

2016 2CVUK HYBRID Technical Regulations

Classic 2CV Racing Club

Review Copy

Version 1.1 - 14th October 2015

1 SPORTING REGULATIONS - GENERAL

1.1 GENERAL:

- 1.1.1 This class is only for mainland European racing and it is NOT to be allowed to compete in UK race series or championships.

2 TECHNICAL REGULATIONS

2.1 Introduction:

The following Technical Regulations cover a class of 2CV race car that is to only be raced in mainland Europe. Unless specified here, all Technical Regulations stated in the 2016 2CVPARTS.com CHAMPIONSHIP SPORTING AND TECHNICAL REGULATIONS apply absolutely.

2.2 General Description:

These regulations are designed to allow for European Endurance racing a UK Hybrid car, which is essentially a Classic 2CV Racing Club 'Club' Class car fitted with a twin cylinder motorcycle engine from a BMW R1100RS, R1100RT, R1100R or R1100GS donor bike (R1100S is not allowed). The overriding principle of this class is to ban all engine modifications and only allow brake or gearbox modifications on safety or reliability grounds. All Technical Regulations that apply to Club class cars also apply to UK Hybrid class cars unless they are explicitly over ruled in these regulations.

2.3 Engine:

2.3.1 General engine regulations

2.3.1.1 The engine shall be a standard 2 cylinder horizontally opposed air cooled BMW unit taken from a BMW R1100RS, R1100RT, R1100R or R1100GS donor bike (R1100S is not allowed). The following components are assumed to be part of the engine for the purpose of these regulations:

- Crankcase, barrels and cylinder head assembly and all engine covers attached in the standard bike.
- Alternator
- Throttle bodies and injectors
- ECU and all sensors (timing, air temperature, throttle position, oil temperature, lambda and CO potentiometer)
- Motronic and starter relays
- Ignition coil

2.3.1.2 Absolutely no engine modifications are allowed except as follows.

2.3.1.3 Flywheel

The lighter (later) type 2CV flywheel shall be used in conjunction with a diaphragm type clutch. It is permissible to lighten a standard flywheel by machining. The 5 flywheel mounting holes must be carefully machined to suit M11 flywheel bolts and the PCD of the bolt holes in the end of the crankshaft. An adaptor boss will be required to attach the 2CV flywheel to the BMW crankshaft, see illustration A.

2.3.1.4 Engine Inspection Seal

It is compulsory that the crank case halves have a bolt with a hole drilled across its diameter fitted, capable of having a scrutineers wire seal fitted, see illustration B.

2.3.2 Prohibited Modifications

With the exception of the items detailed in 2.3.1 it is expressly forbidden to machine, mill, grind, polish, weld, modify or otherwise adapt engine parts to achieve the stated parameters, or for any other reason, including surface finishing.

It is expressly forbidden to fit parts from BMW R1100S engines irrespective of whether or not they fit without modification.

2.3.3 Location and mounting

- 2.3.3.1 The engine shall be located in front of the gearbox between the rack and the front chassis cross member, see illustration C.
- 2.3.3.2 The method of mounting the engine is free.
- 2.3.4 **Induction Systems**
- 2.3.4.1 Standard throttle bodies and injectors from a BMW R1100 series bike must be used. It is not permitted to modify either the injectors or throttle bodies in any way.
- 2.3.4.2 Throttle bodies must be connected to the engine using the club inlet manifold.
- 2.3.4.3 The standard BMW pressure regulator must be used. It is permitted to remove the original plastic pipes and replace them with rubber fuel hose to SAE J30 R9 specification.
- 2.3.4.4 An air restrictor to class specification described in illustration D must be installed on the inlet side of each throttle body.
- 2.3.4.5 Both throttle bodies must be drilled as shown in illustration E to allow the restrictor to be wired and sealed to the throttle body.
- 2.3.5 **Exhaust Systems**
- 2.3.5.1 A class specific exhaust system comprising left and right hand exhaust headers, 2 into 1 collector and down pipe must be fitted, see illustration F. No modifications to this assembly are allowed.
- 2.3.5.2 Silencers are free.
- 2.3.5.3 The exhaust gases shall be expelled behind the mid-point of the wheelbase of the vehicle.
- 2.3.5.4 The exhaust system shall comply with MSA Regulation **J5.16**.
- 2.3.6 **Ignition Systems**
- 2.3.6.1 The BMW ignition system must be retained. No modifications to the standard BMW ECU are permitted.
- 2.3.6.2 The Eligibility Scrutineer retains the right to exchange the ECU unit for another held by him during any event.
- 2.3.6.3 Any HT lead is permitted.
- 2.3.6.4 Any 14mm commercially available spark plug is permitted.
- 2.3.7 **Fuel Delivery Systems**
- 2.3.7.1 It is permissible to install in-line fuel filters and water traps.
- 2.3.7.2 It is permissible to replace the standard fuel line with an alternative type or material of the same internal diameter.
- 2.3.7.3 Low pressure pump, high pressure pump and swirl pot are all free.

2.4 Transmissions:

The transmission (i.e. clutch, gearbox, drive shafts) must be housed (in the case of clutch and gear train) within a standard Citroen alloy gearbox and bell housing mounted behind the engine. There shall be four forward and one reverse gear, all of which shall be in a fully operable condition. Only the use of 2CV6 gearboxes is permitted.

- 2.4.1 **Permitted Modifications**
- 2.4.1.1 It is permissible to extend the gear change lever to allow 4th and reverse gears to be engaged whilst strapped in the driving position.
- 2.4.1.2 The gear change must remain in the manufacturers intended position.
- 2.4.1.3 It is permissible to shorten the bell housing by machining up to 10mm from the engine mating face.
- 2.4.1.4 A rotary shaft seal may be fitted to the input shaft. This will involve shortening the clutch plate support tube by up to 5mm and grinding the input shaft to remove the reverse scroll.
- 2.4.1.5 An extension bracket may be used to raise the rear end of the gearbox by up to 60mm – see illustration G.
- 2.4.1.6 It is permissible to shorten the lower gear lever by up to 60mm to take account of regulation 2.4.1.5.

- 2.4.1.7 The two slots in the rear gearbox mounting may be closed (e.g. with welded washers).
- 2.4.1.8 The gear train from a drum braked gearbox may be transferred to a disc braked gearbox, provided that the gear train complies with 2.4.3 below.
- 2.4.1.9 It is permissible to strengthen the gear change linkage and substitute an alternative assembly for the standard rubber bushes, this must be mounted in the manufacturers original and unmodified position.

2.4.2 Prohibited Modifications

It is not permissible to intermix ratios other than those specified in 2.4.3.

2.4.3 Transmission and Drive Ratios

It is permissible to use either the 8/33 crownwheel and pinion from a 2CV6 or the 8/31 crownwheel and pinion from either a Dyane 6 or Ami 8. It is not permissible to use an 8/29 crownwheel and pinion. It is not permissible to use a limited slip differential.

The following combinations of gear ratios are allowed.

Standard 2CV6 gearbox ratios

1st	5.202 (19/25 x 14/31 x 14/25 = 0.0465)
2nd	2.656 (19/25 x 23/26 x 14/25 = 0.3764)
3rd	1.785 (14/25 = 0.5600)
4th	1.315 (19/25 = 0.7600)
Rev	as first gear
Final Drive	4.125 (8/33)

Tall gearbox 2CV6 ratios

1st	5.202 (19/25 x 14/31 x 14/25 = 0.0465)
2nd	2.656 (19/25 x 23/26 x 14/25 = 0.3764)
3rd	1.785 (14/25 = 0.5600)
4th	1.315 (19/25 = 0.7600)
Rev	as first gear
Final Drive	3.875 (8/31)

2.5 Brakes:

- 2.5.1 The front braking system must use inboard calipers (mounted on the gearbox) from either a Citroen 2CV6 or Citroen GS/GSA with adaptor plates. Outboard mounted disks (attached to the wheel hub) are not permitted. Front disks are free.
- 2.5.2 The rear braking system shall be standard Citroen 2CV6 drum system which must operate on both rear wheels.
- 2.5.3 It is permissible to fit heat sinks to the brake calipers.
- 2.5.4 Brake pad / lining material is free from restriction. Front brake discs must be at least 4mm thick in the case of 2CV6 disks and at least 7mm in the case of GS disks.
- 2.5.5 It is permissible to replace the brake pipes with flexible pipes.
- 2.5.6 The handbrake must operate on both front wheels simultaneously using the original levers on the callipers by the use of cables onto any type of locking ratchet fitted inside the car. It must be possible for the driver to operate it while strapped and seated in the normal driving position.

2.6 Tyres:

2.6.1 Specifications

The permitted sizes are 135/80 X 15 and 145/80 x 15.

Remoulds are prohibited.

All tyres shall have a tread depth of at least 2.0mm across 75% of the tread when the car is presented at pre-race scrutineering and in the forming up area before racing.

2.6.2 **Nominated Manufacturers**

All tyres used in practice and competition shall be either Toyo 310 or Nankang CX668. All tyres shall be of a production compound.

2.7 **Weight:**

2.7.1 Cars shall have a minimum weight of **615kg** including a full tank of fuel and exclusive of driver at all times during and at completion of practice and racing.

2.8 **Fuel Tank / Fuel:**

2.8.1 **Types**

2.8.1.1 The fuel tank shall be a Citroen 2CV6 standard production plastic item with a maximum capacity of 25 litres.

2.8.1.2 It is permissible to fit a vent to the fuel filler neck to enable compliance with MSA Regulation **K14.1.2**.

2.8.1.3 Alternative sender units or modifications to the tank are not permitted.

2.8.1.4 A club supplied endurance filling neck and cap must be fitted. The cap shall be fitted to the body by a flexible tether.

2.8.2 **Locations**

The fuel tank shall be located in the manufacturer's intended position between the chassis legs at the rear of the vehicle.

2.8.3 **Fuel**

Standard pump fuel shall be used as defined as petrol in the **Section B**, Nomenclature and Definitions of the MSA Yearbook.

2.8.4 **Filler Cap**

A filler cap shall be fitted that complies with Section **K14.1.2** of the MSA Yearbook.