

CLUTCH PLATES



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

GENERAL INFORMATIONS

The clutch with multiple discs, commonly called clutch, is an important organ of vehicle's transmission and its function is to realize the link between the main shaft and the primary shaft of gear. The clutch realizes the link between these shafts in a variable way and in according to the requests of the driver. When the clutch makes the link between the two shaft, the action is called insertion while in the opposite case, the action is definitively disengagement. The actions of clutch's insertion and disengagement. They are necessary to cancel shoves during the vehicle's start and the changes of gear.

Without the clutch in vehicle's transmission, every start and gear change would be source of shoves and mechanical solicitations. Moreover, the noise would be higher, because of the insertion of different gears would be made with shafts to link turning at different speeds and in conditions of sensible load.

The clutch has also another very important function, that is to limit the value of maxim couple working on transmission organs by effect of a unforeseen force applied to vehicle, like for example during a landing after a jump with an off-road motorbikes.

So, during every vehicle's use condition, the clutch reduces the value of mechanical solicitations acting on vehicle's and engine's parts and it guarantees their duration.

The clutch transfers a couple from a shaft to another one, from main shaft to primary gear shaft. The engine power is transmitted from primary gear shaft, through the rest of transmission, to the vehicle's wheel. The difference of speed that there is between the two shafts during insertion or disengagement of clutch causes a power dissipation that transforms itself in heat and heats the different components of clutch, the conducted discs and conductors particularly. So, the clutch discs are mechanical components that are exposed to strong mechanical and thermic solicitations.

The clutch are planned to work with oil or at in dry conditions. The first type is used generally in O.E.M. engine and it works in the same oil of engine. The function of lubricant is that to cool the clutch discs. The clutch without oil, instead, are used generally in applications on vehicles for competition.

The clutches generally are composed by a conductor component that is linked to main shaft and a conducted component that is linked to the primary gear shaft. The conductor organ of clutch is, generally, composed by a drum that keep the action by a pinion of main shaft through a toothed wheel rim. The drum is equipped with proper seats, the quarries, where work the teeth of covered conductor discs. The play present between quarries and teeth allows discs to glide in the clutch drum. The conducted organ of clutch is, generally, composed by a hub linked to primary gear shaft by a grooved

profile. On external diameter of hub is obtained a set of teeth in which work the conducted discs. The teeth are made in order to couple with play and allow conducted discs to glide on hub. The conductor and conducted discs are one disc rests on the other, in alternative way, and they are pressed together by springs lodged in the pressure plate. The couple that transmit the clutch is directly proportionate to the load of springs, the number of teeth's shown areas and the average diameter of discs. The number of discs, the load of springs, and the average diameter of discs are project's parameters defined according to highest couple that the clutch has to transmit.

During the insertions and the disengagement of clutch, the driver, pushing the clutch lever on handle-bar, regulates the force that compresses discs and changes transmissible friction's couple from its best value to its annulment. The clutch control can be made mechanically or by an hydraulic system. In the first case, clutch controls need to be regulated acting as consumption of clutch discs.

Generally, the drum, the hub and pressure plate are made in aluminium alloy. The conductor discs are shaped by a metallic, steel or in aluminium alloy body covered with a special material, friction material. Instead, the conducted discs are made, generally, in steel.

The friction material is very particular, it's made by specialized firm as Adler SpA; it must have some peculiar characteristics: high and constant, when the use and environmental conditions change, friction coefficient, high usury resistance, high mechanical resistance, high thermic resistance and low heat's transmission coefficient; it has not to cause gripes on the conducted discs. These materials are made, in general, by an organic matrix in which there are different components, each one has the function to assure it the typical characteristics: fibres, powders, friction modifiers and special structural plastic resins for using in high temperatures. For more exasperated applications the friction material is made with metallic sinterized powders.

The clutch and its discs influence the drive safety and the vehicle performances. The choice of clutch discs has to consider the model of vehicle in which they will be mounted.



Use the type of clutch discs defined from the applicability table that can be found in the catalogue, on the pages of Web Site, www.adler.it, or demand it by e-mail at the address adige@adler.it.

ASSEMBLING INSTRUCTIONS



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

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

The clutch discs' assembling and disassembling in the clutch 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 clutch discs.

A wrong assembling of clutch discs can cause problems of drive safety and excessive/anomalous of clutch discs.

The surface of clutch conducted discs must be always in good conditions; if it is in bad conditions, it can cause problems of drive safety and excessive and/or anomalous consumption of clutch discs.

When it is noticed an excessive usury, fissures or a bad general condition, it is advised to mount new discs, verifying the availability in our catalogue, on the pages of Web Site, www.adler.it, or by email at the address adige@adler.it. The working area of clutch conducted discs in bad conditions can cause problems of drive safety and excessive and/or anomalous clutch discs' consumption.

If in the clutch discs' box there are some springs and/or fastening washers of springs, follow accurately the specific assembling instructions contained in the box.

The lack of use of springs and/or fastening washers contained in the box can cause serious problems of drive safety and excessive and/or anomalous clutch discs' consumption.

If the springs and/or the original fastening washers of springs are in a bad condition, it must replace them with items approved by vehicle producer. The no-replacement of springs and/or fastening washers in a bad conditions can cause serious problems of drive safety and excessive/anomalous clutch discs consumption.

The replacement of clutch discs need, generally, disassembling of the clutch in engine. During assembling of the clutch verify clutch components, nut and hub fastening washers conditions, and close hub fastening nut to the clamping couple defined on the Producer's Workshop Manual. The use of damaged clutch components, nut and hub fastening washers or in a bad condition or the wrong clamping of nut can cause problems of drive safety.

The replacement of clutch discs need of a first moment of clutch use in less dangerous conditions in order to arrange discs' work areas. The lack of this initial period can cause serious problems of drive safety and excessive and/or anomalous clutch discs' consumption.

The clutch discs have to be replaced together. The partial replacement of clutch discs can cause problems of drive safety and excessive and/or anomalous clutch discs' consumption.

The replacement of clutch discs can need of a regulation of mechanical control system or the check of hydraulic control system liquid. The no-regulation or the no-check of control system can cause problems of drive safety or excessive and/or anomalous clutch discs' consumption.

The liquid of hydraulic brakes' control system must be replaced after the distances indicated in Vehicle Manual. The use of a due liquid can cause serious problems of drive safety.

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 clutch discs.

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 clutch discs, a wrong installation or the installation not in compliance with the prescribed instructions will automatically invalidate any product warranty.

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

The clutch discs are vehicle component subject to the approval of the vehicle manufacturer.

After the installation of the clutch discs the vehicle might require a new homologation.

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