



The 2CV championship has been a popular series for the past 30 years

WALKER

HOW TO BUILD THE UK'S UNLIKELIEST RACE CAR

A Citroen 2CV is not the most obvious choice of racing machinery, and yet the cars have formed a popular one-make series for three decades. Here's how to prepare the humble 2CV for the track

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The Citroen 2CV is probably not the first car that springs to mind when it comes to club motorsport machines. And yet the 2CV has formed the basis of a successful one-make series that is now heading into its 33rd season. The 602cc engine may only just creep up to speeds of 80mph, but the 2CV has proved to be a hit on track.

One driver who took part in the very first UK race back in 1989 was Pete Sparrow. He has raced 2CVs ever since, winning last year's title, and his love of the cars remains undimmed. He grew up around 2CVs because his father worked for Citroen and would regularly choose 2CVs – along with Amis and Dyanes –

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to bring home and use for next to nothing.

"I was always carted around in them as a kid – I got used to it!" recalls Sparrow. "When I learned to drive, my dad got me a knackered old 2CV that was my first car. They're just fun – everything about them is fun."

When Sparrow subsequently learned of a heavily modified 2CV being the focus of a Belgian championship, he had to see it. And, two years later, he was part of the group that set up the UK 2CV category, for more standard machines.

Sparrow says the closeness of the racing means the slower speeds don't matter. "One-make stuff always appealed to me and the speed doesn't bother me – it's about the competitiveness of it," he says. "The speed is almost irrelevant because we're all doing the same speed. I still enjoy it and it hasn't lost any of its appeal. The jewel in the crown is the 24-hour race. It's an amazing event for the people involved, not just the drivers – that's the nice thing about it."

"Anyone can go and buy a load of bits for a BMW M3 or a Renault Clio but 2CVs are great fun. It's a very unlikely race car but there's a reason why we're now going into our 33rd year of racing."



WHERE TO START WHEN BUILDING A 2CV

The 2CV championship is a wonderful class for mechanics/drivers. It's very well-suited to those who are handy in a workshop and like fiddling. The Haynes manual for the Citroen 2CV is essential reading.

To begin with, get familiar with the club website, 2cvracing.org.uk, and download the 2CVParts.com Championship regulations. Read them and read them again. The club can put you in touch with 2CV racers local to you and help find you a buddy – you'll be able to spend time examining their car and discussing the tech details.

Then it's time to make a plan. List what must be done and roughly in what order. Plan for the build to take from six to 12 months of steady work for a couple of people with occasional extra help. With care, a car can be built for around £5000-£6000 plus any paid-for labour.

Next, source the key parts, beginning with a donor 2CV. Look out for an MoT failure or maybe an old race car that needs work. It must have all the parts including the engine and a gearbox, along with disc brakes. It's also helpful to find a second engine as it's reassuring to have a spare.

THE INITIAL STAGES: BODYSHELL AND CHASSIS

To start, dismantle the car, saving all screws and bolts – taking lots of photos along the way – and having boxes for the various bits. Lift the bodyshell off the chassis – you'll need a bit of space – and put it on stands.

The shell will almost certainly need some welding to repair rusted areas, before installing the roll cage and the seat mount. The roll cage must be to Motorsport UK regulations for saloon cars and can be home-made or more often supplied and fitted by a specialist.

An aluminium sheet outer roof should be fitted to replace the cloth, and a steel inner roof must also be welded to the top of the roll cage. The windscreen can stay as standard, although a heated screen can be useful when racing in the rain.

It's important not to rush

into painting the renovated shell, but do prime it. It's better to build the car to near completion, then dismantle and finish painting before re-assembly.

Strip the steering rack, suspension arms, petrol tank, brake pipes and everything else off the donor chassis. Check it for rust and cracks; they often need some repairs.

If badly rusted, consider a new chassis – they are not too expensive. There is a choice of two chassis and there is not much difference between them in performance. The standard Citroen chassis is the lightest, while the SLC is slightly stiffer.



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Sensible and careful building and tuning means engines often last a couple of seasons, and it can cost between £600 and £1200 to build one or, alternatively, they can be bought from a proven builder.

They are simple and interesting to work on, and performance is better than most people think. With 35-45bhp and a car weighing only 655kg with driver, they can still do 75-80mph with a following wind!

Engine modifications are limited to compression

pistons, gas-flowed cylinder heads and lightened flywheel. The club-approved Lumenition electronic ignition system available from ECAS can be installed.

An original camshaft reground to the club profile is mandatory and this work can be done by Kent Cams or Newman Cams. The original Solex carburettor can be used, and a popular approved option is the Weber DMTL carb. With either, the air-cleaner is free and must be paper, not foam.



ELECTRICS

Reliable electrics are important and, if possible, get expert help with the wiring. You can decide on the shape and format of the switch panel and dashboard. Allow for rev counter, temperature gauges, AFR sensor meter, lighting switches and more.

Good wiring is crucial for reliability, especially in the 24 hours and, for the longer race, two extra headlights, fixed to the existing brackets, are allowed. Check the

alternator is in good order and a new yellow coil helps engine reliability. Smaller lightweight batteries, often of the type fitted in golf carts, are used by many.



SUSPENSION

The springs in the two-spring cans can be uprated to as strong a spring as will fit: 3000lb is the max. The front arms should be modified to Belgian spec for safety and reliability, usually best done by a specialist, while the rear arms should be reinforced. Castor and camber are free.

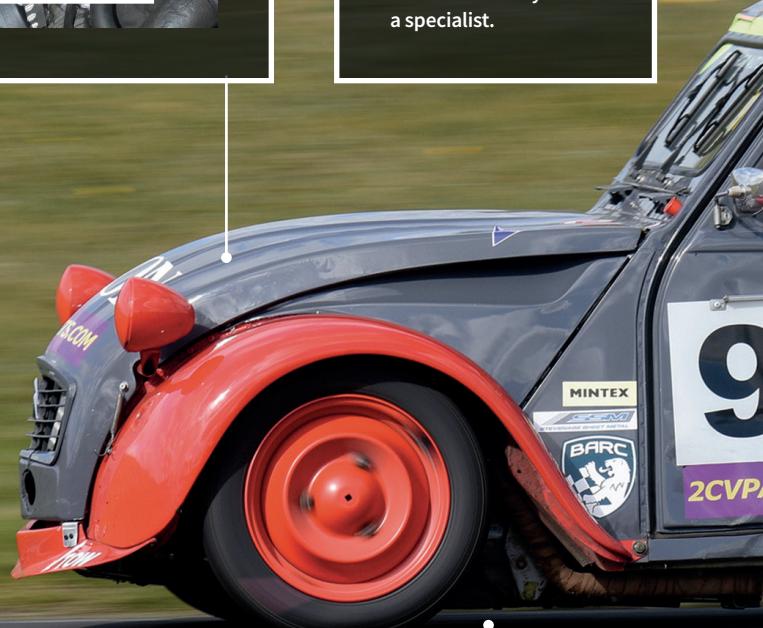
Take care when fitting new wheelbearings – the race cornering loads are much higher than the design loads. Shock absorbers can be replaced and bump stops can be removed. Shocks to 2CV spec are available from AVO, GAZ and Protech. Get familiar with their readjustment.

The one area where racing 2CVs are noticeably different from road 2CVs is that their suspension has been lowered and stiffened. Spring rates are generally increased significantly; coupled to light weight, this makes the cars very agile. Corner speed is the holy grail.



GEARBOX

A standard 2CV6 602cc gearbox must be used. The only modifications permitted are extending the gear stick and putting a blanking plug in the speedo cable hole if no speedometer is fitted. Gearboxes, even in race trim, are normally fairly reliable as standard, although it can be good to have them checked by a specialist.



STEERING AND RUNNING GEAR

The steering rack must be standard and in good condition. Trackrods are standard, while the trackrod adjusters can be strengthened or replaced. The steering column must have a universal joint added to the bottom end, allowing the steering wheel position

to be lowered to suit your driving position.

Standard wheelbearings and kingpins are still used, but it's best to check them every year. If the car is doing the 24-hour race, it's advisable to check them very thoroughly – before the event!

EXHAUST AND FUEL SYSTEMS

There are two main types of exhaust system: a modified road system or a two-into-one system. A basic rule of thumb is that the standard system gives better torque and is easy to fit onto existing mountings, while the two-into-one gives better top-end power.

Most race cars use a non-standard exhaust –

anything goes, and several suppliers can make one to order. Normally they exit in front of the nearside rear wheel.

The fuel system is pretty much standard. The tank must have a roll-over one-way breather fitted. Check the fuel pipe and upgrade it with ethanol-resistant tubing.



FINAL STAGES AND TYRES

Then it's just a case of assembly. Drop the renovated bodyshell onto the rolling chassis and fix with the bolts, fresh if possible. Then all the other bits! A protective undertray below the fuel tank is required. Fix this super-securely with countersunk bolts into closely spaced

captive nuts in the chassis. Race cars must have club-spec Toyo 135/80, 15in road tyres. A set of four can last a complete sprint season or more. The 24-hour race ideally needs a set of dry tyres and a set of wets (buffed less). Once assembled, you're then ready to hit the track.



BRAKES

The standard 2CV braking system is used and is more than capable of lasting even the 24-hour race. 2CVs from the mid-1970s onwards had discs on the front and drums on the rear and, if anything, a standard 2CV is over-braked. Most importantly, the front brake calipers should be serviced with new seals and replace the LHM fluid to prevent overheating. Discs can be machined to the regulation minimum thickness. Brake pads are free, and many racers use Mintex Classic M44-grade pads.

NEXT WEEK'S NATIONAL FOCUS

TEAM USA

We take an in-depth look at the incredibly successful Team USA Scholarship and speak to some of its greatest graduates.