

# Polini Evolution Engine - Ciao, Bravo, Si, Boxer

## **Instructions for fitting the engine - carb diameter 19 mm inlet reed valve.**

We've created a new engine case for Piaggio mopeds that allows the mounting of a 19mm PHBG carburetor, without any modification to the original moped frame.

A careful study of the intake side of the engine has led to create a new reed valve system of extremely small dimensions, that allows the engine to deliver formidable torque coupled with a high maximum power. The adoption of this new crankcase, allows our cylinder kits to express the great potential they have. The crankcases are provided in three versions depending on the type of moped you have. This engine case may be utilized both to mount the original cylinder or increased sizes with 41/43/46 mm bore.

Dismantle the old engine and clean all parts to be reused, including the new housing. Check that the parts for reuse are still in perfect working order and in proper wear tolerances. Mount two new bearings on the crankshaft, heat the new casing with flame or oven to about 200°C, insert the complete crankshaft assembly with the bearings in the crankcase ignition side, position the sealing gasket and fit the other engine case while it's still hot (Caution: At this temperature, everything must fit together without the use of force).

Lock the engine case with the supplied screws and fit the oil seal. Use a sharp knife to remove excess gasket material, be careful not to damage the sealing surface.

## **Reed valve**

Hold the reed valve assembly with the reeds facing the cylinder, and the o-ring seal facing upwards. Insert the reed valve assembly into the engine case, and secure it by placing the spring underneath the reed valve.

Mount the reed valve cover including its gasket and secure it with the three supplied screws.

Now assemble the top end of the engine and make sure it's in perfect condition.

## **Ignition assembly instruction**

For the version with contacts points, adjust the ignition timing to 2,2 mm / 23,4° before top dead center. This equals a distance of 29 mm measured on the outside diameter of the flywheel.

While adjusting this ignition timing, make sure not to exceed a points gap of 0,6 mm.

There is no need for adjustment on the versions with electronic ignition.

## **Mounting the engine in the frame**

Before mounting the engine in the frame, make the adjustments to the frame like mentioned in the frame drawing. It is necessary to have access to the adjustment screws on the carburetor.

Fit the two pins on the crankcase, fasten the air filter to the carburetor and place the O-ring into the carburetor. Proceed to the final assembly of the engine on the chassis and fit the engine mounting screws, put in place the carburetor and air filter assembly. Secure the carburetor with the locking plate, mount it from above in the two sliding pins and lock it down with the screw at the top of the locking plate.

Connect the supplied throttle and choke wires, place the choke lever on the right side of the handlebar. If you want to achieve superior performance from your engine, it is recommended to use our special mufflers available in various models. Our tests are carried out using only special parts from Polini, for a maximum performance. For assembly and disassembly of the muffler it is recommended not to pry on the end of the pipe, but use a screwdriver to lever between the cylinder and the exhaust collar. It is recommended to use only original products and spare parts from Polini and carefully follow the instructions above for good performance and long life of your engine.

### Modifications for autolube engines

The right engine case is prepared for the oil mixture pump, see drawing C.

- 1.) Drill a hole with a 3 mm drill bit.
- 2.) Drill a hole with a 11 mm drill bit.
- 3.) Make two M6 threads for the oil pump.

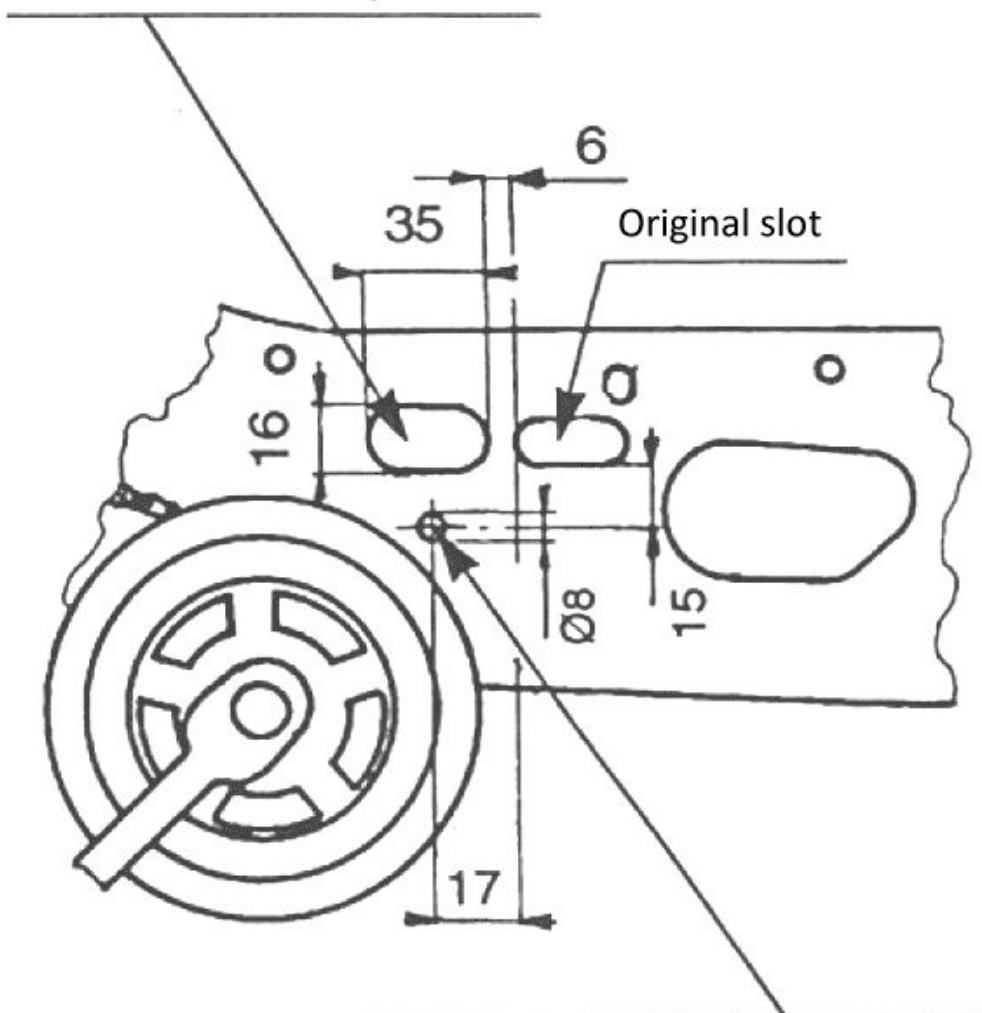
### Modifications for engines with indicator lights

The left engine case is prepared to mount a voltage regulator, see drawing D.

- 1.) Drill a hole with a 19 mm drill bit.
- 2.) Drill a 2,5 mm hole and tap a M3 thread.

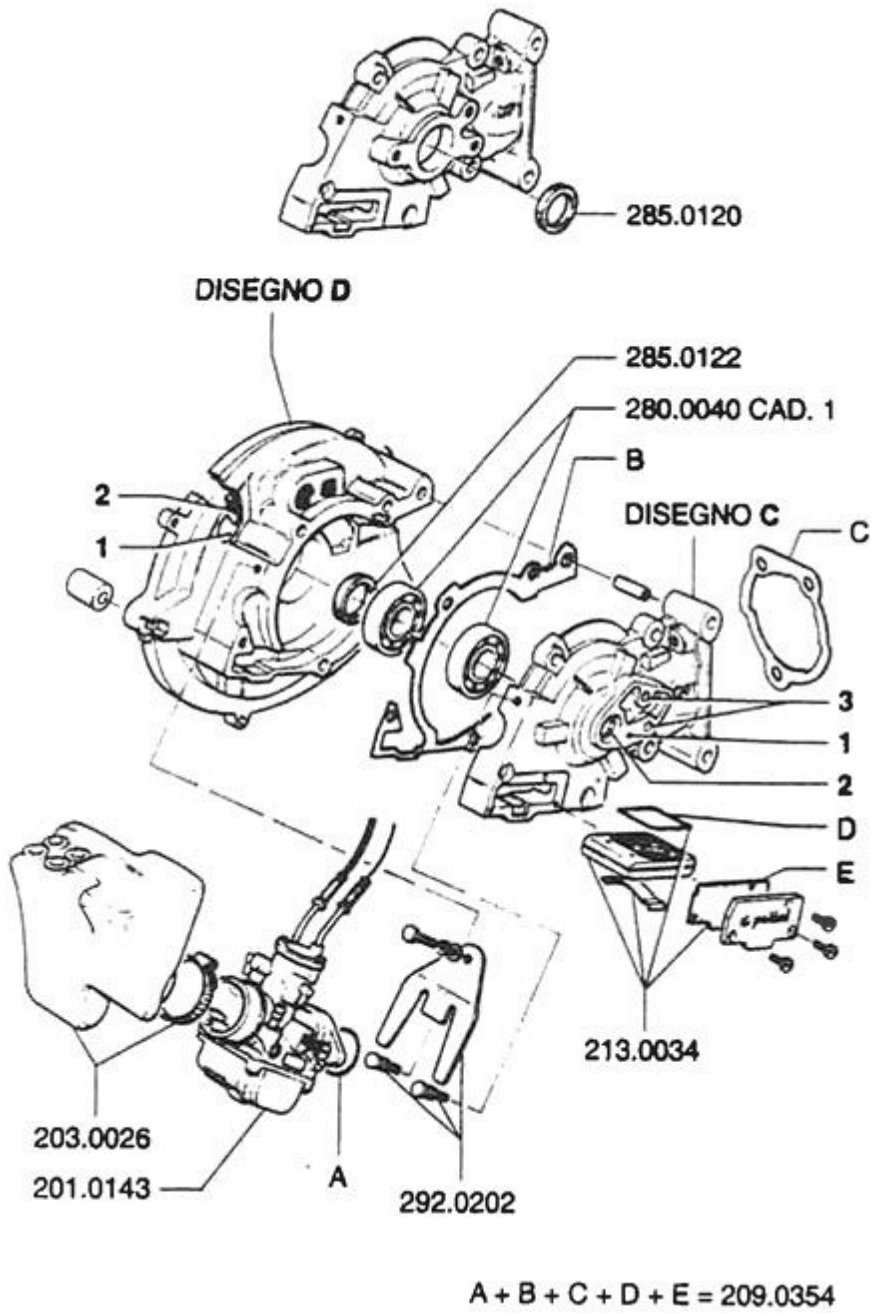
### Frame Drawing:

Slot for idle screw adjustment



Hole for mixture screw adjustment

Engine Drawing and Part Numbers:



Translated by Google/Carsten from the italian user manual by Polini.