

4. Cranks / Inner Bearing

Cranks

With normal square or other inner bearings the cranks are fitted to the inner bearing shaft by means of a crank bolt.

The crank bolt (torque 40Nm) is tightened with either a 14mm socket or 8mm Allen key. Especially with new cranks it is important that they are checked after a few kilometres.

If the bicycle is ridden with a loose crank this will lead to the square end or tooting becoming worn out. The crank can no longer be secured permanently and will have to be replaced.

Conical Bearing (Inner Bearing)

The conical bearing is an inner bearing construction.

Unlike the cartridge bearing this bearing is adjustable.

Such as all adjustable bearings this bearing should be checked to make sure it is adjusted properly, especially if the bicycle is new. Adjustments are made on the left side of the bearing.

To carry this out one must loosen the lock ring with a C-spanner or open-end spanner, which will enable the inside part of the bearing bushing to be turned with use of an open-end spanner. The bearing will be loosened if turned anti-clockwise and tightened if turned clockwise.

The bearing should be adjusted so that it is neither too tight and jerky nor too loose so that the cranks have lateral movement. The best thing to do is remove the chain; this will enable you to feel the bearing adjustment better.

Once you have adjusted the bearing you must retighten the lock ring (torque 20Nm).

A conical bearing should be controlled and serviced at regular intervals.

If you notice that the bearing has play then it must be re-adjusted, further use could cause damage or increase wear and tear.

If the bearing starts to make a cracking noise then it has to be removed and cleaned and subsequently refitted using a generous amount of grease.

If you can see holes on the surface of the axle or bearing bushings, this means that the bearing is worn out and should be replaced.

Cartridge Bearing (Inner Bearing)

The cartridge bearing is also an inner bearing construction.

However, this type of bearing is not adjustable and requires no special care.

It consists of an enclosed bearing unit, which is screwed into the frame from the right and a bearing bushing on the left side. To carry this out one requires a special triple square spanner.

If this bearing starts to make a cracking noise it should be removed and checked.

Turn the axle with your fingers, if you can feel it catching or there is a jerky stick-slip feeling then it is worn out and must be replaced.

If the bearing feels good meaning that it runs in a constant steady manner then you can re-fit it (torque 50Nm) using a generous amount of grease.

The cracking noise was probably due to the bearing being too dry or not tight enough.

One Piece Crank-Set Bearing (Inner Bearing)

The one piece crank-set bearing is mainly found on bikes with one piece cranks such as BMX bikes, beach cruisers or children's bikes.

The one piece crank-sets are adjusted on the left side of the bike, to do this one must loosen the lock-nut with the appropriate open-end spanner or pipe wrench.

Do not forget that this is a left-hand thread, which means that to loosen it must be turned clockwise (to the right).

Following this it is possible to adjust the bearing cone behind it with either one's fingers or a screwdriver by rotating it.

The bearing should be adjusted so that it is neither too tight and jerky nor too loose so that the cranks have lateral movement.

The best thing to do is remove the chain; this will enable you to feel the bearing adjustment better. Once you have adjusted the bearing you must retighten the lock-nut (torque 20Nm).

One piece crank-set bearings should be controlled and serviced at regular intervals.

If you notice that the bearing has play then it must be re-adjusted, further use could cause damage or increase wear and tear.

If the bearing starts to make a cracking noise then it has to be removed and cleaned and subsequently refitted using a generous amount of grease.

If you can see holes on the surface of the axel or bearing bushings, this means that the bearing is worn out and should be replaced.

ISIS Bearing / Octalink Bearing (Inner Bearing)

ISIS and Octalink inner bearings are also cartridge bearings, however, they do not have a square axel.

The axels belonging to these bearings have a larger diameter and a multi-tooth crank seating. This makes the bearing more durable, otherwise everything else is the same as with a normal cartridge bearing.

Adjustment and servicing is explained under "Cartridge Bearing".

BMX-Cranks, 3-Part

The 3-part BMX crank includes an inner bearing with hexagonal shaft, which belongs to the cranks.

The inner bearing itself is a one piece crank-set bearing but before adjusting the left crank must be removed.

Adjustments are carried out exactly as with the one piece crank-set bearing; see "One Piece Crank-Set Bearing" for details.

The special thing about the 3-piece crank is the double bolted very stiff crank arm.

To fix the crank arm securely to the shaft one must first of all tighten (torque 20Nm) the crank-bolts on the side.

Following this one must tighten the cranks clamping bolts, these pass through the crank from the bottom end.

The crank is fitted to the shaft by means of the clamping bolt and is free of play. Due to the crank's extreme stiffness the clamping bolts must be screwed on very tightly (torque 40Nm).

If the crank bolt loosens whilst riding it must be retightened.

On 3-part cranks the driving pin for the front sprocket on the right crank is adjustable and replaceable. Before first use one should check to make sure that the driving pin protrudes enough on the inside of the front sprocket.

If this not be the case it must be screwed out of the crank a little further or a M8 washer should be used.

To do this the right crank can be removed from the shaft.