

Engine and gearbox, from 425cc to 602cc

Here is a step by step guide of the operations and modifications needed.

Engine and gearbox

- Take out the old engine and gearbox.
- Remove the brake cylinders and all brakelines from the old gearbox.
- Fit the old type cylinders (rebuilt) and pipes in the modern drum brake gearbox with modern linings, these fit straight in.
- All other components on the gearbox are the modern components that are original with the gearbox.
- Connect the brake lines.
- Fit the gearbox in the car.
- If the car has a pre 1970 chassis, the spacer tubes on the back gearbox mounting have to be shortened.
- Cut the spacer tubes in half for the right length.
- Fit the engine.
- Post 1971 engines have the engine mounts further apart.
- Drill a hole in the chassis outside one of the original holes, (measure the exact distance on the engine).
- This way one original hole is retained and a new one is used (the engine is placed slightly off center).
- Bolt down the engine.
- Fit a modern type headlight support, to original one won't clear the bigger engine.

Driveshafts

- Remove the old type driveshafts.
- Remove the plates that normally the wheel is bolted to, by tapping them out from inside the bearing.
- Fit modern type plates with a lot more splines for the driveshaft.
- Fit modern type driveshafts.

Clutch

- Get a GSA clutch cable or a cable with ends like the modern type 2cv one but a lot longer.
- The cable is fitted to the belhousing, then comes from under the gearbox on the right side (not the left as on modern 2cvs) then goes over the gearbox down to the pedal box.
- You want to be able to lengthen the exterior cable with the adjusters as the clutch wears.
- You might have to make up a small tube or modify the cable to get the adjustment right.

Exhaust

- This exhaust will run under the right side of the car. The reason for this is to clear the master cylinder on the left side.

- Get a complete modern type 2cv exhaust.
- Cut off the 2 long pipes on the first silencer.
- Cut off the mounting bracket.
- Turn the silencer back to front and weld everything back on.
- Adding flexible pipe might help for easy of fabrication, otherwise be sure to get those angles and lengths right.
- Tip: fit everything on the car, then tack weld everything together, remove from the car and finish welding.
- On the left side it will just clear the master cylinder.
- A heat shield can prevent the mastercylinder from getting hot.
- Cut up and reweld the pipe between the 2 silencers to make it a mirror image.
- Cut up and reweld rear pipe to make it a mirror image.

#### Electrics

- You will probably want to convert the car to 12V electrics.

#### From drum brakes to disc brakes

The biggest problem is that disc brakes use LHM (green) brake fluid and drum brakes use DOT (red) brake fluid. There are some obstacles when converting to disc brakes:

- Master cylinder fitted on the chassis instead of the bulkhead  
There is no room to replace the chassis mounted master cylinder with a LHM one. The LHM one is dual circuit and much longer. The master cylinder will have to move to the bulkhead. On a 2cv use the bracket and pedals from a post 1970 2cv together with a 2cv LHM master cylinder. On any Ami use the Ami 8 master cylinder, bracket and pedals. On a Mehari use the Mehari LHM master cylinder. On a Dyane use the Dyane LHM master cylinder.
- Rubber hoses fitted on the rear axle.  
If your car has brake hoses fitted to the rear axle, you have 2 options. Replace the hoses with those from a CX. You will need adaptors to fit the hoses to the brakelines. Or fit the rear axle of the same model car but with the solid brakelines.
- Not the most modern brakelines fitted.  
Older cars are fitted with brakelines that are not compatible with the LHM master cylinder. These brake lines have a bigger diameter. Adaptors can be made up but you'll probably want to replace all brake lines with the modern ones. While you're at it, you could consider replacing the rear axle with a modern one so you don't need the flexible brake hoses anymore.

After removing these obstacles, the rest is fairly simple.

- Replace the rear brake cylinders and brake line rubbers with LHM parts.
- You will need the modern type gearbox fitted (gearlever on the lid)

- For the gearbox there are several options:

You have a drum brake gearbox with holes for the brake calipers but no thread in them.

Drill the holes to the proper size and then cut thread in them. Make sure you drill and cut at right angles. Replace the differential axles with the brake back plate on them with ones from a disc brake gearbox or cut off the brake plates.

There are no holes for the brake calipers.

you will have to replace the gearbox with a disc brake gearbox.

- Make sure all braking fluid is drained from the system before filling the system with LHM.
- Fit the discs and calipers.
- After fitting the caliper check that the disc is positioned exactly in the middle of the caliper.
- When not change position by fitting the spacer or filing a bit of the gearbox mountings.
- Check all connections.
- Fit the brake pads.
- Fill the system with LHM and remove all air from the system.

From 6V to 12V electrics

The biggest problem with the electric conversion is the generator/alternator. 425cc engines have the 6V generator behind the fan. As far as I know there are no 12V replacements available.

Ofcourse you could have a 6V one converted to 12V by a specialist company. When your engine has generator/alternator fitting on the manifold you can replace the generator by a 12V alternator.

Other components you have to change:

- voltage regulator
- indicator relais
- wiper motor (if fitted)
- horn(s)
- all bulbs

The original 6V starter won't have any problems with 12V. On the 6V system the current is much higher. The fuel gauge will work on both 6V and 12V correctly. There is one other thing. On the old 6V 425cc systems the voltage regulator is wired directly to the battery. On the 12V system the regulator needs to be wired over the ignition so that with the ignition turned off, the voltage regulator is cut off as well. Otherwise you'll drain your battery overnight. Some 6V cars have a charge light. This is connected to the voltage regulator. On the 12V regulator this can't be used. A good alternative is rewire the charge light so it becomes the oil pressure light (when your engine has a oil pressure sensor fitted).

