

THE ICONIC FORD FALCON XB GT

SCALE
1:8



Front Left Wheel



Land Rover

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POST-APOCALYPTIC EDITION

THE ICONIC FORD FALCON XB GT

ISSUE 10

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The assembly of the left front wheel begins by fitting the parts of the rim together.

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Continuing the language of customisation with a look at engines and exhausts.

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The original Land-Rover is a classic vehicle, and the centre steer version has a fascinating story.

YOUR MODEL

You will be building a 1:8 scale replica of a customised 1973 Ford Falcon XB GT. Features include a lift-up bonnet that reveals a detailed engine, opening doors, wind-down windows and an 'active' steering wheel. A remote-control fob illuminates the main lights, brake lights and indicators.

Scale: 1:8
Length: 62cm
Width: 25cm
Height: 19cm
Weight: 7+kg



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t=top, c=centre, b=bottom, l=left, r=right, u=upper



Stage 10: Front Left Wheel (1)

Assembly starts on the left front wheel, fitting the parts of the rim together.



List of parts:

- 10A** Central part of wheel rim
- 10B** External part of wheel rim
- 10C** Internal part of wheel rim
- DS02** Four* 2.3 x 4.0mm PM screws

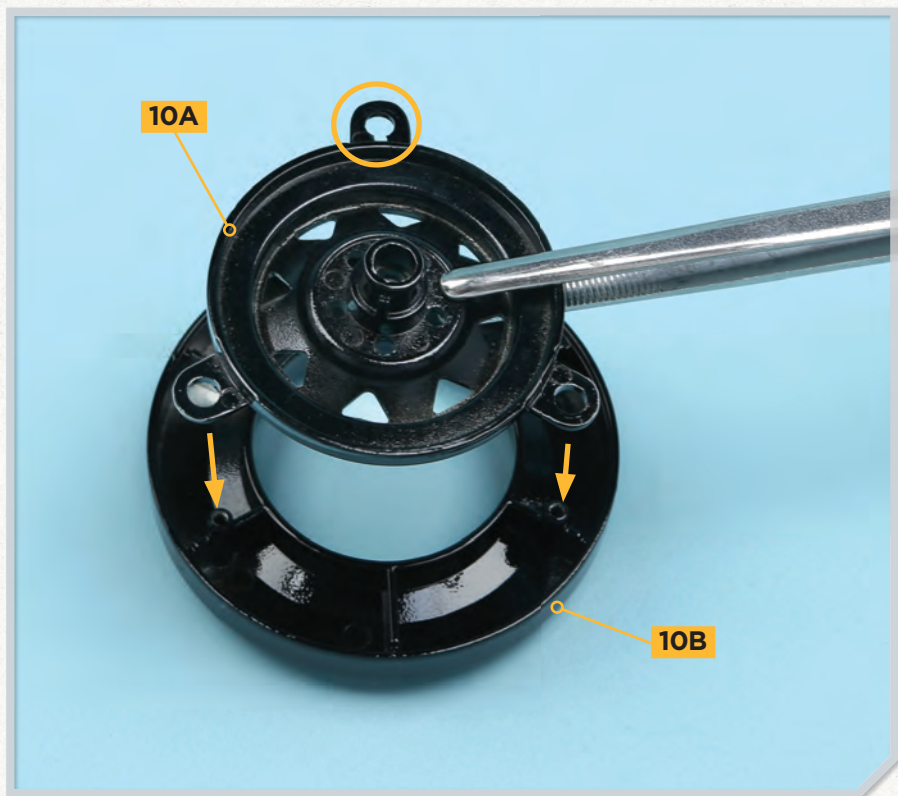
* Including spare

PM = Pan head for metal

Area of assembly



Stage 10: Front Left Wheel (1)

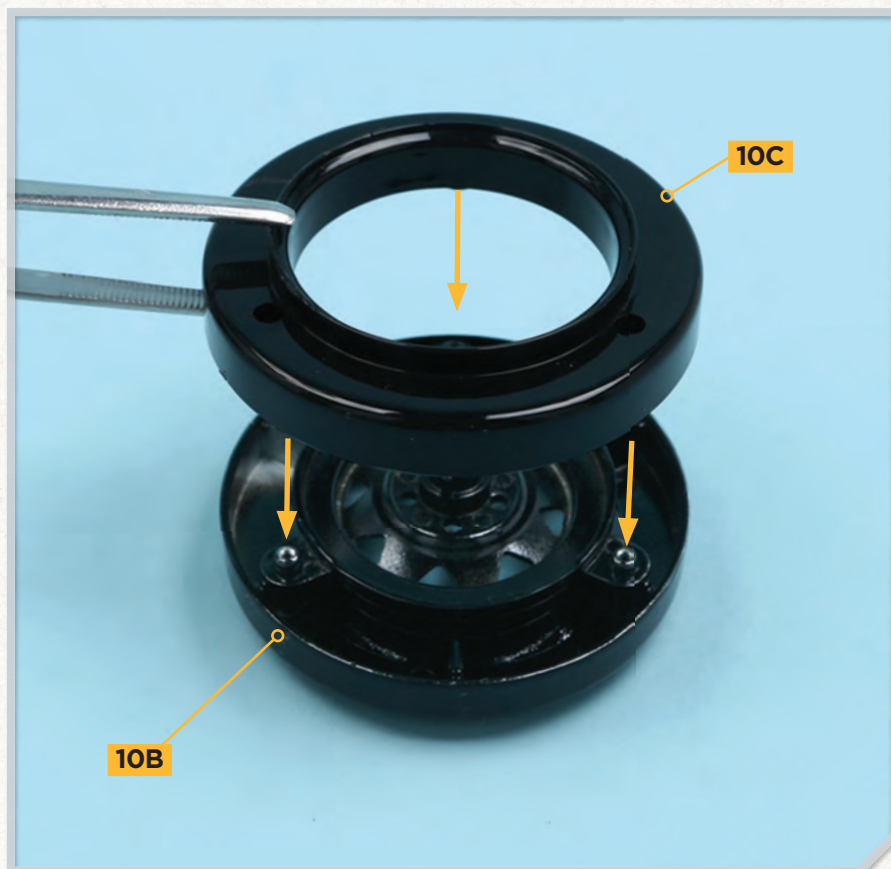


STEP 1

Align the tabs of the central part of the rim **10A** with the screw posts of the rim external part **10B**. Note the keyhole shape on one of the tabs (circled), which corresponds with a similarly shaped screw post on the external rim part **10B**.

STEP 2

Put the rim internal part **10C** over the assembly from the previous step. Make sure the screw holes on the rim of internal part **10C** align with the screw posts on the rim of external part **10B**.





STEP 3

Fix the parts together using three **DS02** screws (above and inset).

COMPLETED ASSEMBLY

The left front wheel rim has been assembled.



The Language of Customisation Engines and Exhausts

No customised car is complete without power. Many modifications and adaptations are made to the engines, gears and exhaust to improve performance and looks.



ENGINES AND ACCESSORIES

Flathead Ford's legendary V8 engine that came out in 1932 and named for its flat cylinder heads. Originally with a displacement of 221 cu in (3.6 litres) the engine was enlarged to 239 ci in 1939 and inspired variants such as the Mercury 255ci and 5.5-litre Lincoln 337ci. The flathead was available until 1954 when replaced by the overhead valve Y-Block.

Hemi Although best known as a Chrysler product any engine with hemispherical shaped combustion chambers is technically a hemi. The design allows for larger valves, higher compression ratios and more efficient fuel burning. Hemispherical engines have been in production since 1901 and virtually every manufacturer has offered one from Porsche to Alfa Romeo, Ford and Toyota. But Chrysler

Above: The first generation of the Chrysler Hemi engine was the Fire Power, launched in 1950 and available from 1951 until 1958. Although many manufacturers had produced hemispherical engines, it was only Chrysler who thought to register the name Hemi.

produced most of the best developing wartime Hemis for aircraft and tanks then dropping a 331 ci version into their 1951 passenger cars. Their 392 ci Hemi available in 1957 was so powerful it was still in use in drag racing 20 years later.

Elephant (Hemi) Nickname for the 426 ci Hemi race engine that became the Street Hemi in 1966. The name came about due the engine's sheer size, weight and power.

Mouse Chevrolet's 265 ci V8 was nicknamed the mouse motor. Bored out to 283 ci in 1957 the lightweight and compact engine offered decent performance and made Ford's Flathead V8 obsolete almost overnight. With a wealth of performance accessories available, it became hot rodding's most popular powerplant with well over 100 million 'small block Chevies' produced since the engine's introduction in 1955.

Blower A supercharger: it is driven from the engine and compresses the air being taken in, forcing more air into the engine. This helps the engine burn more fuel and produce more output. In modern cars superchargers are often hidden away, but with traditional hot rods and drag cars the supercharger body is usually polished or chrome plated and mounted on top of the engine. In addition to increased performance the distinctive whistling noise a blower makes provides much of the appeal.

Huffer Another name for blower or supercharger.

Bored Boring an engine involves machining the cylinders out to enlarge them, which allows a worn engine to be restored to standard, or the fitting of significantly larger pistons for increased horsepower.

Three Deuces - carbs A set up of triple dual-barrel carburetors, popular on hot rods and standard equipment on many muscle cars. Usually only the centre carb is functioning until heavy throttle is applied and all three then operate.

Six-Pak / Six Pack Chrysler brand name for the three-two carburettor set up on their Dodge and Plymouth muscle cars.

Magneto A self-contained, self-powering system that replaces the distributor, using a transformer to produce pulses of high voltage for the spark plugs. Although reliable, they can be poor at starting and it can be difficult to adjust the timing.

Nitrous / NOS Pumped into an engine, nitrous oxide (laughing gas) boosts the pressure in the combustion chambers and increases performance. At around 570°F it splits into nitrogen and oxygen and more oxygen means you can inject more fuel to produce an increase in

Engine terms

Mill A slang name for an engine.

Four-banger Any four-cylinder engine.

Big-block A V8 engine in a muscle car with large displacement (small-block has a lower displacement).

horsepower. When it vaporises it has a cooling effect on the intake air, increasing the air's density. But put in too much and the engine explodes...

Stroked The crankshaft is altered to provide a longer stroke of the connecting rods meaning a larger engine capacity and hopefully increased power.

Tach Tachometer, a gauge displaying engine rpm. 'Tach it up' means to rev the engine.

Below: A supercharger sits well on a Falcon or Mustang, so why not on a Ford Popular from the 1950s, on show at Thoresby Hall in 2023.



The Language of Customisation: Engines and Exhausts



A three-on-the-tree gear shift (with a white knob on the end) in a Thunderbird on show at a meeting in Baden-Baden, Germany in 2022.

RPM Revolutions Per Minute – a measure of the speed at which an object is turning. A rate of 3000 rpm indicates that the object is spinning at 50 revolutions every second.

EXHAUSTS

Header The initial part of the exhaust system that attaches directly to the side of the engine.

Cut-Outs Also known as ‘header plugs’, devices that divert the exhaust gases through the standard exhaust system for street driving or into a shorter unmuffled system for racing. Controlled by either a simple push, bolt or screw-in plug or an electrically operated flap that opens and closes.

Cherry Bombs A brand of exhaust silencer/muffler that cancels out higher frequency sound to produce a lower rumbling note. Named after a type of explosive firework.

Bellflowers A 1960s trend where the exhaust pipe exits behind the rear

axle, then runs along the lower edge of the car to the rear bumper. Named after the Bellflower area of California where the trend was born.

Lakes Pipes Long, narrow exhaust pipes, usually chromed, designed to fit along the sills (rocker panels) of a car. Initially used during racing at the dry lakes they quickly became popular for use on the street since they could be mounted higher up than a standard exhaust – useful on lower cars.

Scavenger Short exhaust pipes that often exit below the rear axle, to give improved performance and sound. Scavenger was also a nickname for any fast, competitive car.

Weed Burner (exhaust) Short, usually unsilenced, exhaust pipes that exit the engine block and point towards the ground.

Zoomies Similar to a weed burner, these are (usually) unsilenced

exhausts that exit the engine and point upwards, common on dragsters but rare in street driven vehicles.

Flamethrowers In the good old days customisers would add a spark plug to the end of their exhaust pipes, when voltage was passed across it the exhaust gases would ignite causing long flames to erupt out.

GEARS AND TRANSMISSION

Hydramatic/Hydra-Matic

This automatic transmission was developed by GM in 1939 for their luxury Oldsmobile and Cadillac ranges and was the first fully automatic gearbox available for passenger cars. It was so good that it was used under licence by Rolls Royce. It also found favour with drag racers due to its reliability and strength. Variations such as the TH400 are still a popular addition to customised cars.

Shifter Another word for gearstick.

Stick / Stick Shift The floor-mounted gearstick or shifter on a manual transmission.

Bang Shifting Changing gears without using the clutch. Done skilfully when the rpm figure is correct, the change can be smooth, without noise or damage.

Three-on-the-tree Three speed transmission controlled by a steering column-mounted gearstick, may be manual or automatic.

Four-on-the-floor A four-speed manual transmission with gearstick mounted on the floor of the vehicle.



Land-Rover: The Accidental Icon

The original Land-Rover has become a classic vehicle, with endless reinventions over the decades. The centre steer version has a fascinating story behind it.

Brothers Spencer and Maurice Wilks rescued Rover from financial ruin in 1929 and revitalised the marque. Under their stewardship, it quickly acquired a reputation for making well-engineered, high-quality vehicles, aimed at Britain's burgeoning middle class and selling at a premium. Rover had become a respectable and profitable business by the mid-1930s. In the build-up to World War II, the firm joined the government's shadow factory scheme, managing a munitions production 'shadow' factory. A large new plant known as

Lode Lane opened in Solihull in 1941. After the war it was renamed the Meteor Works, and Rover moved into this relatively new and large space. Their original base, the Meteor Works in Coventry, had been badly damaged in the blitz. The core of the Lode Lane shadow factory remains a Jaguar Land Rover production facility today.

Rover's post-war steel allocation was insufficient to keep Solihull profitable and the large workforce employed. To avoid redundancies, or worse still bankruptcy, the company urgently needed a simple

Above: The replica centre steer Land-Rover from the Dunsford Collections leads the parade at Goodwood in 2015.

stopgap that could be built partly in aluminium, which was in plentiful supply in comparison to steel. Initially they developed a prototype small 2-seater car inspired by the Fiat 500, known as the M1 or M-Type. It featured a 699cc engine mounted in an aluminium chassis. Three distinctive prototypes were built before the end of 1946, but the project was cancelled when government pressure to follow

Land-Rover

a one model, high-volume policy, coupled with new car taxation laws, conspired against it. It was abandoned, leaving a gap in Rover's future planning.

FINDING A NEW DIRECTION

In April 1947, Spencer visited his brother's farm on the island of Anglesey, Wales, one weekend and casually asked what he'd do for farm transport when his army surplus WW2 Jeep finally fell apart? Maurice replied, "Buy another one, there isn't anything else I can buy." At that moment, as the brothers looked at each other, the concept of the Land-Rover was born. They sketched a plan in the sand of Anglesey's Red Wharf Bay and set about building the first prototype once they had convinced their colleagues it was a good idea.

To save time, Rover sent engineer Gordon Bashford to buy two Jeeps from a war department surplus vehicle dump. The first Land-Rover prototype was built from these vehicles and used a 1942 Jeep chassis complete with the Jeep's 80-inch wheelbase; an ironic twist because the first two Jeep prototypes had been built on American Bantam chassis and the Bantam was a licence-built Austin 7. The long hand of Austin and Longbridge has this little-known link to the Land-Rover's creation.

The only really new Rover component on the prototype was the handmade, dual-range transfer box which was needed in order to take power to all four wheels and to provide a low crawler gear for off-road work. Otherwise, it was fitted with what Rover had to hand:

Rover Managing Director Spencer Wilks (left) and Works Manager Geoffrey Savage outside the Solihull factory with an export model of the Land-Rover Series 1 in the early 1950s.

As the brothers looked at each other, the concept of the Land-Rover was born

a 1389cc Rover 10 engine and gearbox, plus a standard Rover back axle and leaf springs; even the steering wheel was the usual Rover spring-spoke item.

This first Land-Rover prototype used a centre steer layout which, it was envisaged, would serve all world markets in the cash-strapped 'export or die' period as Britain tried to shed its war debt. However, the longitudinally mounted engine and 4x4 drivetrain meant that legroom was a problem on such a short vehicle.

THE LIFE OF THE CENTRE STEER

Sadly, most historians believe that the original Centre Steer prototype was turned back into a normal Jeep and used on the estate of the then chief engineer, Maurice Wilks. In the unlikely event it does still exist, finding it intact in a barn is, of course, the holy grail for Land-Rover enthusiasts! However, an excellent replica owned by the Dunsfold Collection, the biggest collection of Land-Rovers in the world, does exist. It was built in

2005 and, like all good specials, took shape in a lean-to-shed, that of enthusiast 'Paintman Bill' Hayfield. Like the original vehicle it is based on a 1942 Jeep.

Once the Centre Steer had proved its potential, the Wilks brothers had the Rover company working on this concept flat out, convinced it was the product they needed to keep the factory going. They soon abandoned the central steer idea because of the packaging difficulties, but the production vehicles were otherwise remarkably similar.

The Land-Rover was announced to the world on the 30 April 1948; a stunningly short gestation for any vehicle, let alone one that would go on to become a world beater. Its direct descendant, the Land Rover Defender, ceased production on Friday 29 January 2016, after more than 2 million examples had been produced. The idea of the Wilks brothers for a three or four-year stopgap until steel supplies returned to normal, became a vehicle that outlived the parent company, Rover, that created it. The Land-Rover name became a global icon and is commonly used for any rugged, go-anywhere vehicle, regardless of its badge.





Testing time

The centre steer goes on trial over rough ground. Because a short production run was envisaged, everything was kept as simple as possible and made out of what was available. The body panels were flat and made from a locally sourced form of aluminium known as Birmabright, with gussets and brackets made of galvanised steel.



Into production

When the Land-Rover went into production the chassis was fabricated from sheet steel because no time was available for tooling - an idea that came from Rover's production engineer Olaf Poppe. The body used no press tools at all, being mainly flat aluminium panels. Even the shaped sections were produced by a simple forming operation.

COMING IN ISSUE 11



• ASSEMBLY GUIDE

Continuing work on the second wheel, the tyre is fitted to the rim.

• HISTORY OF THE FORD FALCON

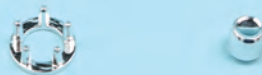
Henry Ford II, the grandson of the founder, brought new vision to the company during and after World War II.

• DESIGNS FOR A NEW ERA

The Porsche 911 is a rear-engined car with charisma and speed to top all its front-engined rivals.

NEW PARTS

Tyre, wheel nuts and hub for the second front wheel.



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