CENTRIFUGAL CLUTCH

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 monogear motorbikes and the scooters furnished with an automatic variator of speed, the CVT, are equip with an automatic centrifugal clutch that works in a proper drum, the centrifugal clutch drum. This drum is a mechanical organ that, in according of the realization plan, works with oil or dry. In general, in the monogear applications it works with oil while in the CVT applications there is a dry-working.
The function of the centrifugal clutch, consequently also of the relative bell, is to disconnct the engine from the transmission of the vehicle when the vehicle is not going and to transmit the engine brace to the transmission of the vehicle during the start and the march of the vehicle.
The working of this type of centrifugal clutch is very simple and it is bound to the centrifugal force that it is generated on the clutch weight of the centrifugal clutch. By effect of centrifugal force that acts on the clutch weight when the clutch turns, the clutch weight expand and work against the drum obtaining the connection and the transmission of the couple between the engine and the transmission. In order to obtain expansion of the clutch weight, it is necessary that the value of the centrifugal force generated from the rotation of the clutch is major than the force of callback exercised from appropriate spring on the clutch weight.
The centrifugal clutch is connected to the engine or by a primary transmission to gears or by the driving belt of the CVT. In both cases, the connection to the engine is made through a fluted profile realized in the clutch plate, that it engages with a main shaft connected to the engine and a nut of fastening. The drum of the centrifugal clutch is connected to the transmission of the vehicle through a hub furnished with an appropriate fluted profile, that it works on the transmission shaft and it is fixed with a nut.
The rotation of the engine spins the centrifugal clutch and the clutch weight that they are mounted on the plate of the centrifugal clutch come pushed from the centrifugal force against the inner edge of the drum and they drag it in spin by friction.
Because the centrifugal clutch drum is connected to the transmission of the vehicle, the engine brace is transmitted to the wheel and the vehicle is put in motion.
In order to move clutch weight of the centrifugal clutch from their position of rest it is necessary to exceed a sure value of the spin speed that serves to win the force of the springs, which hold in rest position the clutch weight.
When the engine turn at minimum or under a sure value of the speed, the centrifugal force is not sufficient to move the clutch weight from the their position of rest against the centrifugal clutch drum and, therefore, the engine remains disconnected from the transmission of the vehicle, free to whheel also if the vehicle is not going.
When the speed of the engine reachs a sure defined value to plan, the centrifugal force that acts on the clutch weight exceeds the force of the callback spring and the clutch weight move and work against the centrifugal clutch drum; in this way the engine couple starts to transmit to the transmission of vehicle.
In this way, is made the insertion of centrifugal clutch in a completely automatic way.
On the contrary, with the diminution of the spin speed the clutch weight return in rest position and the centrifugal clutch unprimes itselfs automatically, disconnecting from the bell: the engine becomes therefore disconnected from the transmission.
The centrifugal clutch drum is generally realized using a steel sheet with elevated mechanics characteristic, on which there are some caps with the function of heat disposal and soundproof. These parts are made in steel sheet or in aluminum alloy. In the first case, they are knit on the drum while in the second one they are fixed to the drum with screws.
In adding, on the bell of the centrifugal clutch drum is knit welding a broached hub that serves in order to connect the drum to transmission shaft of the vehicle.
In order to increase the resistance to the wear of the bell of the clutch centrifuge a heat treatment of superficial hardening, the soft nitriding is used.
In some cases, the bell of the clutch centrifuge and? balanced statically in order to avoid the transmission of vibrations to the vehicle. The bell of the clutch centrifuge influences the guide emergency and the performances of the vehicle therefore the relative one chosen must be made holding account of the type of vehicle on which it will be mounted.

Use the type of centrifugal clutch 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 centrifugal clutch is generally an enough simple operation, it needs few minutes and it does not need of complex operations of preliminary disassembling.
The centrifugal clutch's assembling and disassembling on the engine must be executed respecting all instructions and using all tools definited on the **Producer's Workshop Manual**.
It is advised to apply to a specialized mechanic for the assembling of centrifugal clutch.
In the case of the CVT before mounting the centrifugal clutch on the engine it is necessary to verify the of the usury of driving belt and if it is noticed an excessive usury, fissures or a bad general condition, it is lively advised to mount a new driving belt appling to the constructor of the vehicle's assistance net. An usured driving belt can cause problems of safety drive, performances reduction and excessive fuel consumption.
Moreover, before mounting the centrifugal clutch drum on the engine it is necessary to verify also the condition of the centrifugal clutch. Also in this case, when it is noticed an excessive usury, fissures or a bad general condition, it is advised to mount a new centrifugal clutch, verifying the availability in our catalogue, on the pages of Web Site, www.adler.it, or by email at the address *adige@adler.it*. An usured centrifugal clutch can cause problems of drive safety, performances reduction and excessive fuel consumption.
If in the centrifugal clutch's box are contained any washers for the blocking of the nut that fixed the clutch, they must be mounted in agreement with the specific instructions contained in the box. The use of washers in bad conditions can cause problems of drive safety.
If the assembly of original washers under the nut of blocking of the centrifugal clutch is previewed, it is always advised to mount new original washers and of the type prescribed from the producer of the vehicle. The bad conditions of the washers can cause problems of safety drive.
The nut of blocking of centrifugal clutch must be locked to the serration brace defined in the **Producer's Workshop Manual**.
The wrong serration brace of the nut of blocking of the centrifugal clutch can cause problems of safety drive.
If the nut of blocking of the centrifugal clutch is in bad conditions, replace it with a new one of the same type and quality. The break or the unscrewing of the nut of blocking of centrifugal clutch can cause serious problems of safety drive.
The centrifugal clutch is a mechanical rotating organ exposed to strong temperature and mechanical solicitations.
It is very important to verify the condition of the centrifugal clutch every 5000 km and every disassembling of the engine or the transmission.
The presence of fissures and, in general, the bad condition of the centrifugal clutch can cause serious problems of safety drive 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 clutch.
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 centrifugal clutch, a wrong installation or the installation not in compliance with the prescribed instructions will automatically invalidate any product warranty.
The centrifugal clutch is a vehicle component for which homologation may be required according to the relevant laws in force.
The centrifugal clutch is a vehicle component subject to the approval of the vehicle manufacturer.
After the installation of the centrifugal clutch the vehicle might require a new homologation.

Adler
C.so Buenos Aires 64, 20124 Milano (Italy)
www.adler.it