

## VALVES



**It is lively recommended to carefully read this document in every part before beginning to work on the vehicle or the motor.**

### GENERAL INFORMATIONS

Valve is a fundamental component of engine fuel feeding system and a right choice of this item can influence on reaching of best performances and fuel consumption.

Its main function is to regulate automatically the flux of fresh charge, air and fuel blend prepared by carburettor, during engine suction stage in order to maximize the quantity of fresh charge drawn up and that remains in engine at different regimes of engine rotation.

Actually, the reeds are applied on the majority of two times cycle engine.

In the past also other system were used in order to regulate aspiration phase of two-times engine, for example the same motion of piston that opens and closes suction lights drawn in cylinder and rotating discs. The valves are not applicables for these two kinds of admissions.

The valve is mounted between engine and intake manifold; the keeping between this elements is obtained using some packings or directly deriving them in valve or in intake manifold.

A valve is generally composed by following components: valve body, one or more reeds, one or more aperture limiters, commonly called stoppers, and fastening screws that block reeds and stoppers on valve's body. Every component of valve has a specific function. The valve body serves as base in order to mount all components of valve and to realize by a proper flange the assembling of valve on engine. Reeds are the hearth of valve and they have function to open and close the flux of fresh charge to engine, according to difference of pressure existing between up and down side of valve.

The stoppers have function to fix reeds on valve body and limit the best aperture value in order to avoid the breakage of reed. In some cases inside valve, a diffuser is mounted in order to increase flux of fresh charge to valve. In some engine valve assembling is made by a proper adapter.

Valve body can be made in plastic composite material or in aluminium alloy. In this case, in support area of valve the body is covered with an elastomer in order to assure the keeping and increase reed's duration appeasing shoves during the closing phase.

The reeds are made in plastic composite material or in steel with carbon sheet or in stainless steel sheet. In all cases they are special materials studied just to assure the best performances and the best duration of reed. Stoppers are made in galvanized steel sheet.

The factors that contribute to right choice of reeds to mount on valve are several:

- engine model;
- carburettor model and intake manifold that it's used;
- total performances level that it is wished.

Speaking in a general way, a valve with reeds of small thickness and stopper of small aperture increases performances at slowest regimes engine and so vehicle's resumption. In the opposite side, a valve with reeds of big thickness and a stopper with an increased aperture favours vehicle's spurt and acceleration.



**Use the type of valve defined from the applicability table that can be found in the catalogue, on the pages of Web Site, [www.adler.it](http://www.adler.it), or demand it by e-mail at the address [adige@adler.it](mailto:adige@adler.it).**

### ASSEMBLING INSTRUCTIONS



**The fitting and maintenance operations must be done exclusively by an authorized workshop.**

The assembly of the valve is generally an enough simple operation, it needs few minutes and it does not need of complex operations of preliminary disassembling.

The valve's assembling and disassembling on the engine must be executed respecting all instructions and using all tools defined on the **Producer's Workshop Manual**.

It is advised to apply to a specialized mechanic for the assembling of the valve.

The replacement of valve on engine can require a new control of engine's calibration in according to the prescriptions contained in the valve's packaging. The new carburettor calibration requires a very specific competence and a competent person must make it. The wrong calibration of the carburettor can cause serious problems of safety drive and excessive fuel consumption.

If in the valve' box there are some packings, follow accurately the specific assembling instructions contained in the box to mount them.

The bad keeping of packings can cause problems of drive safety and excessive fuel consumption.

If it is estimated the assembling of original packings on valve, it is always advised to mount new and of the model established by vehicle's producer. A bad keeping of packings can cause problems of drive safety and excessive fuel consumption.

In the case in which the packings of valve are drawn on intake manifolds, need verify accurately their usury's conditions and, if it's necessary,

replace the intake manifold of engine, verifying the availability in our catalogue, on the pages of Web Site, [www.adler.it](http://www.adler.it), or by email at the address [adige@adler.it](mailto:adige@adler.it). A bad keeping of packings of valve drawn on intake manifold can cause problems of drive safety and excessive fuel consumption.

The fastening screws of reeds on valve must be closed to clamping couple defined on the Producer's Workshop Manual. A wrong clamping couple of reeds' fastening screws on valve can cause problems of drive safety and excessive fuel consumption.

The fastening screws of valve in bad conditions has to be replaced with new items of the same model and quality. Breakage or unscrewing of reeds' fastening screws on valve can cause problems of drive safety and excessive fuel consumption.

It is very important to verify the condition of the reeds about every 5000 km or, however, every disassembling of engine or carburettor and also in the case of a sharp diminution of engine performances. The presence of fissures and, in general, the bad condition of the reeds and valve can cause serious problems of drive safety and excessive fuel consumption.

### GENERAL CAUTIONS

Before starting any maintenance or servicing on the vehicle, always follow a few general rules.

Make sure that the working place is clean, well aerated and perfectly lit.

Always switch the engine off before starting to work on the vehicle. Particularly, the engine must be switched off when operating in closed places without any exhaust gas vent system.

Lift the vehicle with a suitable equipment above a flat hard floor.

Always work in a clean area, wearing working clothes and safety garments or devices as prescribed by law.

Keep off unauthorized persons, the young, particularly children.

Stop the engine, remove the key and wait for the engine and the exhaust system to cool to prevent burns. Pay attention to all engine or vehicle parts (i.e.: exhaust system, braking system) which may still be hot.

Pay the utmost attention to the presence of flames, heat sources or warm objects into the room: most of the liquids in the vehicle are generally highly inflammable.

Never swallow any vehicle or engine component or liquid. Particularly, liquids can be highly injurious or toxic.

Waste lubricant or components must be delivered only to the dedicated waste disposal centres; they must not be otherwise disposed of.

Always check that the packing is sealed and complete and there are no missing or damaged parts.

Always check the vehicle overall conditions before installing the valve.

It is specially recommended to always follow the instructions carefully for safety reasons. Any and every liability for any damage or injury to persons and/or property arising out of a wrong or inaccurate installation is hereby rejected. An improper use or the modification of the valve, a wrong installation or the installation not in compliance with the prescribed instructions will automatically invalidate any product warranty.

The valves are vehicle components for which homologation may be required according to the relevant laws in force.

The valves are vehicle component subject to the approval of the vehicle manufacturer.

After the installation of the valves the vehicle might require a new homologation.

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