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DODGE CHARGER R/T



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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: 978-1-4439-5157-9
FFN14: 20 12 09

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

Picture credits: NBCUniversal Archive; FCA Archive; Work Wheel Press Office; Bmw AG; Christopher Ziemnowicz; Dino Dalle Carbonare

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Printed in Poland

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HIT SONGS

Music plays a crucial part in the *Fast & Furious* franchise. Reflected through the films' incredible soundtracks, the music almost becomes another character in the story. The songs have contributed to the success of the franchise and, on more than one occasion, they have made the world dance and even cry. It's time to look at the *Fastest* theme tunes.

During his personal immersion in the street races of Los Angeles, in preparation for filming *The Fast and the Furious*, the director Rob Cohen understood that music was very important for car lovers. This was why he decided to take great care of the film's soundtrack, filling it with tunes and songs that were hugely successful.

FROM HIP-HOP TO METAL

The music in the franchise covers all kinds of musical genres. And so, *Put It On Me* and *Furious* were chosen as the first film's main themes, two songs by the rapper Ja Rule, who moreover had a small part in the role of Edwin, one of the racers who competes with Toretto. Other songs clearly in the hip-hop vein were also included, like Good Life, by Faith Evans, *POV City Anthem*, by Cadillac, and *Justify My Love*, by Vita. All of them were part of the original soundtrack of *The Fast and the Furious*, which went platinum in 2002 in the United States and Canada, and which reached number seven in the Billboard 200.

The disc's huge success, and the fact that Rob Cohen had used a large number of musical theme tunes in the movie, made it possible to release a second disc entitled *More Fast and Furious: Music from and Inspired by the Motion Picture The Fast and the Furious*, which in this case tended more toward alternative metal, with numbers like *Superstar* by Saliva, or *Polkas palabras*, one of the first songs sung in Spanish in the franchise, performed by the Mexican rock band Molotov. Besides that, on this second disc there were several tracks by the electronic music artist BT, written specially for

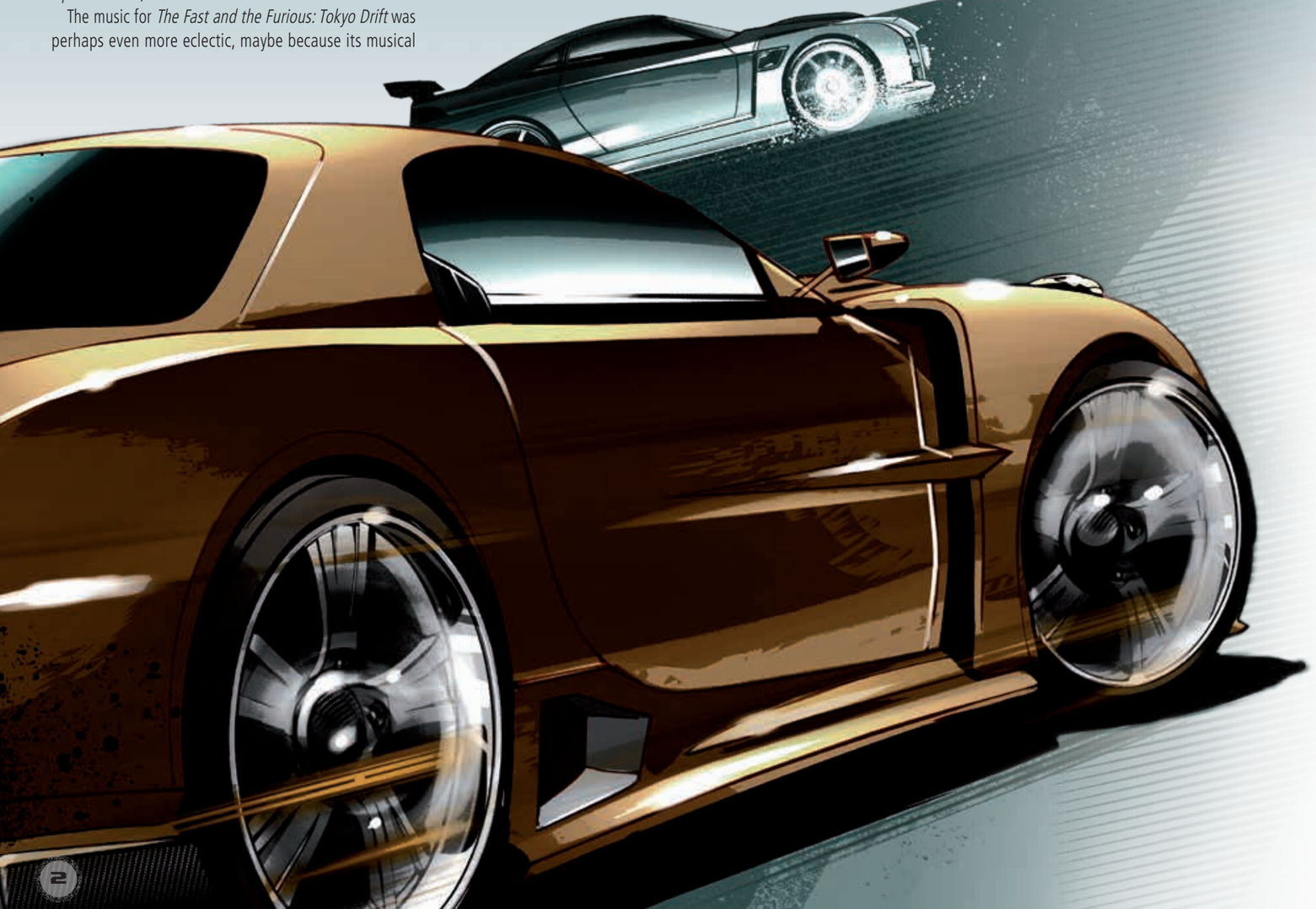
Many of the most popular artists and DJs in recent years have helped to make *Fast & Furious* soundtracks a huge success. One of them is Ludacris (in the picture), who plays Tej Parker.

the film, with titles as representative as *Dominic's Story, Race Wars* or the inevitable *The Fast and the Furious Theme*.

NEW ARTISTS

The two soundtracks that were released after the first movie set the pattern for the following films. In this way, *2 Fast 2 Furious* again had a large selection of music performed by various successful artists. However, on this occasion, most of the numbers were performed by the rapper Ludacris, whose real name is Christopher Brian Bridges. As well as joining the cast, playing the part of Tej Parker, who would become a regular character in the franchise from the fifth movie onwards, he sang no fewer than four songs in the soundtrack: *Start, Act a Fool, Pick Up the Phone, and Finish*.

The music for *The Fast and the Furious: Tokyo Drift* was perhaps even more eclectic, maybe because its musical producer was Pharrell Williams, who had a hit in 2013 with *Happy*. Williams sought a musical path ranging from the frantic to the profound to illustrate in sound the lead character's journey from Los Angeles to Tokyo. The clash between Western and Eastern culture was captured above all in two numbers, *Mustang Nismo* and *Welcome to Tokyo*, performed by Slash, the former Guns N' Roses guitarist. The producer also featured Latino music, which from then on would be a virtually permanent presence in the franchise, in the person of Don Omar, a well-known Puerto Rican singer considered by many to be one of the fathers of Reggaeton. He sang two songs, *Conteo* and *Bandoleros*. The latter would later be the inspiration for the short of the same name directed in 2009 by Vin Diesel, and would act as a plot connector between the first and the fourth movies in the franchise.



BT (BRIAN WAYNE TRANSEAU)

His real name is Brian Wayne Transeau and he is one of the most respected American electronic music artists, although he has also worked in other styles, such as classical and movie soundtracks. Born in Washington on October 4, 1971, he became thought of as one of the forerunners of trance. The pioneer of a musical production technique known as "stutter edit", which consists of rhythmically repeating a small fragment of sound, he even entered the Guinness Book of Records as having used the largest number of vocal editions of one song, 6,178 editions for the song *Somnambulist*. In 1999, BT began to get interested in the movies. After working on the soundtracks of *Under Suspicion* (2000) and *Driven* (2001), he was given the chance to show his enormous talent by composing some of the most electrifying themes for *The Fast and the Furious*. Since then, his work has been featured in more than 50 movie and videogame soundtracks. However, the cinema has not prevented him from composing, producing and working with artists as big as Sting, Madonna, and Britney Spears.

THE HITS KEEP COMING

The music in *Fast and Furious* made a massive commitment to Latino music. On this occasion Don Omar contributed the song *Virtual Diva*, while his colleague Tego Calderón sang on *You Slip, She Grip*. Besides this, both of them joined the film's cast, playing respectively Rico Santos and Leo, two small-time crooks who help and protect Dominic Toretto and act as a comic counterpoint to the action. But the high point of the soundtrack came with the popular Cuban singer Pitbull, destined to be one of the most important artists of his generation. He made his presence felt in the movie, since, besides working with Tego Calderón on the previously mentioned number, he sang Bad Girls with Robin Thicke, *Krazy* with Lil Jon, and *Blanco* with Pharrell Williams, which became the movie's main theme tune.

But the major Latino smash hit in the franchise would arrive with *Fast Five* thanks to the song by Don Omar *Danza Kuduro*, in collaboration with the Portuguese-born French singer Lucenzo. The song, which became one of the most played in discotheques all over the world, became a huge global phenomenon. To fully realise exactly how enormous it was you only have to remember that, by July 31st, 2018, the video of the song had reached one billion plays on YouTube. Of course, the incredible impact of *Danza Kuduro* almost totally eclipsed the other songs in the soundtrack, among them, for example, the song *Carlito Marron* by the popular Brazilian musician Carlinhos Brown.

DON'T STOP THE MUSIC

The soundtrack of *Fast & Furious 6* was once again very powerful: the theme *Bandoleros* was back, sung by Don Omar and Tego Calderón; Ludacris did *Rest of My Life*, with the special collaboration of two major stars, Usher and David Guetta; Sua and Jiggy Drama sang *Con locura*; and the film's main theme song, *We Own It*, was performed by 2 Chainz and Wiz Khalifa, and rose to the number one spot in the UK.

The soundtrack for *Furious 7* was also hugely successful, above all because of the incredible success of the song by Wiz Khalifa and Charlie Puth, *See You Again*. It became a heartfelt tribute to Paul Walker and the character he had played throughout the franchise, the intrepid Brian O'Connor. The official video of the song included a moving compilation of stills of him appearing in the franchise. The song made a very deep impression on *Fast & Furious* fans. Proof of this was that it got to number one in 14 countries, including the United States. It was also nominated as the Best Original Song at the 73rd edition of the Golden Globes. Other songs worthy of mention in the film were *Meneo* by Fito Blanko, *Go Hard or Go Home*, by Wiz Khalifa and Iggy Azalea, and *Blast Off*, by David Guetta and Kaz James.

The success of the franchise carried on smashing records. And not just in movie theaters. The songs in the films continued to set trends on the most important dance floors. A clear example was the soundtrack of *The Fate of the Furious*, which had no fewer than six promo singles. In order of release they were: Go Off, by Lil Uzi Vert, Quavo and Travis Scott; Hey Ma, by Pitbull, J Balvin and Camila Cabello; *Good Life*, by G-Eazy and Kehlani; *Gang Up*, by Young Thug, 2 Chainz, Wiz Khalifa and PnB Rock; *Horses*, by PnB Rock, Kodak Black and A Boogie wit da Hoodie; and *Candy Paint*, by Post Malone. It clearly shows that as long as *Fast & Furious* exists, the music will never stop.



DODGE CHARGER FROM 1966–1978

The first-generation Dodge Charger was launched in 1966 to compete with the first "muscle cars" of rival marques. Fitted with a powerful V8 engine, it offered a spectacular performance at an affordable price, and towards the end of its commercial life it was turned into a large convertible designed more for comfort than sportiness.

The Dodge Charger R/T was the most powerful version of this model that competed with the muscle cars of rival brands during the late 1960s and early 1970s.

The success of models like the Ford Mustang, the Pontiac GTO and above all the Plymouth Barracuda led Dodge dealers to ask for a similar car. In 1964 the brand presented the Dodge Charger concept car, whose success at different international motor shows determined its mass production. Launched in 1966 with smart fastback bodywork, the Charger was a sports model built on the Chrysler Group's B platform.

With an "electric shaver" front (so called because of its wide grille) and concealed headlamps that came out when they were switched on, the car was given powerful mechanics, among them a street version of the 7-liter HEMI® competition engine giving 425 hp. A year after the launch, the Road and Track – or R/T – versions appeared, available only with the most powerful engines and with numerous modified elements in the chassis and the bodywork. With them, the Dodge Charger became an authentic muscle car.

Its sales figures and its success in competition made it a huge winner for the Dodge brand. The model continued to be manufactured as a two-door sports convertible, although sales decreased due to the arrival of the new Dodge Challenger, that was more compact and attractive. This "internal" competition meant that the Dodge Charger was redirected in the last years of its life – it disappeared in 1978 – towards a more luxurious and less sporty concept.



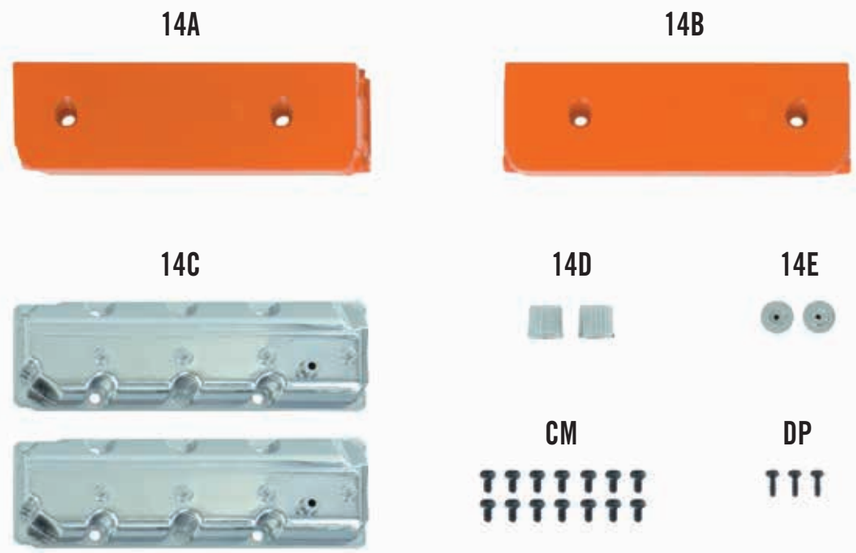
The 1970 Dodge Charger was a good-sized car, with a long, dark and densely meshed grille, chrome bumpers and four round front headlights.



ASSEMBLING THE ENGINE BLOCK (II)

In this assembly session, you will continue assembling the engine block of your model car. Follow our instructions carefully, using the illustrations to help you.

PIECES FOR THIS STAGE



14A Cylinder head, left bank
14B Cylinder head, right bank
14C Valve covers (x 2)
14D Oil filler caps (x 2)
14E Oil filler cap covers (x2)
CP Screws 1,7 × 3 mm, (x14)*
DP Screws 1,5 × 4 mm, (x3)*

* 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.

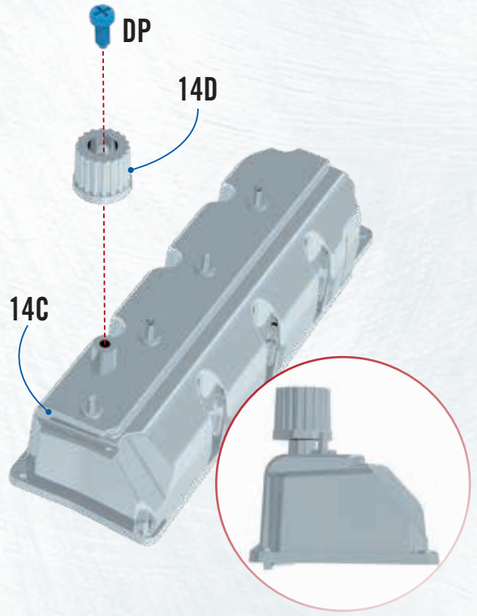
ASSEMBLY AREA

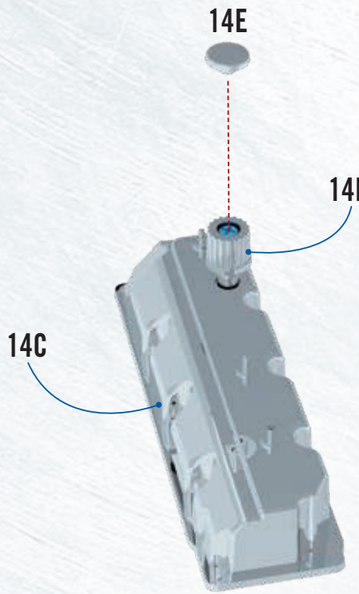


ENGINE BLOCK

Assembling the engine block (II)

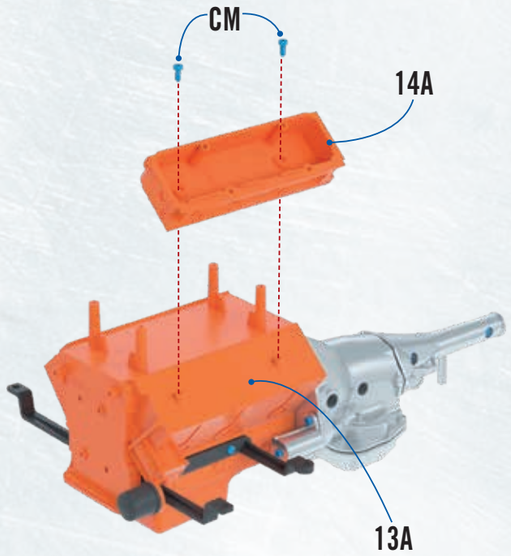
14.1 **TAKE ONE** of the oil filler caps **14D** and slide it onto the corresponding screw post on one of the two valve covers **14C**. Attach with a **DP** screw. ▶



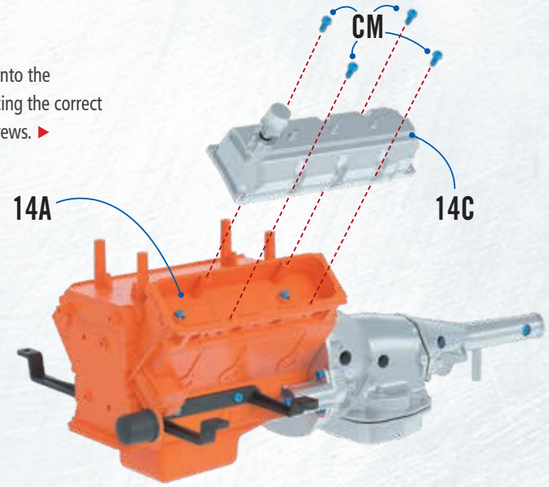


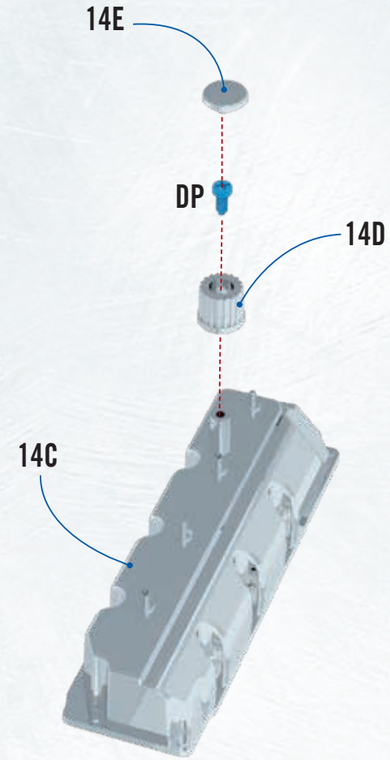
14.2 **COVER** the **DP** screw head with a cap cover **14E**, and press it gently into place. Press down gently to attach it. ◀

14.3 **ATTACH** the left bank cylinder head **14A** (indicated with the letter "L" on the bottom) to the left side of the assembled engine block. Ensure that it is facing the same way as that shown in the illustration, then fix it in place with two **CM** screws. ▶



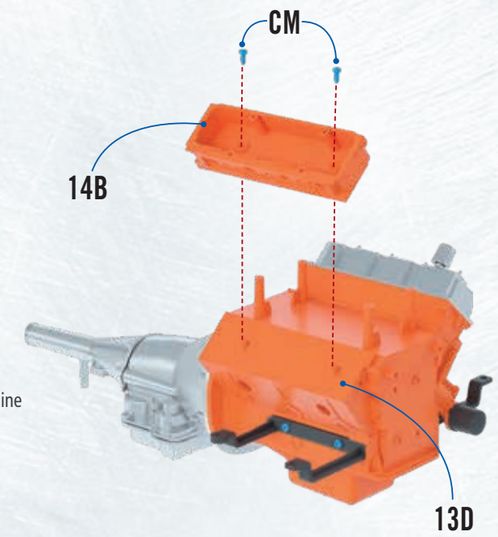
14.4 **PUT** the previously assembled valve cover **14C** onto the cylinder head **14A**. Ensure that both pieces are facing the correct way and then join them together with four **CM** screws. ▶





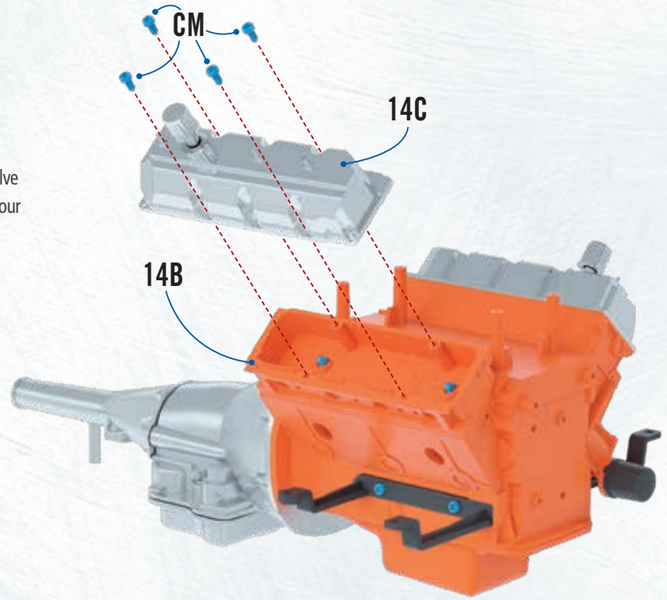
14.5 **ASSEMBLE** the oil filler cap **14D** and the corresponding cap cover **14E** onto the second valve cover **14C** as you did on the other side. ◀

14.6 **ATTACH** the right cylinder head **14B** to the engine block **13D** using two **CM** screws. ▶

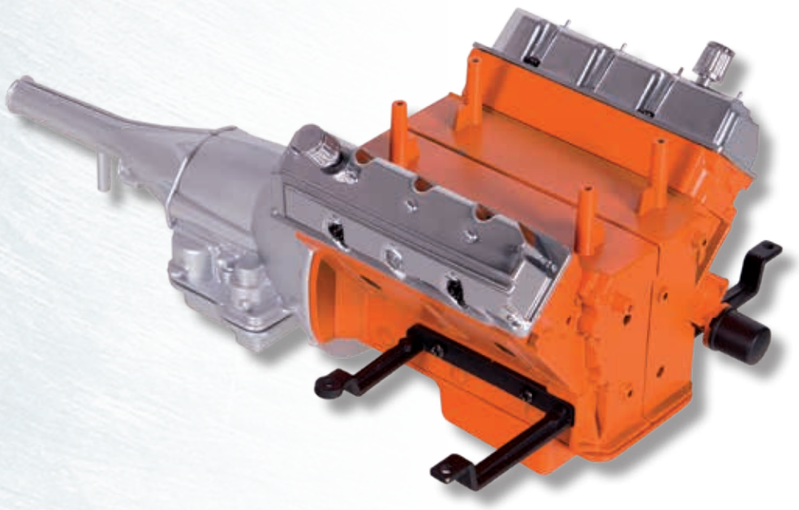


Assembling the engine block (II)

14.7 **FINALLY,** attach the right valve cover to the engine block with four type **CM** screws. ▶

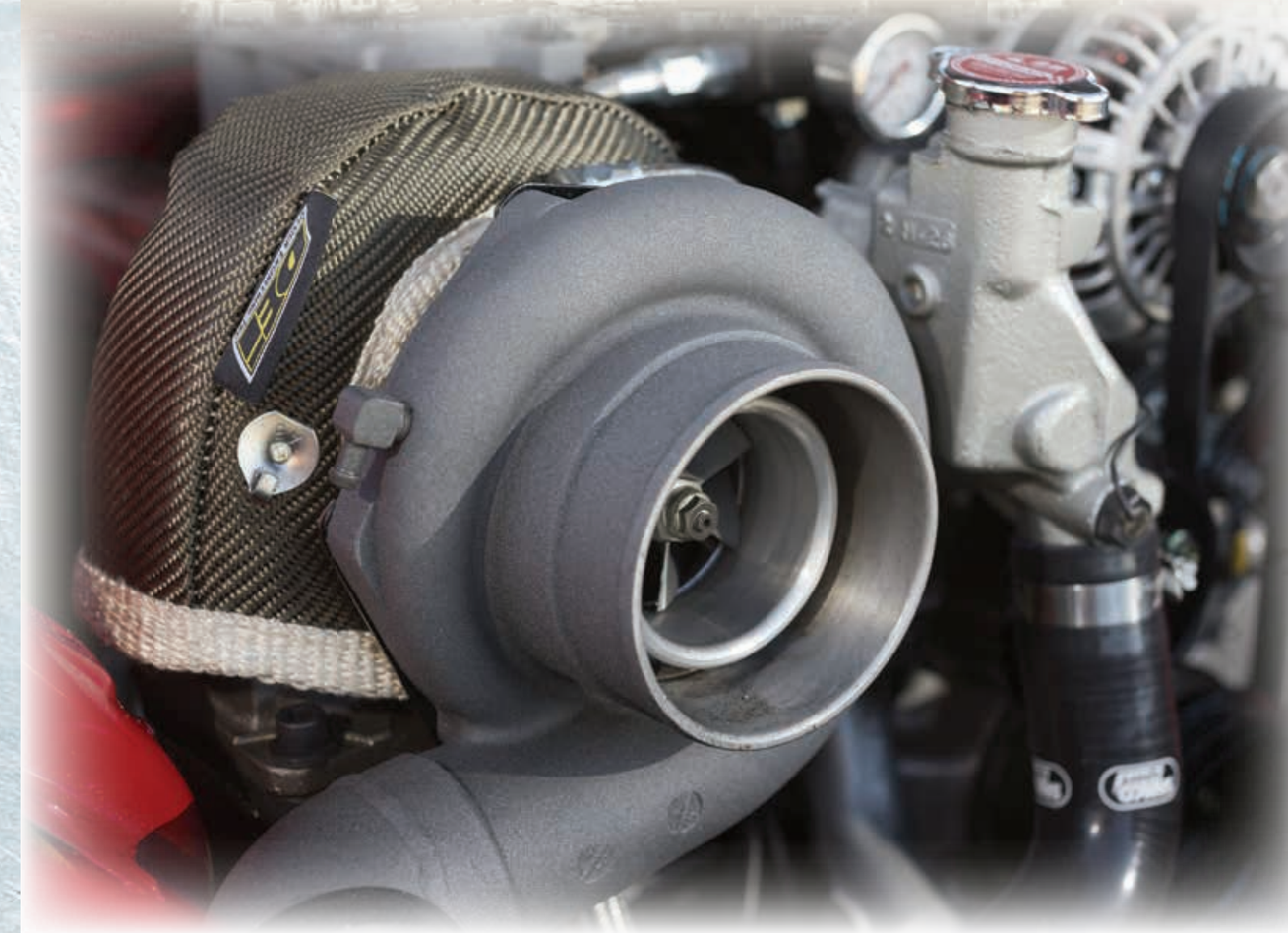


STAGE 14 FINAL RESULT



The engine for your model now has two cylinder heads with valve covers. You will continue building the engine in the next assembly session.

THE TURBOCHARGER: MAXIMUM PERFORMANCE



The power of the engine can be notably increased with supercharging, which is why it is important to know how a turbocharged engine and its main component parts work.

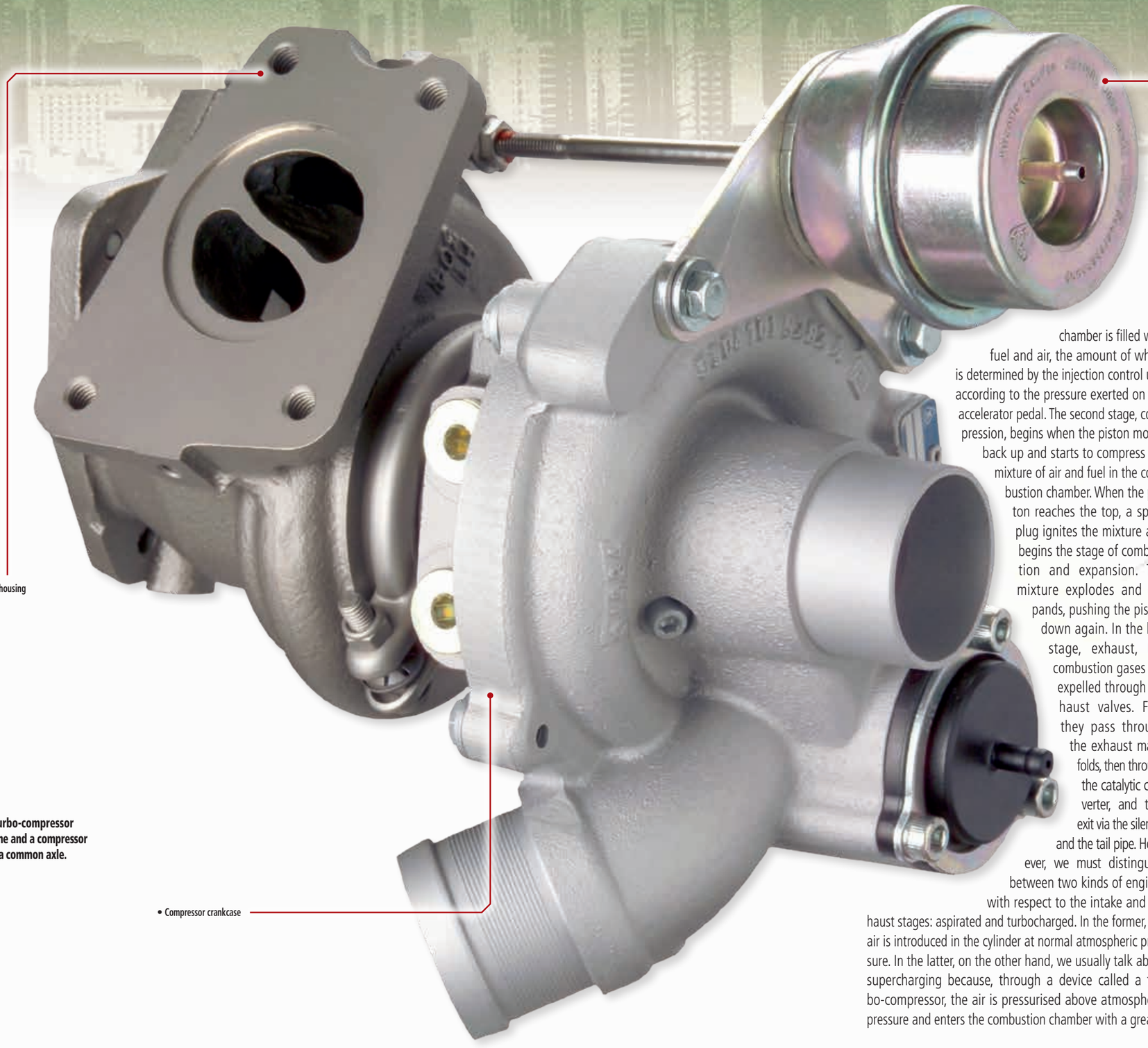
Let's start with the basics. For a petrol engine to work, it needs two elements: fuel and air. Both are mixed in the combustion chamber according to a pre-established proportion known as the stoichiometric ratio. Simplifying greatly, it could be said that a car's performance increases in proportion to the amount of air and fuel fed into the chamber. The key, nevertheless, lies in the volume of air: it is not easy to supply the exact amount needed to maintain this ratio. And that is where the compressor comes in.

ASPIRATED AND TURBOCHARGED

Combustion takes place through a four-stage process. Hence, car engines are known as "four stroke". In the first stage, called intake, the piston descends from the top dead centre (TDC) to the bottom dead centre (BDC) and the

This turbo-compressor on bearings with a heat-resistant alloy casing can develop as much as 600 HP.

The turbocharger: maximum performance



• Turbine housing

• Pneumatic capsule for controlling the exhaust valve

• Compressor crankcase

The turbo-compressor has a turbine and a compressor that share a common axle.

chamber is filled with fuel and air, the amount of which is determined by the injection control unit according to the pressure exerted on the accelerator pedal. The second stage, compression, begins when the piston moves back up and starts to compress the mixture of air and fuel in the combustion chamber. When the piston reaches the top, a spark plug ignites the mixture and begins the stage of combustion and expansion. The mixture explodes and expands, pushing the piston down again. In the last stage, exhaust, the combustion gases are expelled through exhaust valves. First they pass through the exhaust manifolds, then through the catalytic converter, and they exit via the silencer and the tail pipe. However, we must distinguish between two kinds of engines with respect to the intake and exhaust stages: aspirated and turbocharged. In the former, the air is introduced in the cylinder at normal atmospheric pressure. In the latter, on the other hand, we usually talk about supercharging because, through a device called a turbo-compressor, the air is pressurised above atmospheric pressure and enters the combustion chamber with a greater volume of oxygen, thus improving combustion. The turbocharger has a turbine which is spun by the gases released during the exhaust stage.

HOW THE TURBINE WORKS

The turbo-compressor – as the name suggests – is composed of a turbine and a compressor. The turbine shares a common axle with the compressor. When the exhaust gases spin the wheel of the turbine, the compressor's impeller spins too, compressing the air and directing it into the intake manifold. The system is extremely efficient, as it uses the residual energy of the exhaust gases to rotate the turbine and the compressor. Inertia, however, poses a slight problem, since the exhaust gases need to build up enough pressure to spin the turbine's impeller. Early turbocharger designs suffered from a short delay, known as turbo-lag, between pushing the accelerator pedal and achieving a burst of extra torque. To overcome this problem, the manufacturers – or you, if you are retrofitting a turbocharger – need to match the turbo to the expected power-band (revolution range) of the engine.



The impeller of a turbocharger. It sits inside a heat-resistant, cast-iron, spiral-shaped housing and is rotated by engine exhaust gases.



Besides the (centrifugal) turbo-compressor, there is a volumetric compressor that works through a mechanical connection with the engine. This type, known as a supercharger, has been much used in the United States since the 1960s to increase the power of muscle cars.

THE TURBOCHARGER

The turbo-compressor comprises two devices that must be properly synchronised for both to work efficiently and give the best possible performance. Although manufacturers have achieved it, professional engine tuners and car fans enjoy a certain degree of room for manoeuvre. The turbocharger must be adapted to the engine's real needs in terms of flow and pressure, and to those of the driver, to provide a response that is suited to the style of driving. It may seem obvious, but if you wish to increase the performance of your turbocharged engine, the turbo must be replaced with a larger one. Nevertheless, before the buying it a specialist should be consulted for information about the type and the size most suited to one's needs.



The intercooler is a heat exchanger that cools the air exiting the turbo-compressor before it enters the engine. It increases the density of the air and, therefore, the amount of oxygen supplied to the combustion process.

Although, in principle, only the size of the turbine – and, in particular, the diameter of the exhaust orifice – can be considered, with the help of a specialist the best solution can be found. It is useful to bear in mind that this will never be definitive. A turbocharger that responds rapidly and supercharges the engine well in low and medium regimes will not give good results in higher ones. To calculate the airflow with acceptable precision, cylinder capacity, speed of rotation and volumetric efficiency have to be taken into account. You must also remember that this is a four-stroke engine: aspiration takes place in the cylinders with every two rotations of the shaft. To maintain torque at the bottom, power will have to be sacrificed at the top, and vice versa. Put another way, a turbocharger for daily use does not work well on the racetrack. The same airflow can be achieved with both a large and a small compressor. The only difference is that the former rotates more slowly than the latter.

The speed of response is related to the inertia of the rotating pieces and, therefore, to the size of the internal impellers. The turbine is the heaviest and most important element in the whole engine. After choosing the right size of turbo, the compressor has to be optimised by adapting the trim (the ratio between the intake and exhaust diameters of the impeller). A wastegate actuator is a valve that diverts exhaust gases away from the turbine wheel, helping to control the speed of the turbine and prevent it from over-rotating. In turn, it regulates the speed of the compressor and the boost pressure. This helps to protect the turbocharger from unnecessary wear, by capping the maximum boost pressure of the turbo at a safe level.

A QUESTION OF TEMPERATURE

When modifying the turbo, the intercooler must also be taken into account. This is a small radiator that cools the air before introducing it in the chamber. During compression, the air heats up as the pressure increases. Overheating of the air represents a serious danger for the engine's performance and for the parts, as it can cause considerable thermal stress on all components. So if the pressure is increased, a larger intercooler is needed.

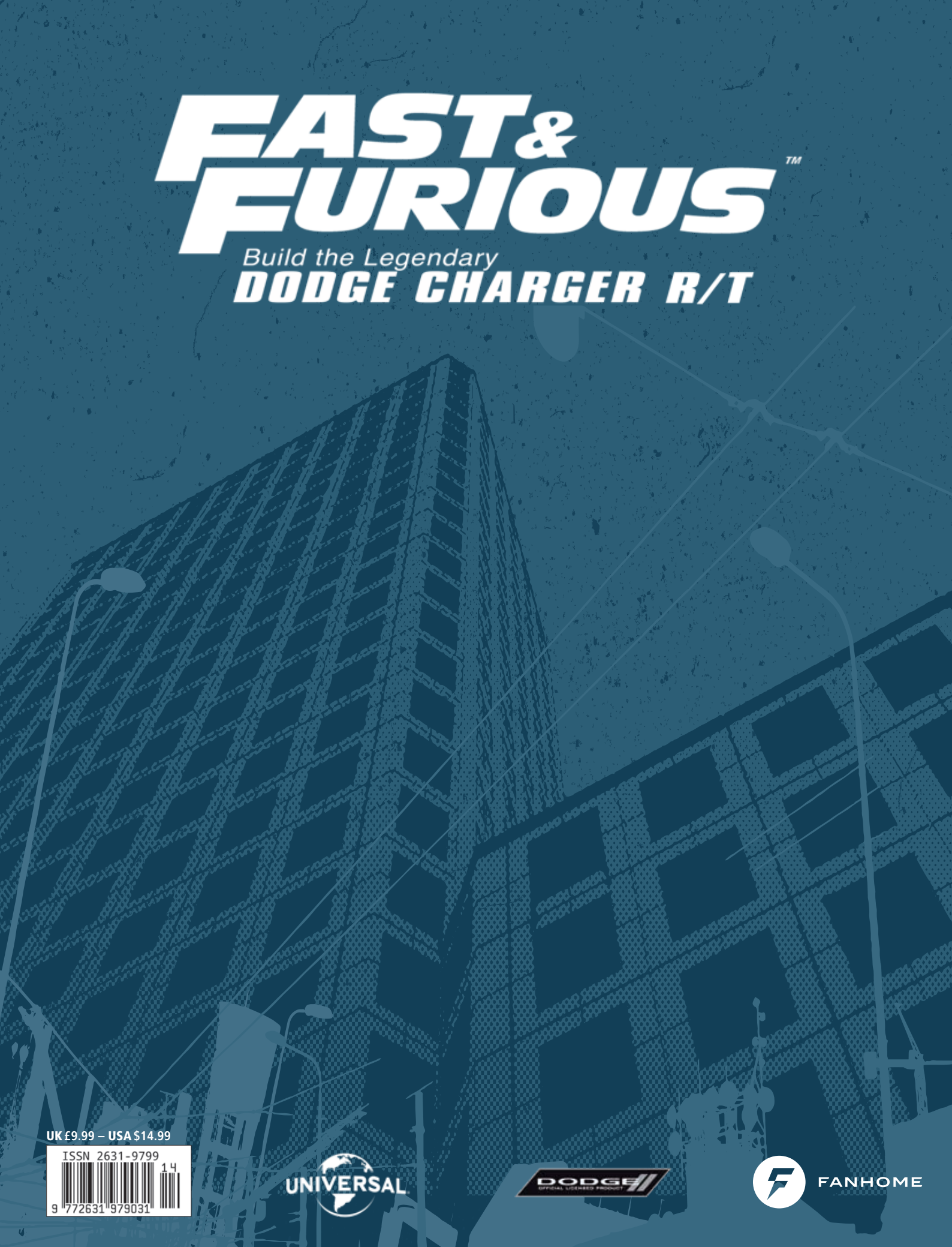
Exhaust valves

The Blow-off valve (BOV - See the Blitz retrofit part in the picture) is important to all turbocharged vehicles in order to relieve compressor surge when the throttle is closed quickly. Most modern factory turbo cars have a recirculating blow-off valve as standard, but they are a popular retrofit item for car tuners. The BOV releases pressure built up inside the compressor, either to the atmosphere or back into the intercooler intake. If you hear a tuned car revving at a traffic light, you can often hear the characteristic sound of bursts of compressed air venting to the atmosphere when the throttle is closed at the top of the rev range. This prevents the pressure from backing up inside the compressor housing, causing the turbo impeller blade to rapidly stop or even to spin backwards, which can be destructive to the turbo. A blow-off valve is actuated by pressure changes only, ensuring quick valve responses and complete closures at idle.



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