

123ignition.nl

ignition systems for classic cars



installation manual
123\TUNE+-2CV



Installation Instructions

The 123**TUNE+**-2CV is designed for the stock (BLACK) 2CV-coil

STEP 1

Turn the ignition off. Remove the engine fan use a long 14 mm socket or similar to unscrew the bolt holding it, once the bolt is removed, the fan comes loose by putting a rod or the socket in it and tapping sideways with a hammer whilst the other hand pulls the fan from the engine. Once the fan is removed unscrew the 5 lower screws (8 mm spanner) and lift the rubber shield to gain access to the points box.

Disconnect the wire from the points box and also from the coil. You do not have to remove this wire; it may be useful sometime in the future.

STEP 2

Remove the points box along with the capacitor. Set aside the two M7 bolts and square washers. Remove the metal protector plate to gain access to the centrifugal advance mechanism. With two very small screwdrivers you can bend away and remove the small circlip ring from the end of the camshaft so that you can remove the thrust washer, the centrifugal weights and cam assembly.

Put these parts in a Zip Lock bag and store in a safe place.

STEP 3

Thoroughly clean the area, inspect the point where the camshaft comes out of the block. If the cavity is moist with an excessive amount of oil, you may have an engine problem. After cleaning everything, slide the two magnets onto the 5mm spindles at the end of the camshaft. Install the 123ignition module with the two M7 bolts and square washers. Leave the bolts a little loose so that you can still rotate the ignition unit in the housing. Align the right side of the dimple at the bottom of the unit with the vertical seam of the crankcase halves.

STEP 4

Run the three wires, (yellow, black and red) along the bottom of the fan shroud, and out through the rubber grommet in the front. It is a good idea to put the wires inside a protective sleeve (like a shrink tube without shrinking it) to give extra protection to the wires' insulation. Tuck the wires securely under the metal tabs inside the fan housing, and make sure they cannot come into contact with the fan!

Cut the wires so that they easily reach the coil and take into account that the engine moves.

Use the connectors supplied with the kit with a professional crimping tool, try to borrow one if you do not have one. Make sure all your electrical connections are absolutely secure, using a cheap crimping tool or ordinary pliers can

cause a bad connections and a major problem in the future!
Do not rush things, tidy up everything carefully.

Use tie-wraps and take special care that the wires under no circumstances can touch the hot exhaust and balance pipe and that no sharp edges in the long run can damage the wires insulation. The wires may not be too close or tie-wrapped to the spark plug leads. Now pull the second wire off the coil (i.e. the wire that connects the positive terminal on the battery, through the ignition key, to the positive terminal on the coil).

Connect this wire to the red wire coming from the 123 ignition module.

DO NOT HOOK UP THE WIRES TO THE COIL YET!

STEP 5

Insert the 6 mm timing rod (or a 6 mm drill bit) through the hole in the crankcase. Screw the fan bolt into the crankshaft, and with a wrench on the fan bolt turn the engine over slowly (removing the spark plugs makes this easy) until the rod slides into the hole in the flywheel. If there is a little play, because your rod is slightly smaller than 6 mm (a 5,5 mm drill is sometimes more convenient) try to find the center of the play. Your engine is now set on its static timing point, at 8 or 12 degrees before TDC (Top Dead Center) depending on engine type.

Clean one of the teeth of the flywheel, and a small area

opposite on the bellhousing. The area next to the starter motor works well. Accurately paint a timing mark with a bottle of whiteout (Tipp-Ex).

STEP 6

Turn the ignition on. Make sure the engine is set at its static timing point. Turn the "123ignition\2CV" housing counter-clockwise until the green LED goes out. Turn it clockwise VERY slowly until the green LED just comes on again. Tighten the two M7 bolts.

REMOVE THE TIMING ROD OR DRILL BIT!

STEP 7

Check your timing as follows: Put the wrench on the fan bolt and turn the engine over (clockwise!) and slow down when the timing marks are approaching each other. The green LED should light up at the exact moment when the timing marks are aligned. If this is not the case, repeat step 6.

STEP 8

Turn the ignition off. Connect the yellow wire to the positive terminal on the coil and the black wire to the negative terminal on the coil. Put the sparkplugs in. If you own or can borrow a stroboscope timing light, now is a good time to use it. Start the engine and see if the painted marks align between 900-1100 rpm, if not adjust

the I23 until they do. If you do not have a stroboscope you can do this check as soon as you come to a workshop where there is one.



VACUUM:

As the I23\TUNE+-2CV offers a vacuum advance sensor, a thick-wall rubber vacuum-hose may be connected to the inlet-manifold of the engine. (might you not want to use this feature, simple leave the nipple on the I23\TUNE+-2CV open)

An easy way of making a vacuum-connection is by drilling a 4-mm hole, and cutting M5-thread into the dual choke carburetor (see photo) because these are already prepared for a vacuum nipple. The nipple is supplied with the I23\TUNE+-2CV

STEP 9

Re-install the rubber shield, take away the fan bolt, put a little grease on the crankshaft to prevent the fan from sticking to the axle. Put the V-belt on the fan pulley and the fan back on the axle without the bolt and turn the fan around on the axle and double-check to make sure the fan does not touch the wires! If you have some Loctite, you can put it on the thread of the fan bolt as extra security. Put in the fan bolt and tighten it firmly to 36 lb./ft. or 50 N/m. Fire it up and enjoy!

ADVANCED USE:

TUNING WITH THE 123\TUNE+-2CV.

Caution, this is for advanced users only, most people should stick to the standard curves. The standard curves have the extra margins that Citroën used to prevent engine damage under extreme situations. If you are an experienced 2cv mechanic and know what you are doing you can use these margins and tune your car for maximum power and fuel efficiency.

FINAL WORDS

Coils

The 123\TUNE+-2CV is designed for the stock (BLACK) 2CV-coil.

Coils that have been overheated once when the car still had points will never give a strong spark anymore, even if they still work they need to be replaced, get a new coil, another second hand coil can be just as bad.

Spark plug leads

Spark plug leads have to be replaced once in a while even if they still seem ok they often start to leak spark energy, especially when they are wet. With the higher spark energy of a 123 it is even more important to have fresh spark plug leads, now is a good time to replace them! If you are

uncertain if they still are ok you can test their isolation by slowly pouring water over them, it should not affect how the engine runs!

Maintenance

You can now congratulate yourself to have an ultramodern, maintenance free ignition system, which may seem to make your car almost totally maintenance free itself. Of course this is not the case and it will still need its plug gaps checked every 5000 kms and new plugs every 10.000 kms. Also other regular maintenance, like oil changes, valve clearance checking, cleaning the oil cooler etc. is still necessary to keep your car in good shape so don't neglect that just because it otherwise has become so much more reliable with the I23ignition!

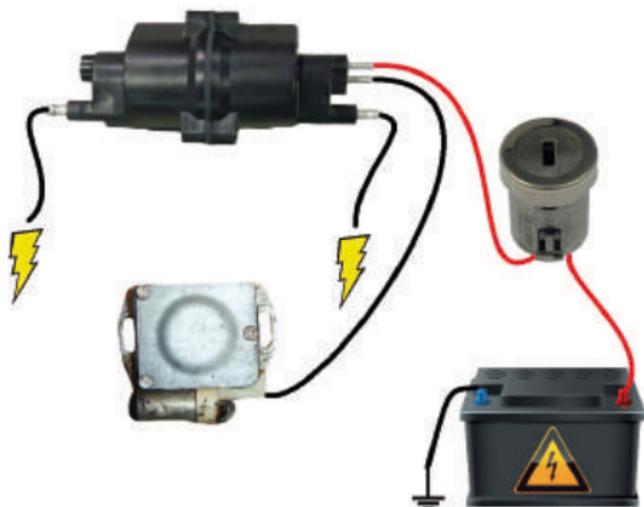
Raids and Waterproofing

The I23TUNE+ is not absolutely waterproof and getting water into the system can irreversibly destroy it! Under normal circumstances this is never a problem but take care when using high pressure cleaners (these can ruin the oil cooler as well) and when crossing deep water. It is possible to make the unit more "Raid ready" with a silicone sealant around the circuit boards edges on the rear of the unit, the LED's in front and where the wires come out of the unit.

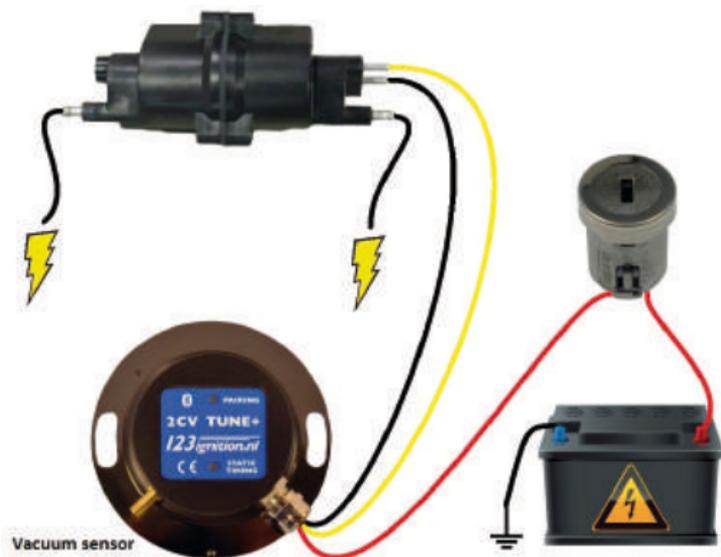
Technical data

operating voltage:	4 – 16 Volt
range:	10 – 8000 rpm
temperature:	-40° to 100° Celsius
coil:	stock black 2CV-coil
dwell:	microprocessor controlled, adjusting to coil current and therefore independent of battery voltage
spark-balance:	software controlled, better than half a degree crankshaft
wiring:	red = +6V/+12V yellow = "+" coil black = "-" coil
engine-types:	A79/I 435cc M28 & M28/I 602cc all standard and tuned "2CV" engines Vacuum advance sensor for reduced fuel consumption under medium loads.

OLD Situation with breaker points



NEW Situation with I23\TUNE+-2CV



INSTALLING THE APP

- Please download the I23\TUNE+ App in the Appstore, search for **I23TUNE**.
- I23igniton Tune+ needs a Bluetooth 4.0 device. All Apple devices of the last few years have Bluetooth 4.0
- The TUNE+ needs to be powered (6Volt or 12Volt) if you like to connect with the I23\TUNE+ App

HOW TO CONNECT

- Start the app
- A welcome message will be shown the first time, push on "show settings"
- The available devices will be shown, push the I23TUNE+ device. **(don't forget to power the unit)**
- For entering the ignition a PIN code is required (standard PIN code: 1234)
- The connection will be made after the right PIN code has been entered
- The PIN code will be stored in the App, so it has to be entered only the first time
- On the dashboard a message and a green point will be shown as a sign of a successful connection
- You can now start your engine!

SETTINGS

- If you like to change some settings go back to the settings tab by pushing the dashboard somewhere and then push the

- settings button in the right upper corner
- It is possible to change the PIN code with the “Set PIN” button
- On top you can activate the immobilizer by pushing the red lock symbol and unlock by pushing the green unlock symbol
- The rest of the settings will explain themselves

CHANGING THE ADVANCE CURVE

- Please be aware the engine cannot run when advance curves will be changed
- Push somewhere on the dashboard, the title bar will be shown
- In the left corner a button for changing the advance curve will be shown. (only available when the ignition is powered and the engine is not running), push on it
- For changing the advance curve push on the RPM table
- Now it is possible to change the RPM advance curve
- Entering a Max RPM value results in a Rev limiter (soft limiter, only 60% of the sparks will be random cut off)
- Pushing the green + will add a new point on the bottom of the list, (the 8000 rpm point is fixed and can't be moved or removed)
- Pushing the red - button will remove a point
- Moving the “move symbol” (three lines on the right side of the table) up or down will move a point to another position in the table
- The RPM values has to be ascending otherwise the value will

not accepted

- If the curve is modified and you like to store the advance curve in the ignition, **don't forget to push the "Save" button** on the right upper corner of the screen

CHANGING THE VACUUM ADVANCE CURVE

- Push on the MAP curve table to modify the vacuum advance curve
- Entering a "Start @ RPM" value results in a ported vacuum function (vacuum curve is not active below the entered RPM)
- Changing the vacuum curve works the same way as the rpm curve
- For storing the vacuum advance curve in the ignition, **don't forget to push the "Save" button** on the right upper corner of the screen
- Go back to the dashboard by pushing the Dashboard button on the left upper corner
- Start the engine!

TUNING WITH THE I23\TUNE+

- When the engine is running, you could press the 'TUNE' button on the dashboard to enable real-time 'TUNING' mode
- By pressing '+' (advance) you can increase the total amount of advance with a maximum of 10 degrees crankshaft, in steps of 1 degree
- By pressing '-' (retard) you can decrease the total amount of

advance with a maximum of 10 degrees crankshaft, in steps of 1 degree

- This feature will come in handy, if you have your car on a rolling road, and want to optimize the engine-power
- Push the 'TUNE' Button again to go back to the normal programmed advance curve
- The advance or retard found is not stored in any way, so you will have to remind your findings, and adapt the active advance-curve accordingly

Standard 2CV Advance Curve

Max.Deg. crankshaft/RPM	Engine Type	Engine Plate
14°/3600 (*)	375cc, A53 & M4	A,AZ,AM
20°/3000 (*)	A79/0	AYA
25°/3000 (*)	A79/1, M28 & M28/1	AM2,AYA2 AK2,A06/635 A06/642 AM2A,A06/664
23°/5000 (*)	VA1 (VISA/LNA)	V06/630
20,5°/5200 (*)	VA4 (VISA/LNA)	V06/644

(*) Degrees crankshaft WITHOUT the vacuum advance

Static timing:

8° for M28 & M28/1,

10° for VISA engines

12° for A53, M4, A79/0, A79/1

