Right mount bracket for the crossbar in the engine housing
27E Windscreen wiper motor
27F Voltage regulator
27G Front left control arm anchor bolt
27H Front right control arm anchor bolt
AM Screws 2 × 4 mm, (x 15)*
CM Screws 1,7 × 3 mm, (x 5)*
IM Screws 2 × 5 × 5 mm, (x 3)*
NM Screws 2 × 5 mm, (x 3)*

* Some of the parts are spares.

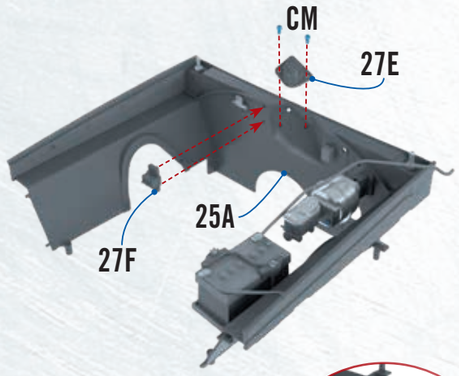
ASSEMBLY AREA



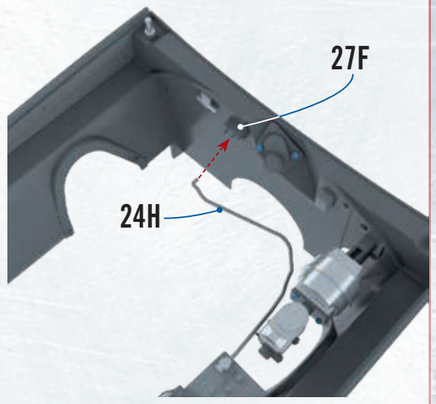
ENGINE HOUSING

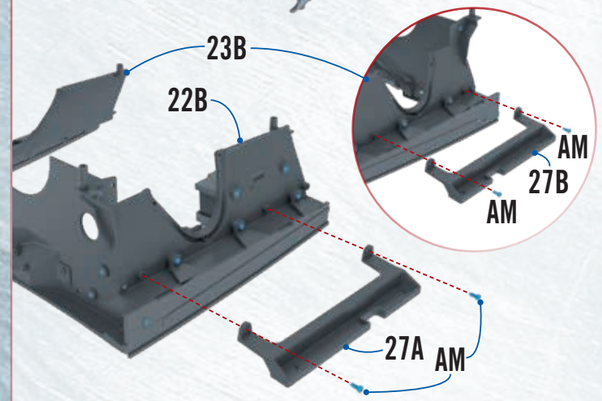
Attaching the engine housing to the chassis

27.1 **TAKE** the piece composed of the firewall and side panels of the engine housing. Put the windscreen wiper motor **27E** inside the firewall **25A**, as shown in the illustration. Secure the piece with two **CM** screws. Insert the voltage regulator **27F** next to the windscreen wiper motor and press into place. ▼



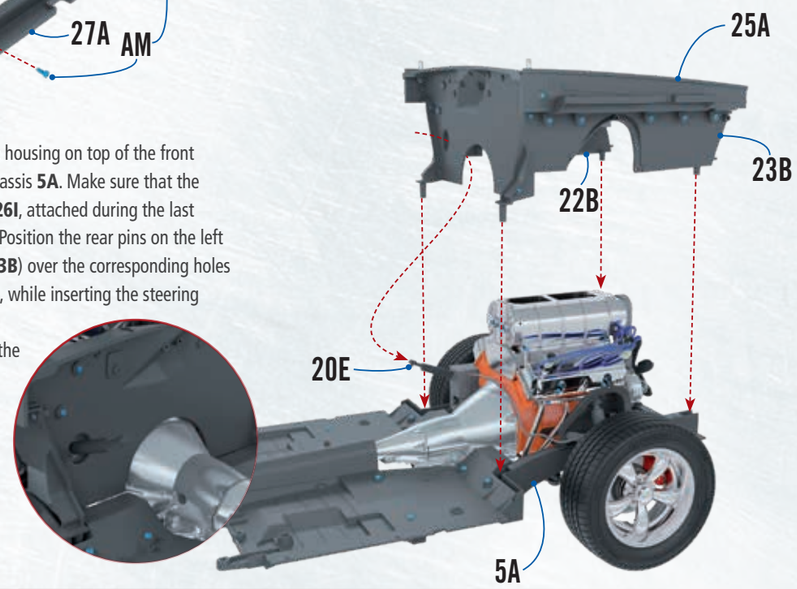
27.2 **CONNECT** the free end of the positive cable **24H**, which is attached to the battery, to the pin on the voltage regulator **27F**, as shown in the illustration. ▼



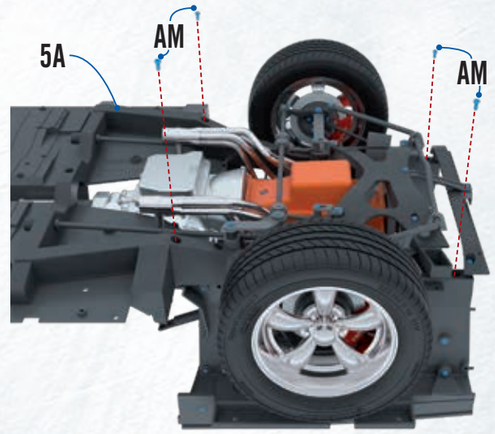


27.3 **TURN** the engine housing section over. Insert the semi-circular holes on the front left wheel arch reinforcement plate **27A** over the corresponding pins on the left panel 2 **22B**. Join the pieces with two **AM** screws. On the other side of the engine housing, attach the front right wheel arch reinforcement plate **27B** to the right panel 2 **23B**. As before, secure with two **AM** screws. ◄

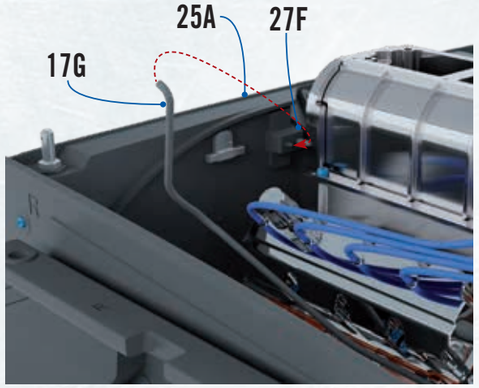
27.4 **PUT** the engine housing on top of the front section of the chassis **5A**. Make sure that the hoses **26H** and **26I**, attached during the last assembly session, are not in the way. Position the rear pins on the left panel 2 and right panel 2 (**22B** and **23B**) over the corresponding holes on the front section of the chassis **5A**, while inserting the steering column **20E** into the large hole in the firewall **25A**. Insert the front pins on the left and right panels (**22B** and **23B**) into the holes on the chassis. ►



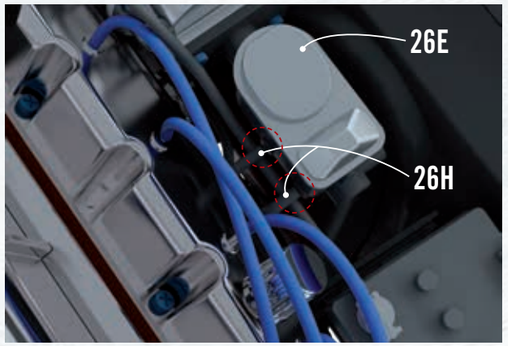
27.5 **CAREFULLY** turn over what you have built and insert four **AM** screws into the holes in the front section of the chassis **5A**, as shown in the illustration. ►



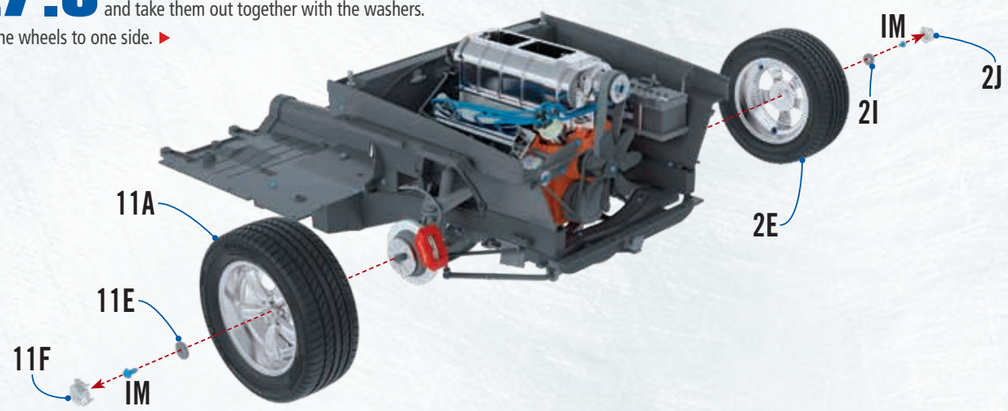
27.6 **CONNECT** the free end of the alternator wire **17G** to the free pin on the voltage regulator **27F**, situated on the inside of the firewall **25A**. ▼



27.7 **FIND** the free ends of the brake hoses **26H** and slide them onto the pins on the connecting piece for the brake power booster and the reservoir **26E**. ▼

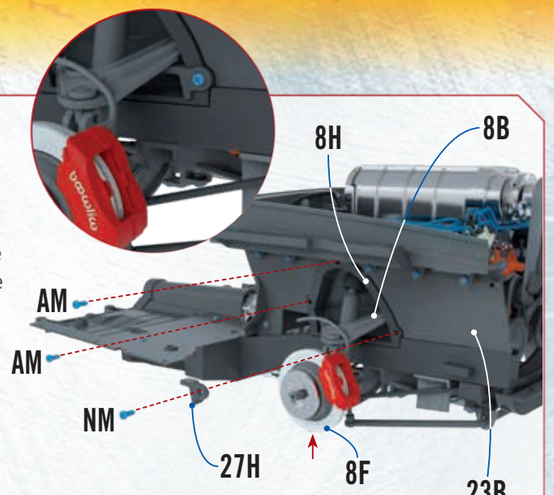


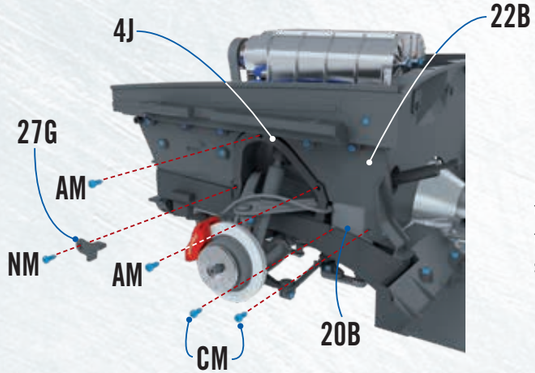
27.8 **DETACH** the front wheels and the hub covers temporarily. Now loosen the screws and take them out together with the washers. Put the wheels to one side. ►



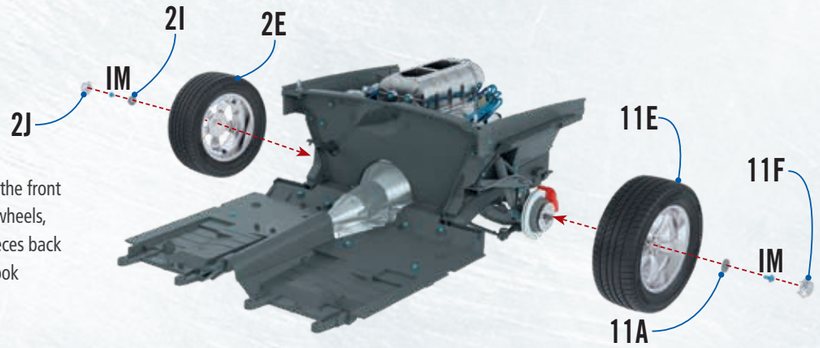
Attaching the engine housing to the chassis

27.9 **ATTACH** the right panel 2 of the engine housing **23B** to the front right suspension dome **8H**. First insert two **AM** screws into the holes shown in the illustration. Then align the front right control arm anchor bolt **27H**, labelled with the letter R, with the remaining hole. Press part 1 of the brake disc **8F** upwards and in the meantime insert the protruding part of the anchor bolt **27H** under the upper front left suspension arm **8B**. Then secure the anchor bolt with a **NM** screw. ▶





27.10 **REPEAT** on the other side; use the front left control arm anchor bolt **27G** (labelled with the letter L) to attach the left panel 2 **22B** to the front left suspension dome **4J**, then secure with one **NM** and two **AM** screws. Now insert two **CM** screws into the holes in the steering gear box 2 **20B**. ◀



27.11 **REATTACH** the front left and right wheels, putting the pieces back on in the reverse order to how you took them off (step 27.9). ▶

STAGE 27 FINAL RESULT



You can admire the result of this complex assembly session in this photograph. The mount brackets for the crossbar in the engine housing will be used in the assembly session in stage 30.

MODIFY THE HEAD FOR MORE HORSEPOWER



Power comes from the top of the engine, where combustion takes place, so this area is very important for any tuner. Let's take a look at what is hidden inside the engine block.

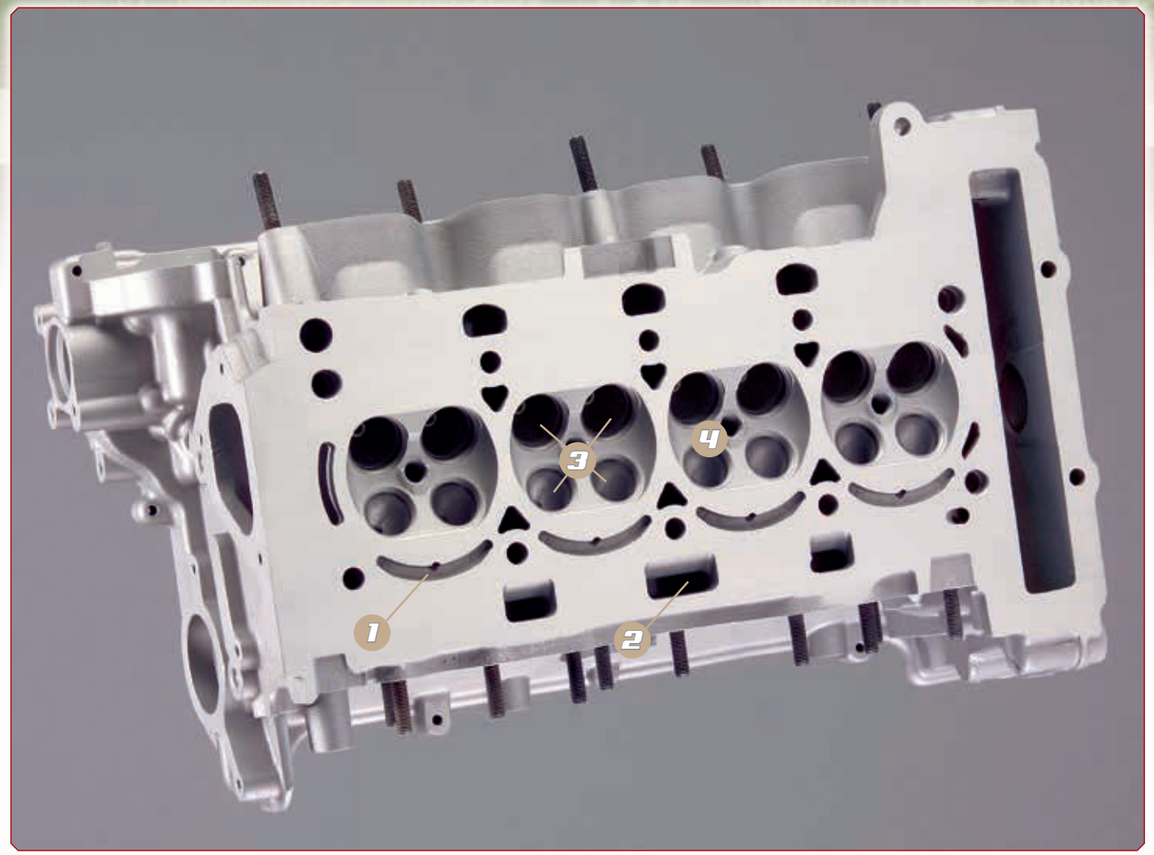
The cylinder head is a decidedly complex component: inside it, we find the head gasket, the intake and exhaust ports, valves and valve springs, a camshaft and tappets, spark plug mounts, and much more. And remember that in the bottom part there are combustion chambers and valve seats.

The design of a cylinder head is intricate, both in production and high-performance cars. It must be fitted to the engine block with great precision and even pressure, for the cylinder head gasket to function correctly. In many ways, the head is the mechanical control centre of the engine. It is the meeting point for the intake, exhaust, ignition and fuel systems.

Among the fundamental characteristics of the head is its rigidity, which is essential to prevent distortions from occurring during engine operation. The cooling channels must be carefully calculated to provide proper temperature control via the coolant liquid, without which the

Once the head is opened, a careful visual inspection of the surfaces gives us a lot of information about the parts and their operating conditions.

Modify the head for more horsepower



Looking at the head we can easily see the coolant channels (1), the oil galleries (2), the intake and exhaust ducts (3) and the top of the combustion chamber together with the valve seats (4).

engine would fail within minutes of start-up. The same applies to the oil galleries through which lubricant flows to the active components.

This aspect must not be neglected, because not only is it essential to avoid high temperatures, but also to obtain maximum uniformity in the distribution of the temperatures across the cylinder head. The idea is to eliminate the possibility that excessive stresses build up inside the metal structure.

Fortunately, sophisticated software exists today that dramatically facilitates the work of designers. The most advanced systems can simulate with great precision the distribution of stresses and temperatures during engine operation, right from the design stage.

THE IMPORTANCE OF GEOMETRY

In an ideal cylinder head, camshafts need to rotate freely. So it is essential that they are perfectly straight and that their supports are correctly aligned. Even the smallest geometric error could cause a build-up of friction. If the shaft encounters any resistance during rotation, the direct consequence is an increase in the energy required to move it, and consequently, power is wasted. Errors of this type can also lead to abnormal and very rapid wear of the working surfaces.

When we check the head, we will, therefore, have to focus immediately on this aspect, and if necessary, with the help of the rectifying workshop, correct any geometric errors. Generally, the operation is carried out using a machine with a rotating head equipped with one or more cutters, but in some cases, abrasive stones are used. Remember that after rectifying, we must always check the diametric clearance of the camshaft journals in their supports, and if necessary, intervene to bring it back to the correct value. But this is the responsibility of the machine shop.

FUNDAMENTAL CHECKS

Once the head has been opened, with a careful visual examination of the working surfaces of the different parts, it is possible to gain quite a lot of information about their operating conditions. Most of the components housed in the head are subjected to higher stresses than are found in other parts of the engine. We are talking about the cams and the followers (tappets or rocker arms) on which they work. Here the contact surfaces have a minimal area which receives the pressure that the lobes exert on the followers. High loads concentrated on a very small surface mean extremely high contact pressure. The resistance of the valve springs further increases the load. With very high engine speeds, the situation can become critical in tuned, high-performance engines.

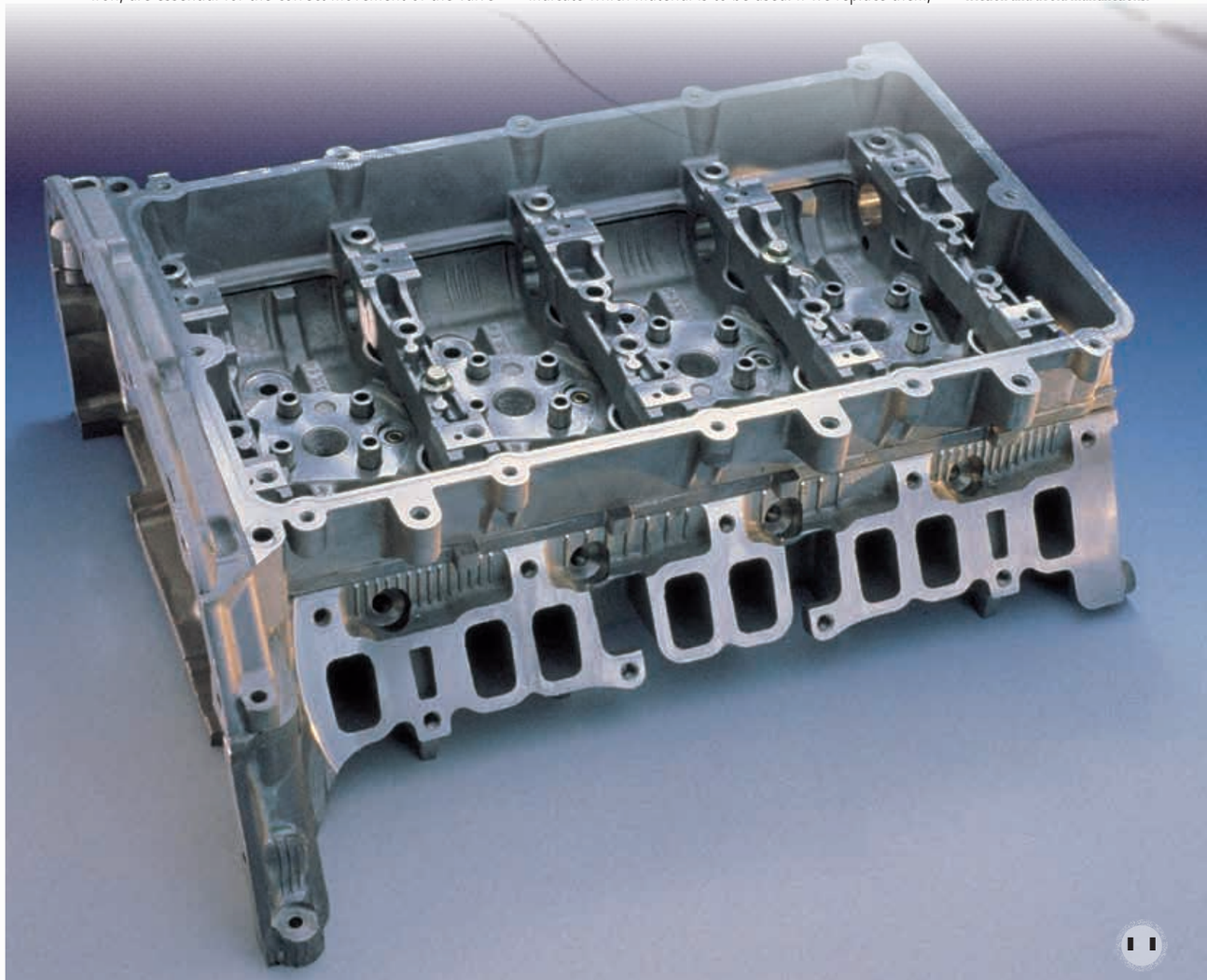
THE VALVE GUIDES

Small, cylindrical valve guides, made of bronze or cast iron, are essential for the correct movement of the valve stems. They are not made of aluminium, as this material does not have suitable *tribological* characteristics (*i.e. related to the friction between materials*), and it has a very low hardness. If the stems contacted directly against the aluminium alloy, we would see high and very rapid wear or even a seizure.

The guide hole, inside which the valve stem is installed with a tiny diametrical clearance (a few hundredths of a millimetre), must be perfectly coaxial with respect to the seat. In most cases, when preparing an engine, it is not necessary to replace them. However, if the tuned power increase is high, and the originals are made of cast iron, it is probably better to install new ones in bronze.

Very often it is the valve manufacturers themselves who either provide the most suitable valve guides or indicate which material is to be used. If we replace them,

The camshaft supports must be perfectly aligned, to limit power losses due to friction and avoid malfunctions.





always remember to use new oil seals. Carefully check that with the valve at maximum lift, there is an adequate safety distance between the lower part of the spring cup and the top of the guide.

CHOOSE THE SPRINGS

If we have fitted a higher-lift camshaft than the original, the valves are subjected to greater acceleration, both because of the increased lift and due to the increase in the rpm. As we have seen so far, if we have not gone overboard with our tuning, we can keep the original springs, which should still be suitable for the job. But if we are unsure it is better to replace them!

It is useful to have a clear idea, if not precisely about the overall characteristics that the new springs must have, at least about their load capability. This helps us to choose from among the many that are produced by specialist companies in this sector.

Do not underestimate how hard the springs have to work. At 8,000 rpm each valve lifts from its seat, quickly reaches maximum lift, and closes again 66 times per second. This means that in an hour, it opens and closes around 240,000 times!

Things to consider: There are a few different spring designs. Each one offers different levels of performance. Valve springs come in different sizes, so it is essential to get a spring that fits the cylinder head. You also need to make sure that the spring does not interfere with other moving parts. Possibly the most critical spring specification is the spring rate. Pressures that are too low cause *Valve Float*. Pressures that are too high cause premature wear and damage to the valve train. Spring rate is a measure of how stiff the spring is. When combined with height, the spring rate determines the spring pressure. Changing your spring rate can be used to fine-tune performance based on rpm range.

Fortunately, some of the specialist camshaft manufacturers provide all the information we need relating to the new springs to be used, and some even provide the springs themselves as kits.

Variable pitch valve springs are prevalent on modern engines. In the photo, we can see the delicate phase of insertion into the head.

The valve seats

A valve seat must do several things – it must support and seal the valve when the valve closes, it must cool the valve, and it must resist wear.

In the past, cylinder heads with aluminium valve seats were made. But they were intended for racing engines, which would be overhauled after every race. The life of the components and sealing surfaces was completely irrelevant. They just had to last long enough to get past the chequered flag!

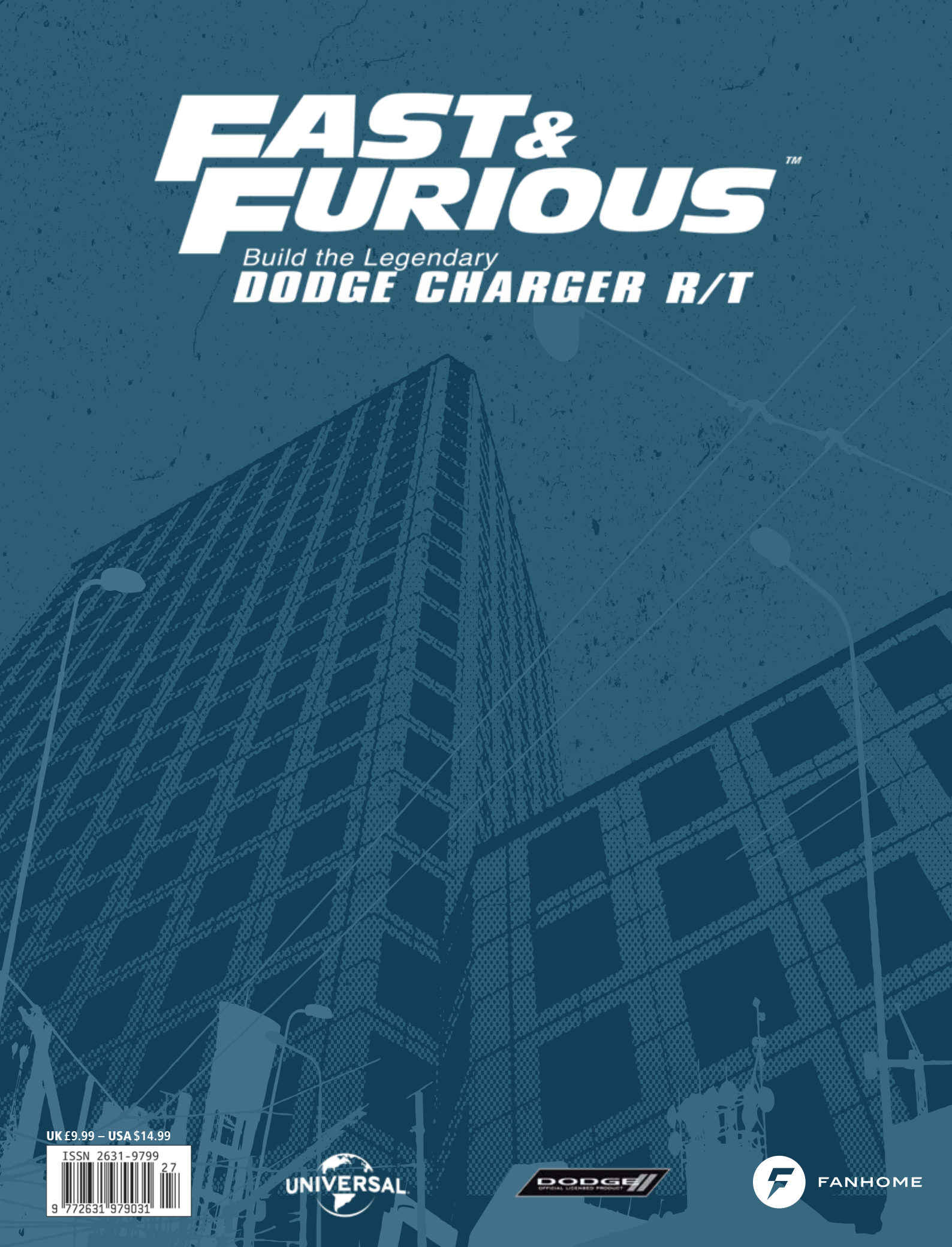
The exhaust valves take 75 per cent of the heat from the combustion chamber, and the valve seats have the responsibility of helping to cool them off by drawing heat away from the valves and conducting it into the cylinder head.

The most common materials used for making valve seats for high-performance engines are copper alloys. They have excellent thermal conductivity, good wear characteristics and reasonably high strength. Copper beryllium alloys that contain small additions of beryllium are commonly chosen for racing engines.



FAST & FURIOUS™

Build the Legendary DODGE CHARGER R/T



UK £9.99 – USA $14.99

ISSN 2631-9799 27

9 772631 979031

UNIVERSAL

DODGE OFFICIAL LICENSED PRODUCT

FANHOME