

Geoff Cleall's Citroen 2CV Rebuild. (Part 1)

Geoff gives us an insight into his other passion of restoring vintage vehicles.



I acquired the car, a 1987 2CV Bamboo Model in 2003. It was difficult to get home because the engine kept flooding, petrol running out profusely and the split starter solenoid was sending sparks in all directions. I have no idea why it didn't catch fire. I sorted out those problems but the car still wouldn't run. If I turned the ignition key, the engine would spin and it would fire up but as soon as I released the key the engine died. It had to be the switch.

While I was experimenting with the ignition switch I heard a rasping sound from under the bonnet. I found the car now jammed in gear and realised that the tired old gearbox had 'unscrewed' itself. A problem that some worn out 2CV boxes get. I was sitting casually in the driver's seat with the door open and my legs outside while continuing to play with the ignition switch. Suddenly the starter spun and with the 'unscrewed' gearbox, I was off across the lawn, narrowly missing a tree and jumping on the clutch and the brake, came to a halt with the nose of the car nuzzling an old beech hedge. I jumped out, head spinning round to see if anyone had witnessed my stupidity. Yes yes, I know, always disconnect the battery.

The next major job was to remove the body. After taking off the doors/boot lid/bonnet/window glass and removing a few screws, two of us just picked up the tub and carried it away. As I told my non 2CV owning friends, "The 2CV is light, every part is designed to be light, how else can a four seat

car with an engine that only produces 29 bhp pull the skin off a rice pudding and still do 46 miles to the gallon? Just don't have an accident!"

Rust in the chassis and the body tub was now plain for all to see. The forward arms of the chassis were so rusty that one side had bent down under the weight of the engine and the other was so rusty that I could easily bend it by hand. It quickly broke off. (See Pic). No wonder the steering felt heavy with steering column pressed into use in resisting the droop-snoot effect. The sills were shot away together with the bottoms of the 'A' and 'C' posts. The adjacent nearside and offside floors also had holes, one big enough to put a foot through. The inner and outer bulkheads were full of perforations, part of the metal that holds up the rear seat deck had also gone, the rear seat belt mountings had rusted out and there were holes through the spare wheel tray.



The new galvanised steel chassis arrived (See Pic) and it shows the start of the rebuild. Many people think that the 2CV has torsion bar suspension but the picture shows the actual arrangement. The car has independent suspension with rods coming from the

suspension arms and going into a cylinder shown on the side of the chassis. In the cylinder there are two springs that are linked. When the front wheel hits a bump it rises and pulls the rod which compresses the front spring. That influences the rear spring which, in effect, knows there is a bump coming. You can see the shock absorbers also set horizontally along the side of the chassis. There are no suspension components impinging on the inside of the car.

I marshal for the Classic Sports Car Club and followed the National 2CV Racing scene, even present at the 24-hour endurance events at Snetterton.



However, my project was still in its early stages but optimism is everything.....more of that anon.
Great article – thanks Geoff, we look forward to the next instalment!

Geoff Cleall continues his Citroen 2CV rebuild



While beginning to scout around for replacement body panels, I started work on the engine. It seemed to be in good nick having shown excellent oil pressure and no smoke from the exhaust. 2CV engines are pretty bullet proof. They are twin cylinder and are air and oil cooled. The crankshaft/con-rod arrangement is unusual. The one-piece con-rods complete with big-end sleeve have to be fitted to the crankshaft. For this to happen the crank shaft is made up

It was about this time that I decided to change the colour. I didn't really like the acid green of the Bamboo Model and went for another Citroen 2CV colour, Bleu Celeste. However, The Bamboo Special Additions are rarer so it probably would have been worth it to keep the green. I also decided to brush paint the car. This was because my compressor wasn't big enough and I wanted to avoid overspray in the garage. After preparing the metal, I brush painted six coats of cellulose primer over the panel in the 'Union Jack' fashion. ie, first coat brushed vertically, second coat brushed horizontally, third coat at 45 degrees one way and 4th the coat the other way so as to minimise brush marks. I left it for a couple of weeks to get really hard and flatted it back with 400 wet and dry used wet with soap. The cellulose gloss coat was the same except that I used retarder to slow the drying time and I used 400, 800, 1000, 1200, 1500 wet and dry followed by polishing compound. That rubbing back process on a wing would take a morning and the end result was that it looked as if it had been sprayed.

There was much to do in the rebuilding of the chassis but I'll just pick out a few interesting points. The rear brake drums contain the wheel bearings and they are held on by a massive nut that has to be done up to 250/300 lb/ft. It required a suitable socket, a massive 'T' bar and about 6 feet of scaffold tube. The front brakes are inboard discs. Inboard is good because it reduces unsprung weight. Each disc has two pads for the foot brake and two smaller ones for the hand brake. So, with the hand brake on the front wheels, handbrake turns are a no-no.

The steering rack was in good order but the king-pins and the track rod ends were in a sorry state. I made up a copy of a Citroen special king-pin extractor to help. I mentioned the suspension in Part 1.



Well, the rods that come from the suspension arms to the springs are adjustable in length and by such means it is possible to change the ride height at the front and the back.

The last pic shows the body tub mounted on the galvanized steel chassis, duly repainted with the re-con gearbox, suspension, brakes and steering fitted. Next, I chased about the countryside tracking down the

remaining body panels. More of that in the final part.....

Geoff Cleall finishes his Citroen 2CV rebuild



I started to look for second hand replacement panels. I needed a new rear wing and four doors. After contacting the 2CVGB Club, members began throwing them at me and I soon had a good wing and 13 doors to choose from, all in different colours. The



doors were not rusty but with a skin thickness of only 0.7 mm they all had many small dents. They sometimes split along the top edge and getting rid of dents is like working on a large biscuit tin lid. The front doors are on hinges but the rear ones are held on by gravity and can be slid off vertically. I was able to keep the bonnet and that too has no hinges and can be slid off sideways. The existing boot lid was good.



Removing the rear windows was quick. The doors are flat and if you lay them on the ground, stand on the glass, which is a little above the concrete, there will be a bang and the glass is out and the seal is undamaged. The flat windscreen is more difficult.



I learned that you can be pretty brutal whacking in toughened screens but laminated ones won't take the slightest degree of bending. Mine was laminated and I cracked it.

I picked up the door from North Walsham, the wing from Peterborough and the replacement screen from Huntingdon. The hood and the upholstery were new after-market parts both replicating the originals. The hood, just like any soft top, had to be tensioned carefully. I also had to re-rubber the saggy and cigarette burned seats before fitting the covers.

The distributor is a strange device. It fires both plugs at the same time. One is on the compression stroke and provides power and the other is wasted on the exhaust stroke. It is a make or break arrangement that is extremely simple. It still has to advance and retard though. The distributor lurks behind the fan and lots of cooling ducts all of which have to be removed in order to change the points. I fitted a 123 Electronic Ignition because it is 'solid state' and can be left alone for life. I also fitted a stainless steel exhaust and new wheels and tyres.

I took five years rebuilding the car, working off and on, drove it for five years and then sold it. I often regret the sale. It was simple, different engineering and good fun. I bought the car for £100 and sold it locally for £4,000. I spent £2,900 on parts so unusually I made £1,000 profit not counting labour all of which was DIY. If I sold it today it would probably get £7000+ because the cars are getting rarer.



The last car away. Charles Clark Classic Car Rally 10.07.2011

The new owner rang me up soon after he had bought it and said "Hello old boy, I was driving along the other day and there was a Gawd almighty bang!.....only joking. If you ever want to borrow it for the day, just say the word." The final picture is of me being flagged away on the annual charity Charles Clark Classic Car Run. There were lots of awards at the end of the Rally,

but the 80 other entrants voted my car as the 'Fun Car of the Day'. The question is. What next?
Brilliant conclusion to a great article – thanks Geoff.