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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: 978-1-4439-5172-2
FFN29: 21 03 24

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

Picture credits: NBCUniversal Archive; Getty Images, FCA Archives; Marco Boccolini; Tuning Generation

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Printed in Poland

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ADVENTURES IN MIAMI

Bright, open and full of contrasts, the city of Miami takes centre stage in the second movie in the *Fast & Furious* franchise. Its beaches, its streets and its magnificent mansions create an ideal setting for a new adventure packed with danger and excitement.

In *2 Fast 2 Furious*, the action in the series moves from Los Angeles to sunny Miami. To find out how police officer Brian O'Conner jumps from one city to another, you first have to see the short made by Philip G. Atwell in 2003 as a connection between the two movies, entitled *Turbo-Charged Prelude to 2 Fast 2 Furious*. In this short story, we see that, after allowing Dominic Toretto to escape, Brian assumes that he has no future in the Los Angeles Police Department. For that reason, he decides to leave everything behind and hits the road, crossing most of the USA, to take part in several street races. His long journey eventually brings him to the city of Miami.

THIS IS MIAMI

Miami is a port city in the USA built on the banks of the river of the same name, in the southeast of the state of Florida, between the Everglades and the Atlantic Ocean. With a metropolitan area with a population of more than five million, it has become the seventh largest city in the country. It is an important cultural and financial centre, and a large number of international banks have their headquarters there. But, without a shadow of a doubt, one of its most important business centre is the port, considered to be the one that welcomes the largest number of cruise ships in the world.

Due to its geographic position and its pleasant tropical climate, Miami is a mini paradise, and a melting pot for many different cultures.

In *Turbo-Charged Prelude to 2 Fast 2 Furious*, we see Brian arriving in the city, surprised at the immensity of its financial centre, and by its exotic esplanades. But while his eye is caught by the attractive women on the boardwalk, it is also by the explosive cars that he immediately sees driving along the streets. As a driver he doesn't find it too hard to be able to race in the city, especially after making friends with Tej Parker, a former racing driver who has become the main organiser of races in the area. However, after taking part in his first important race and winning it, Brian is arrested by agents of the customs service.

A VISIT ON WHEELS

Brian and his good friend Roman Pearce find themselves forced to become undercover agents and they are made to volunteer to work as drivers for Carter Verone, a businessman who seems to have connections with the drug cartels operating in the area. On their way to their first meeting with Verone, Brian and his friend have the opportunity to drive along some of the main streets in the city, like the ones that run parallel to the river Miami.

The second edition of the *Fast & Furious* saga takes place in Miami, the seventh largest city in the United States, after Brian O´Connor moves there from Los Angeles.

MICHAEL BRANDT

Part of the great success of *2 Fast 2 Furious* is due to the excellent script by Michael Brandt, who masterfully combined humour and action in the plot. For this writer born in Madison (Wisconsin) on 1 October 1968, the *Fast & Furious* franchise was a great launch pad. After writing the new adventures of Brian O'Conner, he was one of the writers for the family-oriented film *Catch That Kid* (2004), and the new version of a classic Western, *3:10 to Yuma* (2007), in which no less than Russell Crowe and Christian Bale faced off on screen. But, unquestionably, his greatest success came with the script for *Wanted* (2008), the frenetic action movie starring Angelina Jolie. In 2011, Brandt decided to try his luck as a director too with the thriller *The Double* (2011). After that, he changed course, concentrating mainly on television. He created the popular series *Chicago Fire* and also contributed to numerous scripts for other series set in the same city, like *Chicago Justice*, *Chicago P.D.* and *Chicago Med*.

Shortly afterwards, to demonstrate their skill at the wheel, the two friends take part in a mission that will take them to Little Haiti, one of the most dangerous neighbourhoods in the city. Their job is to go to a car impound lot, where Verone's car has been taken and from which he wants to recover an important package that he left in the glove box.

Little Haiti owes its name to the large number of Haitians who moved to the area in the 1960s, fleeing from the dictatorship of Papa Doc Duvalier in Haiti.

WHO DOESN'T WANT TO FILM IN MIAMI?

After Los Angeles became the stage for the action in *The Fast and the Furious*, and it also became associated with the Toretto family home, the producers of the franchise wanted a major change of location for the second film. And what better than Miami! It obviously would have been impossible to film sequences like the one in which the likeable Tej Parker directs an unusual jet-ski race in Los Angeles.



The director John Singleton, who had made his debut in the cinema portraying life in the toughest neighbourhoods of Los Angeles in the hard-hitting *Boyz n the Hood* (1991), thought that taking the cameras to somewhere as emblematic as Miami would be a great opportunity. It was a city that already had a long well-known history in television and films. Its popularity undoubtedly hit its peak in the second half of the 1980s, when Don Johnson and Philip Michael Thomas starred in the legendary TV series *Miami Vice* (1984-1990). The main symbols of the city were all perfectly seen in its unforgettable fast-paced opening sequence. But Miami had not only been a hit on television. The cinema also made the most of its sun-drenched settings, for instance in movies as different as *Scarface* (1983), *The Bodyguard* (1992), *Ace Ventura: Pet Detective* (1994), *True Lies* (1994), and *Bad Boys* (1995). On this occasion, the second movie in the *Fast & Furious* franchise contributed once more to showing off the city's charms to the full.



Roman Pierce had no choice but to team up with his former colleague, Brian O'Connor, to go undercover as a driver in Carter Verone's business.

THE CITY AS A CHARACTER

Right from the start, the idea was that the action in *2 Fast 2 Furious* would take place in Miami so that the city could become yet another character in the movie. The director of this second film, John Singleton, understood this perfectly and did not restrict the use of colour in either the cars or the settings. Miami is a place with a mixture of cultures, something that can be seen in the buildings with their pastel shades and the impressive views of the beaches. On top of this there is the contrast between its more expansive and wealthy urban centre and the neighbourhoods where citizens from all over the world live. All this provided opportunities to make the film even more exciting.

The many locations used for the movie included some well-known landmarks, such as Seven Mile Bridge in the Florida Keys, Homestead Air Force Base, headquarters of the US Customs Service, or the spectacular Coral Gables mansion, which was once owned by the film-star Sylvester Stallone.

Despite the fact that Miami appears to be a place where criminals as heartless as Carter Verone live, *2 Fast 2 Furious* portrays the city affectionately, making spectators fall in love with it. And not just spectators! After the adventure, when the two lead characters are talking about their future, Roman tells Brian, "I'm gonna have to stay in Miami, man, to keep you out of trouble." Both laugh and the ex-cop asks him: "So you gonna kick it in Miami, bro?" To which Roman replies, "Oh man, I love Miami. Miami's off the hook!"



The Dodge Journey as it was launched in 2008. The photo is of a unit made for the American market, but the European versions were almost identical.

DODGE JOURNEY

Halfway between an SUV and a minivan, the Dodge Journey was launched in 2008 as a global vehicle that was to be sold in the USA, where it replaced the Chrysler Pacifica, and in Europe. This 4.88-metre long vehicle, with seating for 5 or 7 passengers, is made at FCA's plant in Toluca, Mexico.



The 2014 Dodge Journey Crossroad version, with four-wheel drive and a more adventurous look.

The relaunch of the Dodge brand in Europe, in 2007, entailed the creation of a range of models adapted to the needs of customers on both sides of the Atlantic. The Dodge Journey was one of these models. Built on the Dodge Avenger platform, it was a crossover with traces of an SUV (external appearance, high ground clearance and four-wheel-drive availability) and others typical of a minivan (interior space, 5 or 7 seats). In the USA it replaced the Chrysler Pacifica, while in Europe it became the brand's largest model.

With 2.4 and 2.7 litre four-cylinder gasoline engines, in Europe it was also sold with a Volkswagen diesel engine in front-wheel-drive and four-wheel-drive versions. After the merger between the Fiat and Chrysler groups in 2011, the Dodge brand disappeared from the European market. The Dodge Journey, still on sale in the USA with a new 3.6 litre V6 Pentastar engine, was sold on the Old Continent as the Fiat Freemont from 2011 to 2016. This model, similar to the original one but with new logos, had the American gasoline engines and two new diesel engines manufactured by Fiat.

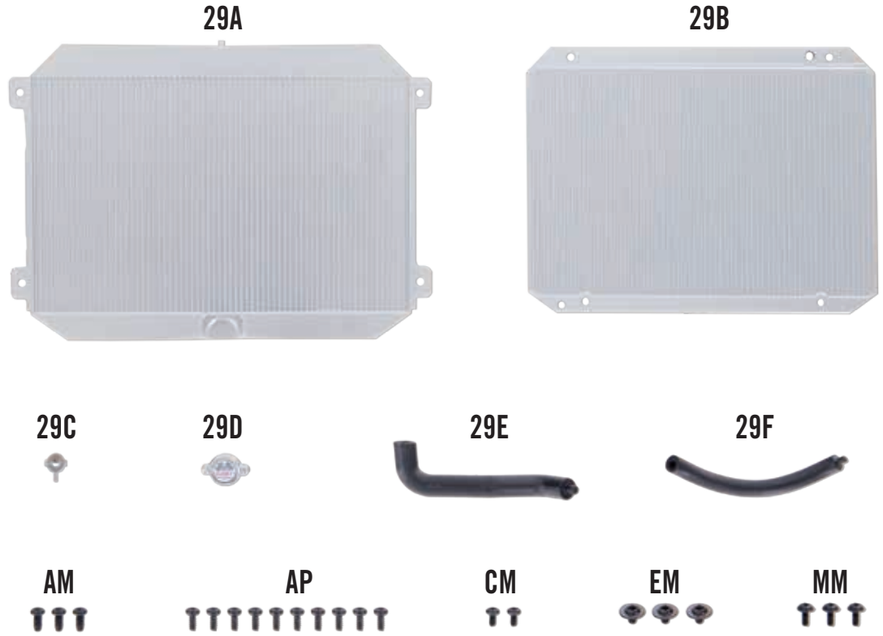


ASSEMBLING THE RADIATOR

In this assembly session you will build the radiator and attach it to the front panel of the engine housing.

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



29A Main body of radiator
29B Rear panel of the radiator
29C Radiator filler neck
29D Radiator cap
29E Top radiator hose
29F Bottom radiator hose
AM Screws 2 × 4 mm, (x 3)*
AP Screws 1,7 × 4 mm, (x 10)*
CM Screws 1,7 × 3 mm, (x 2)*
EM Screws 2 × 3 × 6 mm, (x 3)*
MM Screws 1,7 × 4 × 4 mm, (x 3)*

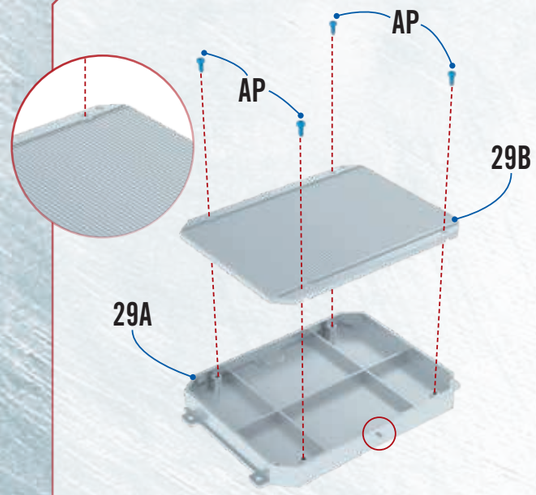
* Some of the parts are spares.

ASSEMBLY AREA



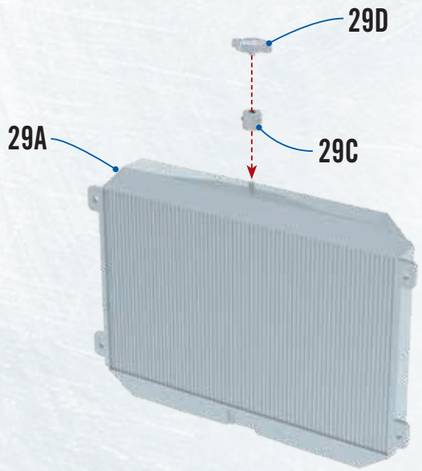
RADIATOR

Assembling the radiator

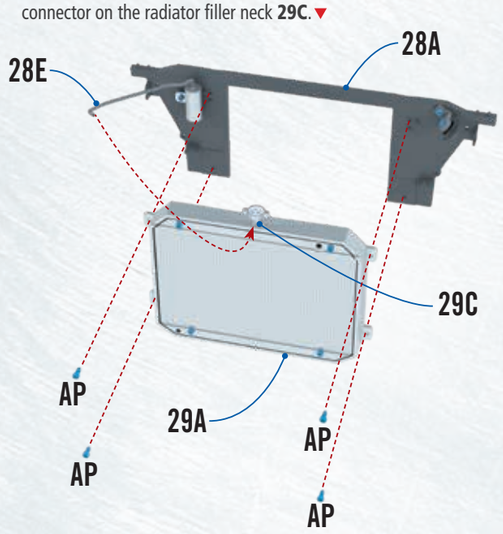


29.1 **PUT** the rear panel of the radiator **29B** on top of the main body **29A**, which has screwholes on the upper side. Pay attention: the bottom of the rear panel has two cutouts that are partly in the raised edge. Join the pieces with four **AP** screws. ◄

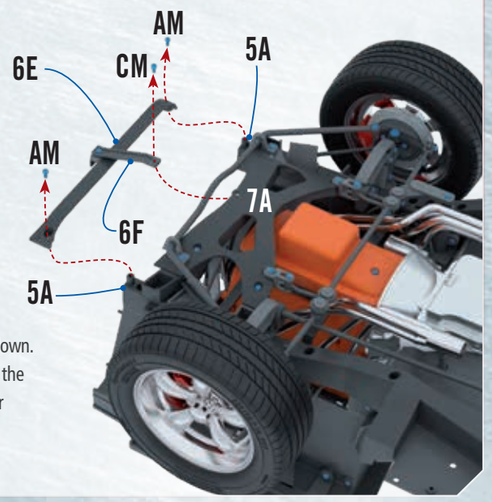
29.2 **WITH** the horizontal connector on the radiator filler neck **29C** facing backwards, slide it onto the vertical pin on the main body of the radiator **29A**. Then attach the radiator cap **29D**. ▼



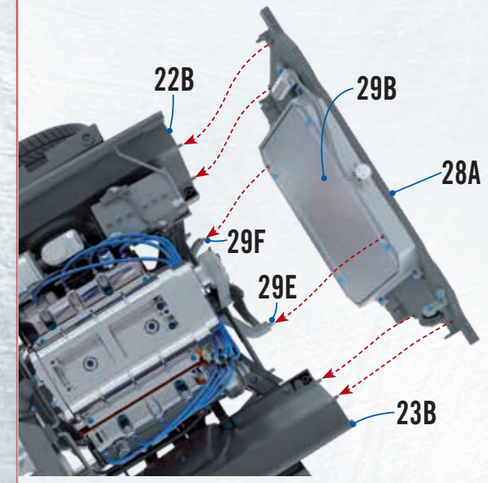
29.3 **GET** the front panel of the engine housing **28A**. Align the brackets on the main body of the radiator **29A** as shown in the illustration, and join the pieces with four **AP** screws. Slide the free end of the hose **28E**, which is already attached to the expansion tank, onto the horizontal connector on the radiator filler neck **29C**. ▼

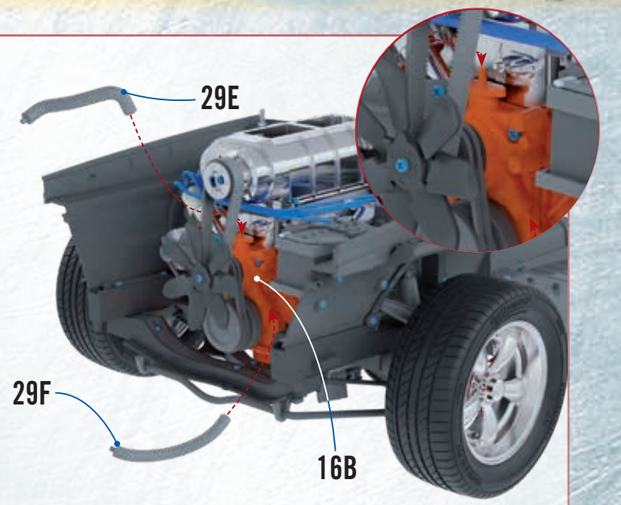


29.4 **GET** the assembled chassis and the engine. Carefully turn it upside down. Remove the **CM** screw that joins the lower front panel plate **6F** to the engine guard plate **7A**, and the two **AM** screws that join the lower radiator cover **6E** and the rear end of the front section of the chassis **5A**. ►



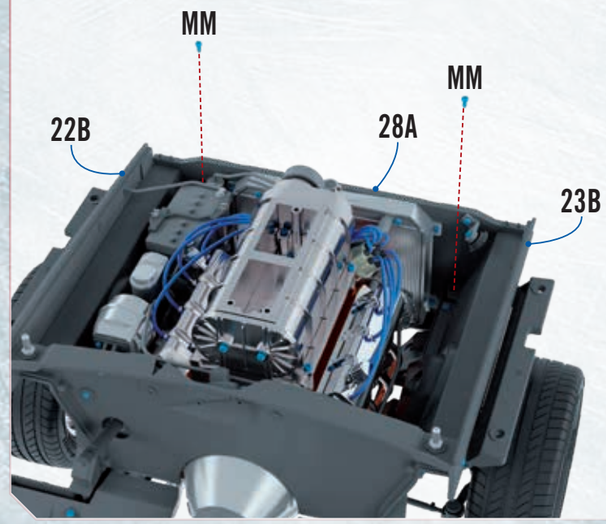
29.5 **TURN** the whole piece over and find the two connectors on the water pump **16B**, which stick out over the back of the engine. Slide the upper radiator hose **29E** onto the connector at the top, and the lower radiator hose **29F** onto the connector on the side. ►



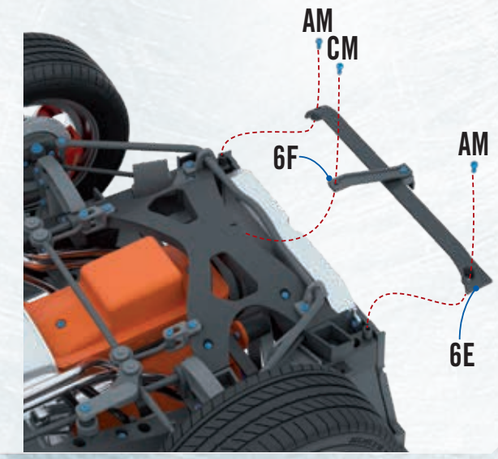


29.6 **ATTACH** the front panel of the engine housing and the radiator (**28A** and **29B**) to front of the engine, using the two pins on the left panel 2 **22B** and those on the right panel 2 **23B**. The pins on the upper and lower radiator tubes **29E** and **29F** must be inserted into the corresponding holes in the rear panel of the radiator **29B**. ◄

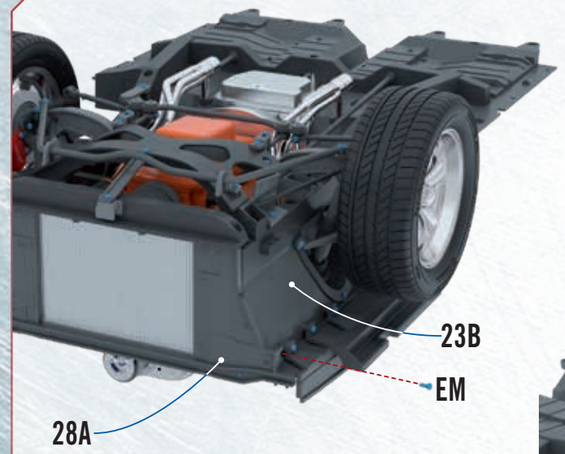
29.7 **INSERT** an **MM** screw in the hole that joins the front panel of the engine housing **28A** and the left panel 2 **22B**. Insert another **MM** screw to join the front panel **28A** and the right panel 2 **23B**. ▼



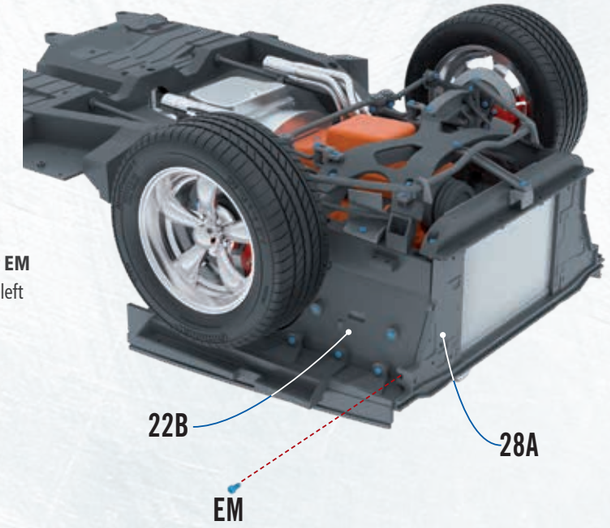
29.8 **CAREFULLY** turn the assembled chassis and the engine over, so you can reattach the lower front panel plate **6F** and the engine guard plate **7A**. Secure with two **AM** screws and one **CM** screw. ▼



Assembling the radiator



29.9 **INSERT** an **EM** screw in the hole on the outside of the front panel of the engine housing **28A**, to secure it to the right panel 2 **23B**. ◄



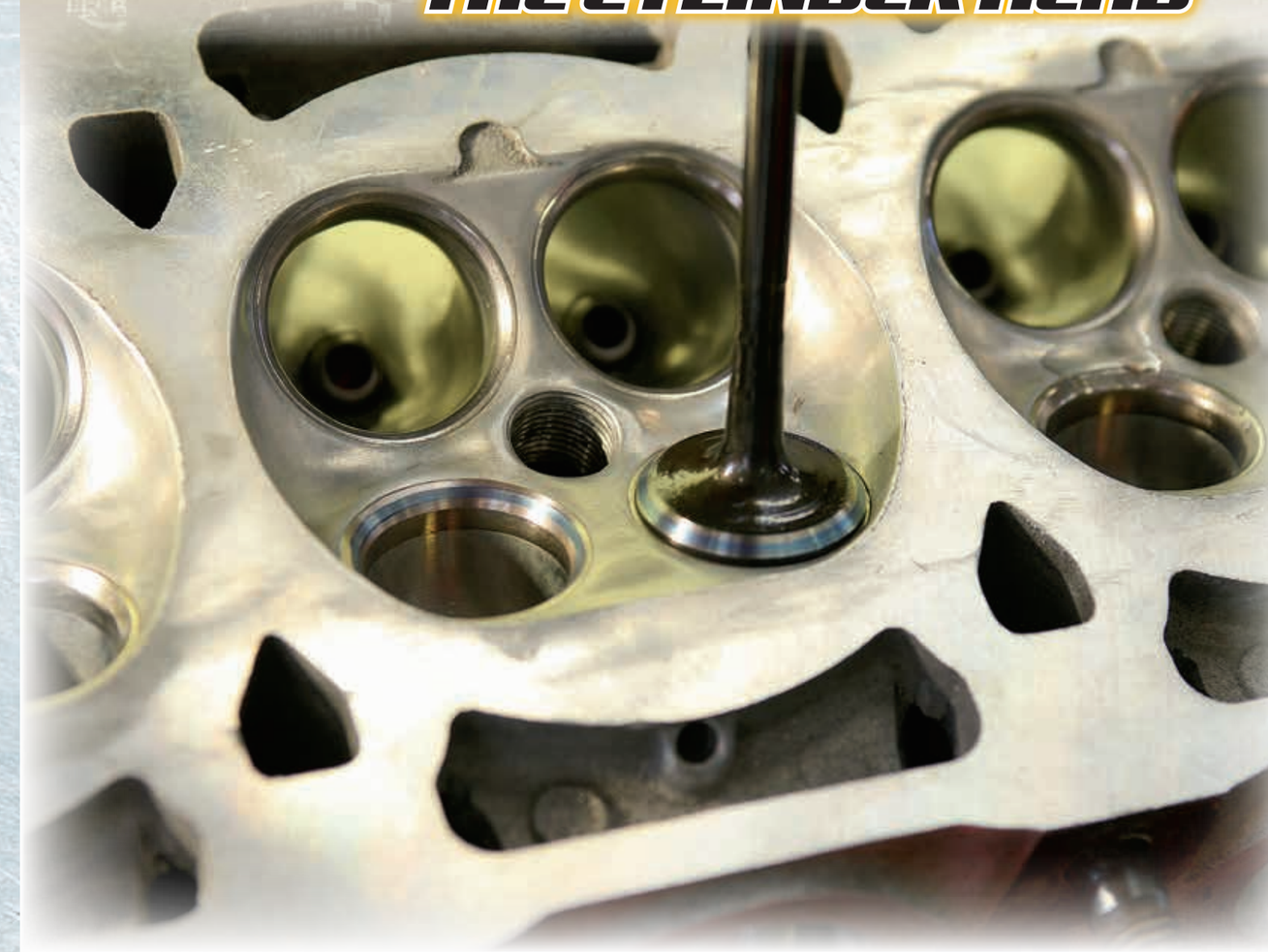
29.10 **ON THE OTHER SIDE** insert another **EM** screw to join the front panel **28A** and the left panel 2 **22B**. ►

STAGE 29 FINAL RESULT



You have now assembled the radiator and attached it to the piece composed of the chassis and the engine. Put what you have built in a safe place.

RECTIFYING THE CYLINDER HEAD



In highly-tuned cars, especially if they are raced in competition, rectifying the head is a common task. Excessive stresses can deform its structure and the gasket is no longer able to perfectly seal the combustion chambers.

In the past, rectifying the cylinder head was almost a normal operation for any motorist. After a few years, a car would begin to lose power and often had problems with engine temperatures and internal coolant leaks.

However, we are talking about high-mileage vehicles with engines that have driven perhaps 100,000 miles or more. But even today, for the diesel engines of vans or trucks, rectifying the head is a fairly common operation.

The average motorist today, however, hardly ever thinks about it, both because he changes cars long before it becomes necessary, and because engine construction techniques have changed and guarantee greater longevity.

Given the complexity of the cylinder head rectification, especially considering disassembly and reassembly, it always is better to contact a specialised mechanic.

How to measure the volume of the chamber

To calculate the compression ratio we must measure the volume of the combustion chamber. To obtain this data, we need to bring the piston exactly to TDC and then introduce oil (or an oil-petrol mixture) into the spark plug hole until the liquid reaches the upper edge of the threaded hole. The chamber capacity equals the volume of fluid introduced, minus the volume of the threaded hole for the spark plug. Very often the hole is located at the bottom of a well, for this reason we use a metal tube (remember to measure its capacity) screwed into the hole itself. To do things properly we must avoid liquid leakage. We must therefore first remove the head and apply a film of grease on the cylinder walls, then bring the piston to TDC, remove the excess grease, reassemble the old gasket, install the head and tighten the screws. Warning! We should avoid measuring the capacity of the chambers with the head upside down on the bench, because we will not take into account the conformation of the piston crowns and the fact that, due to the sum of the tolerances, not all the pistons are at exactly the same height at TDC.

On the other hand, in race-prepared engines than operate under considerable stress and at very high temperatures, the cylinder head can tend to "warp". When this happens the gasket is no longer able to guarantee perfect sealing of the combustion chambers. In addition to a loss of power, compression will leak into the cooling system. The most common symptoms may be the coolant temperature rapidly increasing, a loss of pressurised coolant from the radiator cap, or even coolant leaking from the head itself. There may also be a leakage of oil from the oil galleries of the head into the cooling system, highlighted by an abnormal consumption of oil, traces of oil in the coolant reservoir and a sudden increase in temperature.

The leakages will be noticed during use on the racetrack or in particular harsh conditions, or, if the loss of compression is particularly critical on a standard car, even in normal use.

If the symptoms of a sudden compression leak occur, it is normally sufficient to just slow down and reduce the pressure on the cylinder head. Keep an eye on the temperature guage and you should be safe to get to your base or to your local garage. But in any case, you are going to have to have a mechanic take a look at your engine and check the cylinder head and gasket.

Replacement of the gasket and rectifying the cylinder head are quite simple and are not overly expensive operations in themselves. In fact, probably the most costly part is disassembly, reassembly and re-tuning the engine.

Remember that just replacing the gasket is never enough, it is always necessary to rectify the support surface to ensure perfect flatness and sealing. It is also a good idea to check the condition of the valves and valve seats before rectifying. While the head is off, it is a relatively easy job – and there is no point in repeating the whole process when a valve begins to fail in the near future.

FUNDAMENTAL CHECKS

Rectifying the head will marginally increase the compression ratio of the combustion chambers. But if we want to make greater increases, determining how much material needs to be removed is not at all easy. Much depends on the shape of the chambers. Moreover, if we do not have reliable information, even the choice of the most advantageous compression ratio for our engine can be difficult.

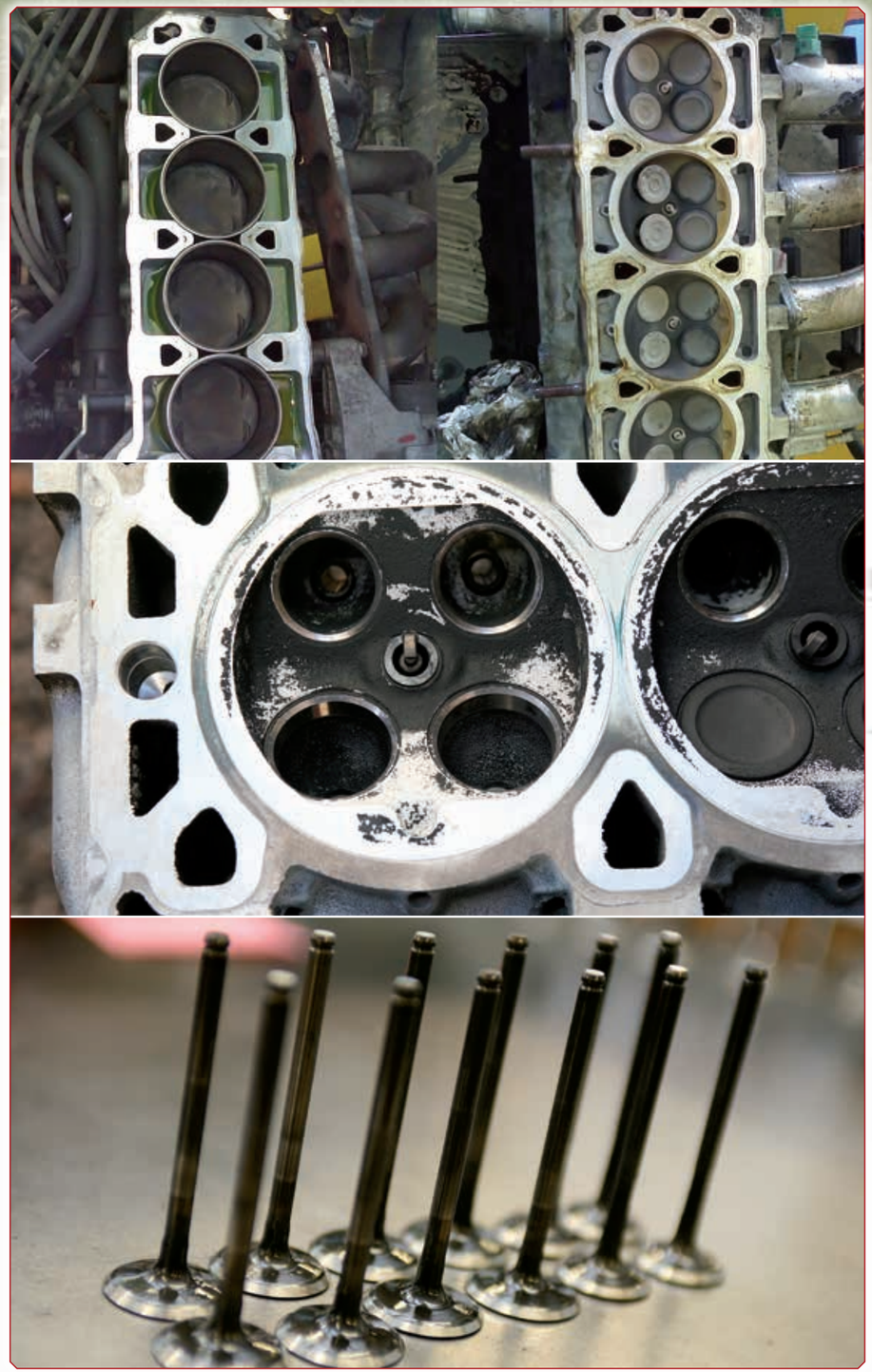
It is always best to play it safe and proceed step by step. Before reassembling the head, once the compression ratio has been increased, we must perform a series of checks. First of all we have to make sure that the squish height has not been reduced by too much: two or three tenths of a millimetre or less, compared to the original dimensions, can pass. But we must be careful not to exceed it.

We must then check that the distance between the valves and the piston at Top Dead Centre (TDC) is adequate, making sure that in high-performance engines it is not less than 2.0-2.5 mm.

Finally, we must make sure that the compression ratio is the same for all cylinders: any adjustments can be made by removing material from the central part of the piston crown.

We must also take care to ensure that the weight of all the pistons is nearly identical, with a difference of no more than 2 or 3 grams.

If we have modified the engine we will obviously have to carry out all the indispensable checks after reassembly. We need to check that the engine power and ignition timing are still good, or if they need to be adjusted by reprogramming the control unit. Furthermore, and in consideration of the fact that we will probably be pushing the engine a little harder, it would be a good idea to replace the stock spark plugs with others that have a slightly higher thermal rating.

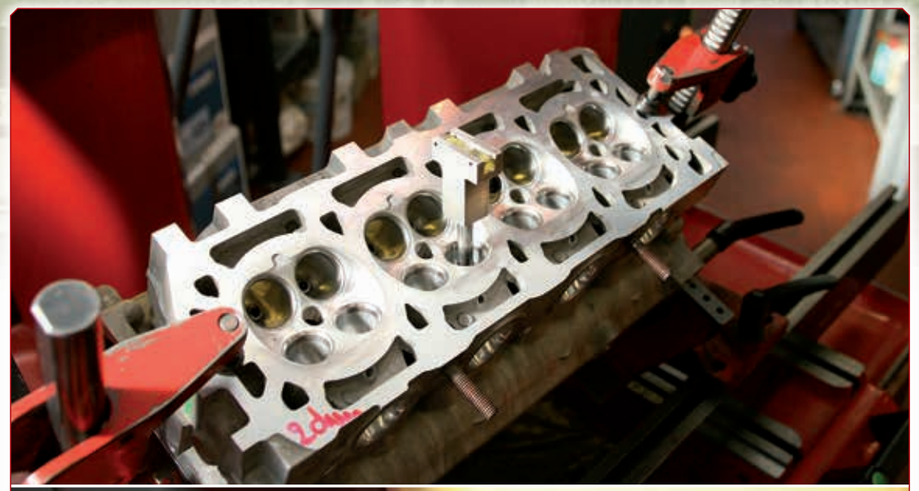


The first operation to be carried out is disassembly of the cylinder head, taking exact notes of the arrangement of the components in order to facilitate subsequent reassembly.

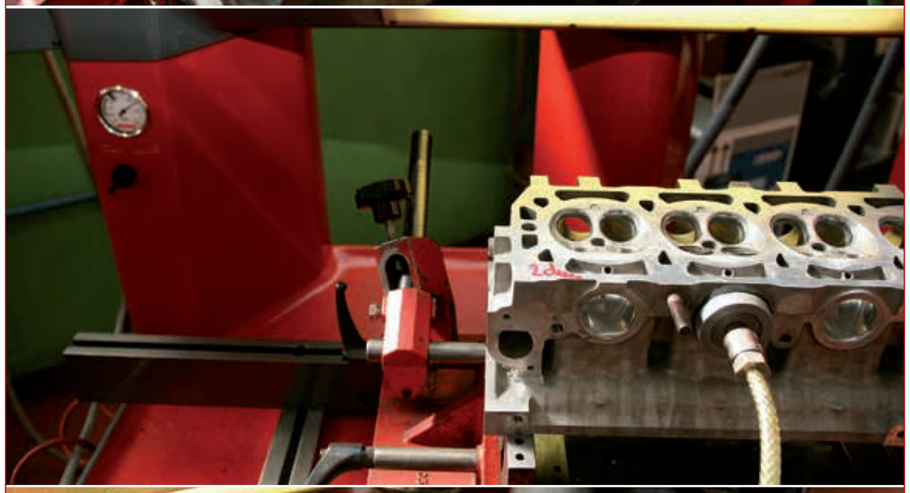
We then move on to remove all the head components and prepare each part by washing it and removing burnt combustion residues. This is a good moment to clean all the galleries and surfaces.

The valves should be disassembled and rectified first. In this phase you can verify if you need to replace the valves. Sometimes an engine can appear to work perfectly even with defective valves, and it is not always easy to spot the problem without opening the engine.

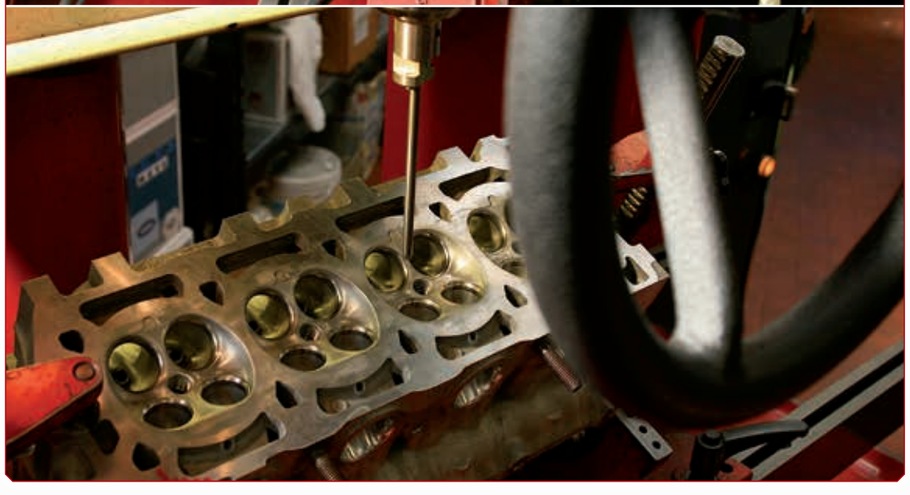
Rectifying the cylinder head



Before starting the rectification of the head, the valves and valve seats are "lapped" to ensure a perfect leak-free fit.



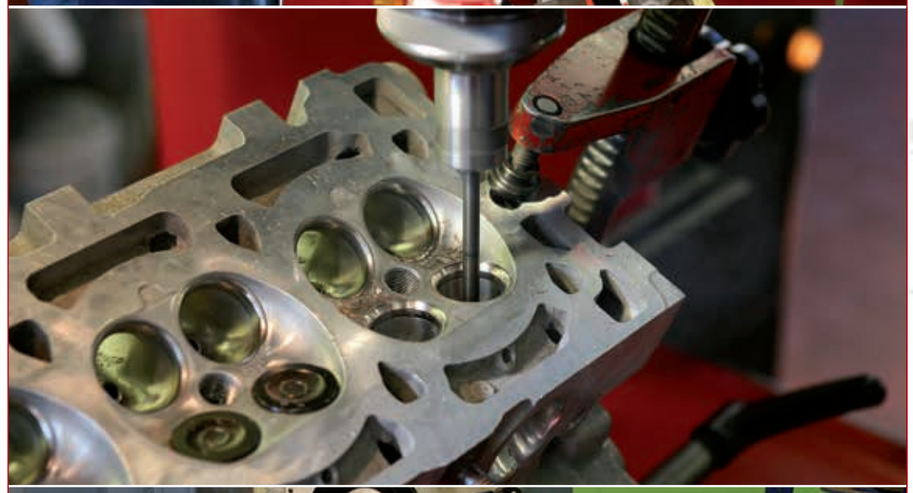
In a machine shop, the tightness of the valve seats is tested with a vacuum pump. Before lapping the valves there is generally a pressure leak.



We then proceed with the valve calibration. This happens automatically and it is essential to be sure that the workpiece is held straight and perpendicular to the valve seat itself.



The right tool is then fitted to the machine, which begins the process of polishing the top of the combustion chamber and the valve ports.



The machine tool polishes the valve seat and seats the valve using an emery paste to finish the process.

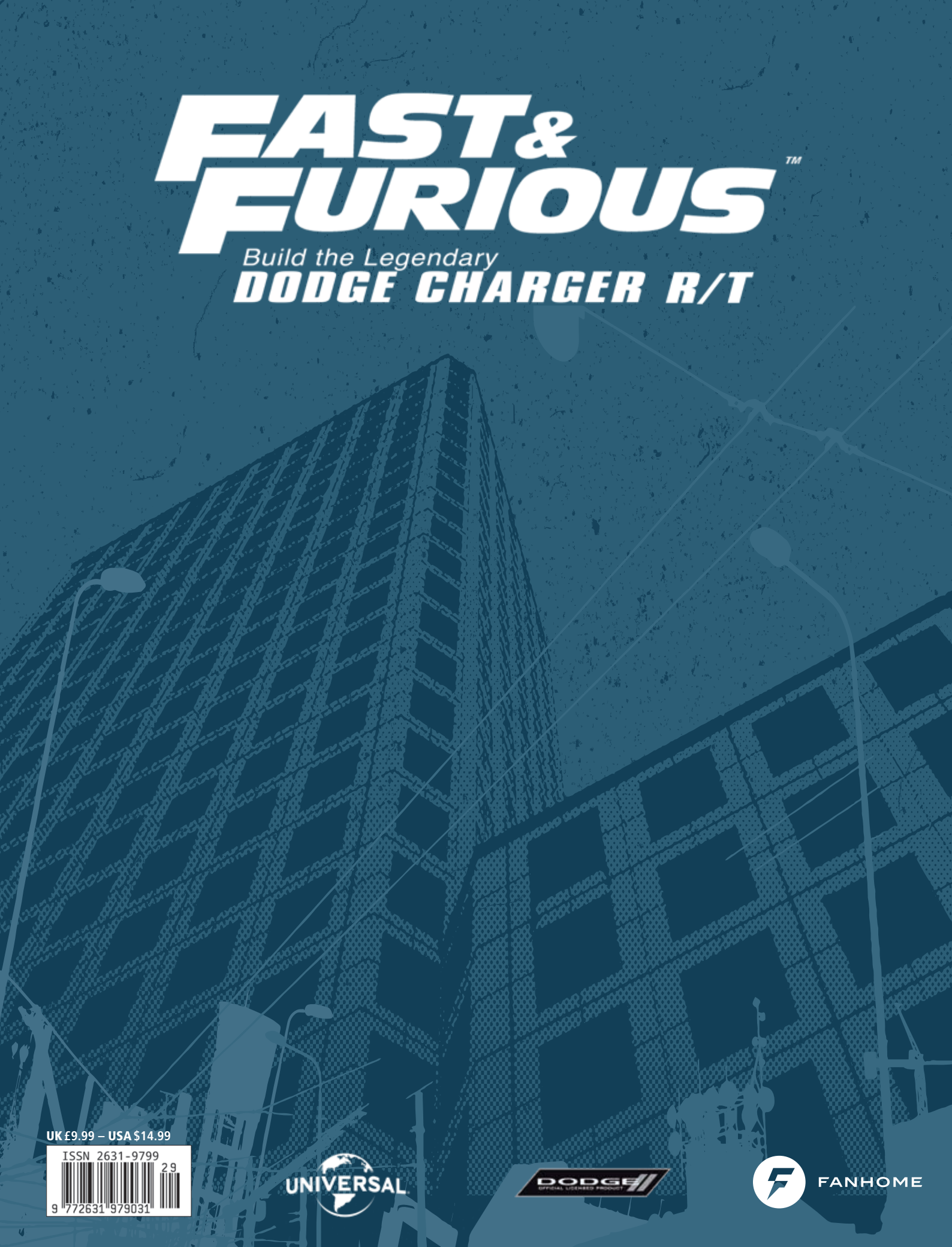


The head is then fixed to the grinding machine that will rectify any imperfections in its surface, giving it a mirror-smooth finish.

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