

6. Brakes

6.1 Disc Brakes

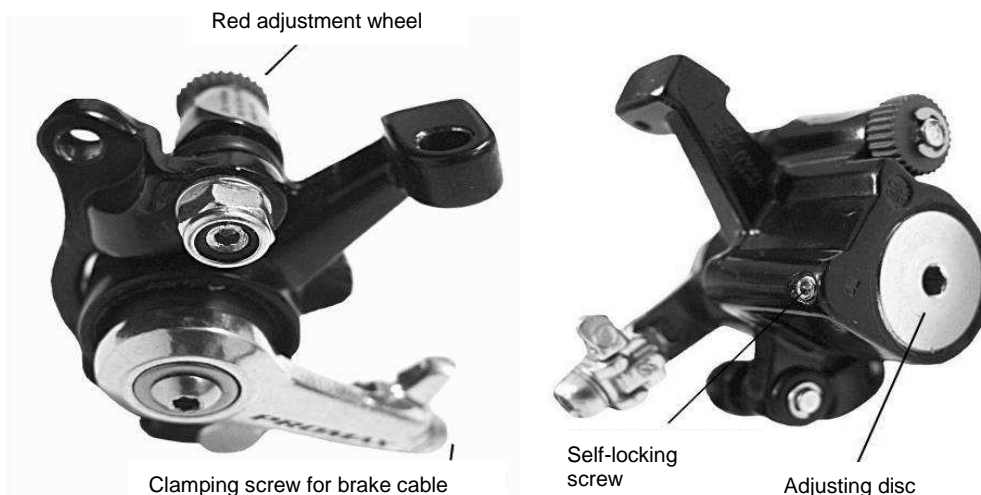
General Notes on Disc Brakes

There are a number of points to observe with disc brakes, this applies to both hydraulically and mechanically operated brakes and to those of all manufacturers.

- When new, brakes do not have their full braking force, which means that one should be very careful when riding a new bike or if the pads have been replaced. The so called "bedding in" can vary due to the different styles of riding. It is helpful to brake often for a while when riding fast.
- The screws (torque 6 – 8Nm) of the discs and brake caliper mountings should be checked regularly. Loose screws can damage the frame, forks and hubs, apart from that it is possible that the brakes may completely fail.
- The brake discs and pads must by no means come into contact with lubricants or cleaning agents. If these do happen to come into contact with the discs then they must be cleaned with brake cleaning fluid or cleaning alcohol. If the pads come into contact with lubricants then they must be replaced immediately.
- Do not touch the brake discs immediately after use, they can become very hot subsequent to braking and may cause burns.
- One should generally avoid touching the brake discs with one's bare fingers because the grease from skin will reduce the brake's braking force.
- The lining thickness of the brake pads should be controlled at regular intervals; if the thickness is below 0.5mm then they should be replaced. Even if only one of the pads is below the minimum both pads should be replaced immediately.
- The brake discs should be at least 1.6mm thick.
- One must always make sure that the brake discs do not rub on the brake caliper casing. With certain models this may occur if the brakes are either worn out, the pads are not adjusted correctly or the calipers have not been adjusted correctly.

PROMAX Mechanical Disc Brake

The mechanical Promax disc brake must first of all be adjusted so that the brake disc is situated centrally in the caliper slot. To achieve this there is a red adjustment wheel situated on the inside of the brake caliper with which the gauge can be moved from the left to the right.



Following this one is able to adjust the inner brake pad; first of all the self-locking screw at the back of the caliper must be loosened with use of a 2mm Allen key. Once this has been loosened it is possible to carry out adjustments to the adjusting disc with use of a 5mm Allen key.

The distance between the inner pads and the disc should be kept to a minimum and the disc should not rub.

The adjustment is secured by tightening the self-locking screw (torque 4Nm).

Now one must adjust the outer brake pad, which with the Promax brake is only possible by adjusting the tension of the brake cable.

To carry this out the cable must be loosened with use of a 5mm Allen key and the cable tension altered accordingly. Subsequently, the clamping screw must be retightened (torque 6 – 8Nm).

Here the distance between should also be kept to a minimum.

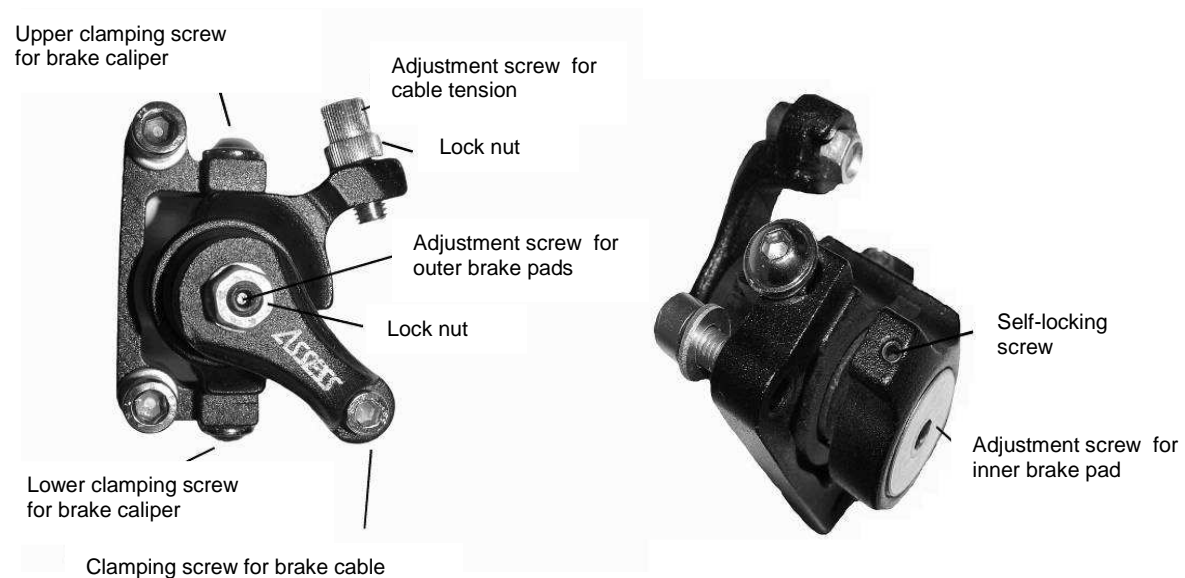
Slighter adjustments can be carried out by means of the tension adjustment screw/barrel on the lever.
Before riding the bicycle please read the general notes concerning disc brakes and check all screws for fixing the brake calipers and discs.

ASSESS (Type III) Mechanical Disc Brake

The mechanical Assess disc brake must first of all be adjusted so that the brake disc is situated centrally in the caliper slot. To achieve this the caliper clamping screws on the top and underside of the caliper are to be loosened with use of a 4mm Allen key. This enables the caliper to be pushed laterally.
Once the correct position has been found the clamping screw must be retightened (torque 8Nm).

Following this the inner brake pad can be adjusted, the self-locking screw underneath must be loosened with use of a 2mm Allen key. Once this has been loosened the adjusting disc can be adjusted with use of a 5mm Allen key.

The distance between the inner pads and the disc should be kept to a minimum and the disc should not rub. The adjustment is secured by tightening the self-locking screw (torque 4Nm).



The next step is the adjustment of the outer brake pads. First of all remove the adjustment screws plastic protection cap and loosen the lock-nut with a 10mm open end spanner. Once this has been carried out the outer brake pads can be adjusted by means of the adjustment screw, this with use of a 2.5mm Allen key.
Such as with the inner pads the distance of the outer pads to the disc should be kept to a minimum, the adjustment is then to be secured by retightening the lock-nut (torque 5Nm).

The final adjustment is that of the brake cable. If it is too loose the clamping screw should be loosened with use of a 4mm Allen key and the cable tension increased. The clamping screw should then be retightened (torque 6Nm).

Slighter adjustments can be carried out by means of the tension adjustment screw/barrel.
Before riding the bicycle please read the general notes concerning disc brakes and check all screws for fixing the brake calipers and discs.

ZOOM Mechanical Disc Brake

The mechanical Zoom disc brake must first of all be adjusted so that the brake disc is situated centrally in the caliper slot. To achieve this the caliper clamping screws on the underside of the caliper are to be loosened with use of a 5mm Allen key.

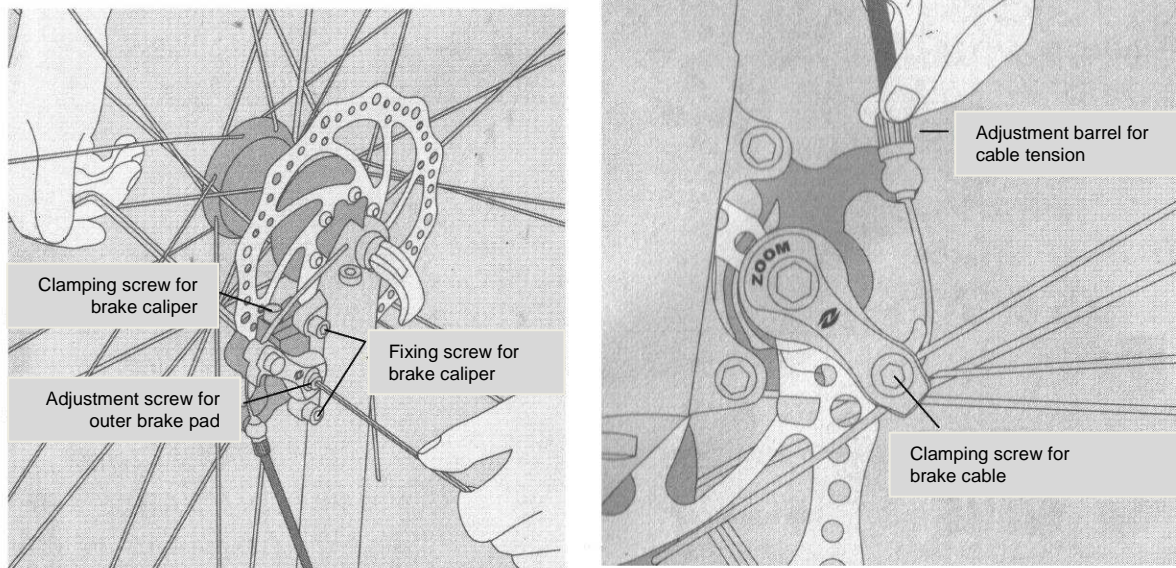
This enables the caliper to be pushed laterally.

Once the correct position has been found the clamping screw must be retightened (torque 8Nm).

Following this the inner brake pad can be adjusted, the self-locking screw underneath must be loosened with use of a 2.5mm Allen key (this screw cannot be seen on the images below!).

Once this has been loosened the adjusting disc can be adjusted with use of a 5mm Allen key.

The distance between the inner pads and the disc should be kept to a minimum and the disc should not rub. The adjustment is secured by tightening the self-locking screw (torque 4Nm).



The next step is the adjustment of the outer brake pads. First of all loosen the lock-nut with an 8mm open end spanner. Once this has been carried out the outer brake pads can be adjusted by means of the adjustment screw, this with use of a 2.5mm Allen key.

Such as with the inner pads the distance of the outer pads to the disc should be kept to a minimum, the adjustment is then to be secured by retightening the lock-nut (torque 5Nm).

The final adjustment is that of the brake cable. If it is too loose the clamping screw should be loosened with use of a 5mm Allen key and the cable tension increased. The clamping screw should then be retightened (torque 6Nm).

Slighter adjustments can be carried out by means of the tension adjustment screw/barrel.

Before riding the bicycle please take read the general notes concerning disc brakes and check all screws for fixing the brake calipers and discs.

6.2 V-Brake

The V-brake cable is attached or detached on the left. To carry this out one must press the brakes together and hang the aluminium pipe in the V-brake cable hanger.

The brake cable is secured by means of a clamping screw on the right hand side. With use of this clamping system it is possible to carry out rough adjustments to the tension.

One should work with care because adjusting too often will damage the clamp.

The brake shoes should be adjusted so that they lie flat on the rim when braking.

Adjust the brakes so that they lie in the middle of the rim and parallel to the rim edge. The shoes should by no means be adjusted so that they are too high.

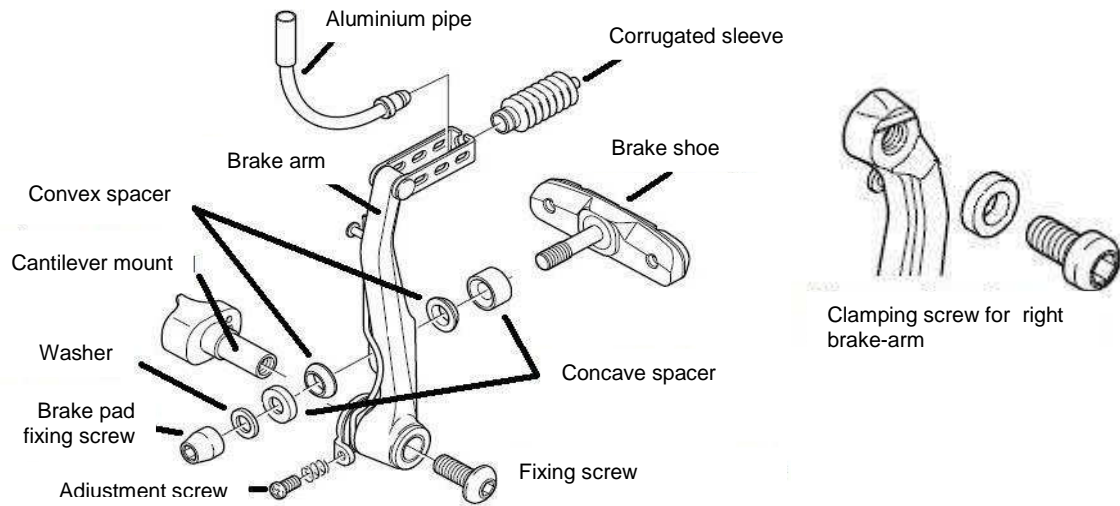
If they rub on the tyres then these will be damaged and may burst.

To carry this out first loosen the screws and align the shoes with the rims so that the rear of the shoe is 1mm away from the rim whilst the front of the shoe actually touches the rim. The rear of the shoes should be kept at a distance of 1mm from the rim otherwise they may squeal. To loosen the brake shoe screw one requires either a 5mm or 6mm Allen key.

Once the correct position has been found the shoes can be retightened (torque 8Nm).

Once the brake shoes have been adjusted one can adjust the inner brake cable tension.

Simply loosen the clamping screw 1 – 2 turns and readjust the cable. Pull it and adjust so that the brake shoes are 1 – 2mm away from the rim and retighten the clamping screw (torque 6 – 8Nm).



The final step is to adjust the shoes so that they are of equal distance from the rim by means of an adjustment screw, which determines the spring force on the arms. Please tension the spring of the arm where the shoe is either touching the rim or is too close to it.

If the spring force is already very high then one can also adjust the opposite way around by slackening the tension.

For optimal V-Brake performance the arms should be parallel to each other when the brake lever is pulled. If this not be the case then one has the possibility of swapping the brake shoe concave spacers with each other.

With the concave spacers having different thicknesses it is possible to use them to adapt the V-Brake to the rim width.

Please observe the correct order and direction of the spacers, they will only provide a type of spherical head, through which the shoes can be properly adjusted, if they are positioned correctly (see image).

If the brakes are too far apart at the top (similar to a V) you should check to make sure that the thicker concave spacers are on the inside of the brake arms.

Please note that with some brakes it is not possible to adjust the arms so that they are parallel.

6.3 Backpedal Brake

The backpedal brake is only found on bicycles either without gears or with hub gears. The brake is integrated in the rear hub and is operated by back pedaling.

The back pedal brake requires no special servicing; however, it should be serviced when the hub gears or bearings are serviced.

The only brake component visible is the torque-support on the left.

Please make sure that the screw (torque 6 – 8Nm) that connects the support to the brake bracket or part brazed on the frame is always tight.

If the screw is lost then the brakes will be without function.

6.4 Side-Pull Brake / Racing Brake

The side-pull or racing brake is connected to the frame or fork by means of a bolt. This is part of the brake caliper and is connected to a sleeve nut (with simpler brakes also with a normal nut). For this type one requires a 5mm Allen key or for normal nuts a 10mm open end spanner.

When tightening the sleeve nut (torque 6 – 8Nm) one should make sure that the lateral adjustment of the brake is correct because the return spring for the lever is also mounted on the bolt.

If the bolt turns it has to be held tight between the frame / fork and brakes.

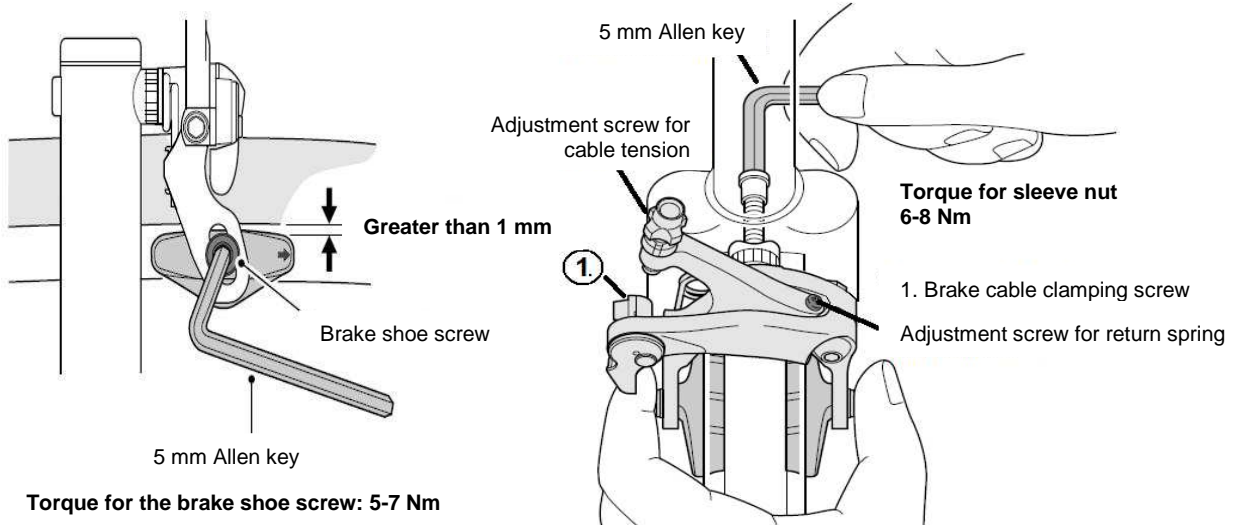
Adjust the brakes so that they lie in the middle of the rim and parallel to the rim edge when the caliper is closed.

The shoes should by no means be adjusted so that they are too high. If they rub on the tyres then these will be damaged and may burst.

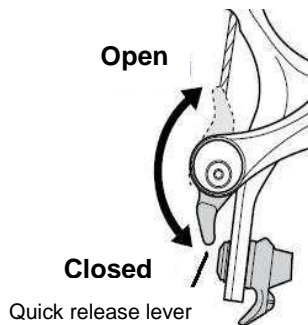
To adjust the shoes loosen the brake shoe fixing screw with a 4mm or 5mm Allen key. Once the correct position has been found retighten the screw (torque 5 – 7Nm).

The brake cable tension should be set so that the brake shoes are at a distance of 1 – 2mm from the rim when the calipers are open and both sides must be of equal distance to the rim. To carry this out loosen the cable clamping screw with a 5mm Allen key. Retighten the clamping screw once the tension has been adjusted (torque 5 –

6Nm). If this is not possible and the brake shoes still touch the rim then the brake return spring has not been adjusted properly. Many brake systems have an adjustment screw/barrel, if not then one must adjust by means of the mounting bolt.



Torque for the brake shoe screw: 5-7 Nm



Some racing brakes such as shown here in the images have a mechanism, which can be slightly opened if the wheel has to be removed. This should be closed when adjusting the brakes, the lever alongside the clamping screw for the brake cable is positioned as displayed in the image below (left). Please make sure that this lever is always closed when riding. If it is open then there may be no braking effect.

6.5 U-Brake

Front U-Brake

The installation of the front brake cable is carried out from the left through the banjo screw, which is also used for the cable pre-tensioning. The cable is then clamped in the banjo screw on the right hand side. With use of this clamping method it is possible to make rough tension adjustments to the cable. However, one should be careful – clamping the cable too often may lead to damage. The complete surface of the brake shoes must lie on the rim when braking.

To carry this out first loosen the screws and align the shoes with the rims so that the rear of the shoe is 1mm away from the rim whilst the front of the shoe actually touches the rim. To loosen the brake shoe screw one requires either a 5mm or 6mm Allen key.

Retighten the screw (torque 8Nm).

The rear of the shoes should be kept at a distance of 1mm from the rim otherwise they may squeal.

Once the brake shoes have been adjusted one can adjust the inner brake cable tension.

Simply loosen the clamping screw 1 – 2 turns and readjust the cable. Pull it and adjust so that the brake shoes are 1 – 2mm away from the rim and retighten the clamping /banjo screw (torque 6 – 8Nm).

Clamping screw /
Banjo screw

Image shows brake for
rear wheel



Fixing screw

Spring cover

To complete the adjustment so that the shoes have equal distance to the rim one can turn the spring cover at the fastening point with use of a 12 or 13mm open end spanner. Please adjust the spring belonging to the arm where the shoe is touching the rim or as the case may be, is too close to the rim.

To carry this out loosen the brake-arm fixing screw with use of a 5mm Allen key.

To adjust the spring turn the spring cover on the left in a clockwise direction and the cover on the right in an anti-clockwise direction. The spring adjustment (put under tension) will move the brake shoe away from the rim. Secure the spring cover by tightening the fixing screw (torque 6 – 8Nm) when the shoes are at the required distance from the wheel rim.

If the springs are under very high tension one is able to do the opposite and adjust them by slackening the tension.

Rear U-Brake

Different to the front brake to install the rear U-Brake cable one requires an additional transverse (straddle) cable between the right and left brake arm. The cable on the left is clamped with a banjo screw, the cable on the right is attached to the brake arm by means of a barrel nipple. Depending on the BMX frame the cables must be of different lengths.

Cables belonging to frames where the rotor cable is fed through the seat tube are very short. With cables where the rotor cable ends in front of the seat tube, the transverse cable must be very long and is curved and fitted in front of the seat tube.

The connection of the lower rotor cable and transverse cable is carried out by means of a yoke (straddle bridge). Depending on the type of frame the yoke is fitted to the lower rotor cable by means of a banjo screw either behind or in front of the seat tube.

Attach the transverse cable on the right to the brake arm then pull it through the yoke and clamp it by means of the banjo screw on the left brake arm.

Now the brake can be adjusted in exactly the same manner as the front brake, to carry this out see description above.

Please remember, the brakes must function 100% correctly before riding the bike!!!

The assembly of the bicycle is your responsibility. If you find the assembly process too difficult to carry out, then please take the bike to a bicycle shop in your areas to make sure that it is assembled correctly for use.

6.6 Drum Brake

The drum brake is integrated in the rear hub similar to the back pedal brake, but can also be integrated in the front wheel hub or hub dynamo.

The drum brake does not require any special servicing; however, it is operated by means of a brake cable, which must be adjusted now and again depending on wear and tear. This can normally be carried out by means of an adjustment screw/barrel on the drum brake cable mounting or by means of an adjustment screw/barrel on the brake lever.

If at some time the lever's leverage distance is no longer adequate to use the brakes properly, then the lining is worn out and should be replaced.

When removing and replacing the wheel it is important that one makes sure that the torque-support is fitted properly to the boss brazed on the frame or as the case may be, to the forks, or that the appropriate bracket is refitted correctly. The bracket screw (torque 6 – 8Nm) should be checked at regular intervals.

If the torque-support is not fitted correctly then the drum brake will remain without function and damage can be caused to the frame and forks if the bicycle is used.