

ONLY ONE - BUT FUN!

QUAX

ASSEMBLING FOR YOUR
UNICYCLE & LOTS OF
TIPS & TRICKS ABOUT
UNICYCLING



100% unicycle



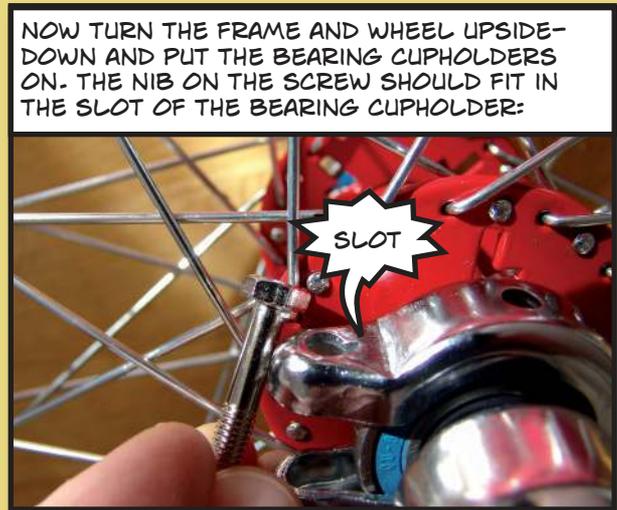
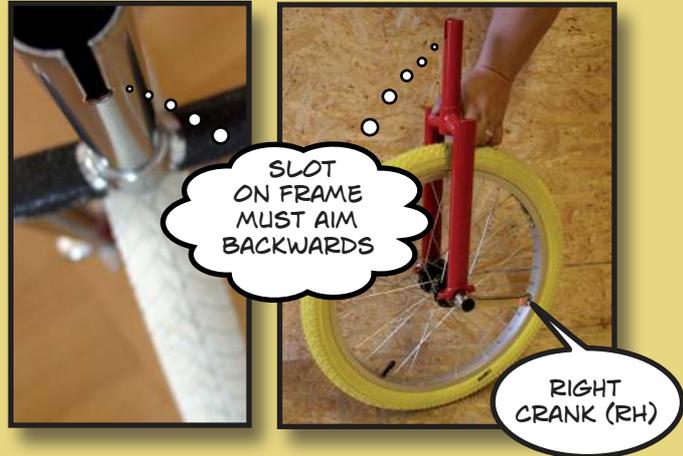
HOW TO ASSEMBLE YOUR QU-AX



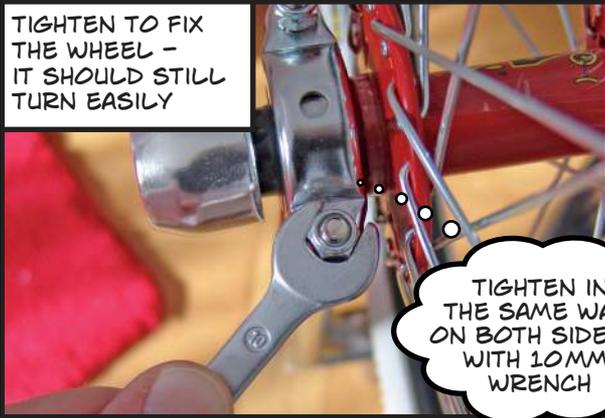
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TIGHTEN TO FIX THE WHEEL - IT SHOULD STILL TURN EASILY

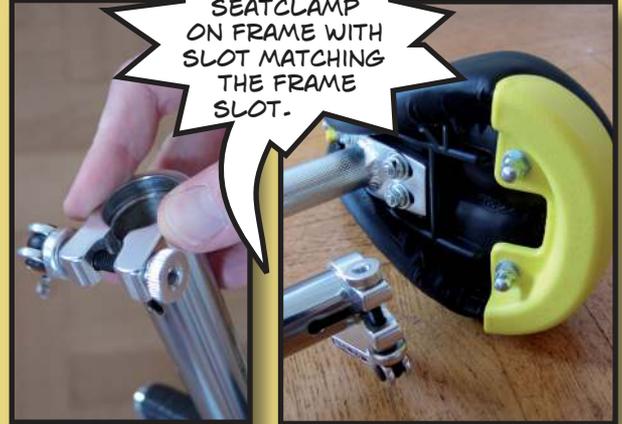


TIGHTEN IN THE SAME WAY ON BOTH SIDES WITH 10MM WRENCH



TIGHTEN BOTH SCREWS EVENLY SO THAT DISTANCE BETWEEN FRAME & CUPHOLDER IS THE SAME ON BOTH SIDES. BUT NOT TOO TIGHT!

PUT SEATCLAMP ON FRAME WITH SLOT MATCHING THE FRAME SLOT.



TOP: SLOT SHOULD BE ON THE SAME SIDE AS REAR BUMPER.

LEFT: ONCE AGAIN, MAKE SURE THE SEATCLAMP IS OPENED, THEN, PUT THE TUBE IN THE FRAME.

CHECK THAT THE HANDLE FACES FORWARDS, AS IN THIS PICTURE, THE CRANK IN THE FOREGROUND IS THE RIGHT SIDE.



I AM THE LEFT PEDAL !



...
I AM THE RIGHT ONE

THE RIGHT PEDAL BELONGS TO CRANK WITH AN "R" OR "R H" ON THE INSIDE



LEG SHOULD BE NEARLY STRAIGHT WITH PEDAL IN LOWEST POSITION



CHECK PEDALS & CRANKS AFTER THE FIRST RIDES!



TIGHTEN RIGHT PEDAL CLOCKWISE AND LEFT ONE COUNTER CLOCKWISE. CHECK IF PEDALS ARE WELL TIGHTENED AFTER FIRST RIDE!



SEATPOST MUST ALWAYS BE INSERTED AT LEAST 6 CM IN FRAME!

IF SEATPOST IS TOO LONG, USE THE SECOND, 200MM POST, WHICH COMES WITH ALL QU-AX LUXUS UNICYCLES.

ALWAYS CHECK ALL SCREWS BEFORE EVERY RIDE, ESPECIALLY AFTER THE FIRST ONES!!

THAT WAY, YOU DO NOT NEED TO SHORTEN THE ORIGINAL POST. ONCE YOU ARE TALL ENOUGH, JUST MOUNT THE LONG ONE AGAIN.

How is this ever going to work?

If you want to ride a unicycle, physical fitness and ability to concentrate will come in handy. The first hour or so of practice can be quite frustrating – but the sport soon becomes addictive! Once you learn to ride a unicycle, learning to snowboard, ski, surf – and indeed any sport requiring mastery of balance – will in turn become much easier to learn.

Before you first attempt to mount the unicycle, make sure you wear a helmet. Knee and elbow pads, and gloves, are also recommended.

If you have assembled the unicycle as shown on the previous pages, you should be aware as to which end is the front. If your unicycle was assembled by somebody else, take a closer look: the vertical slot cut into the frame at the seat-post clamp is at the back, and the handle on the saddle at the front. The inside of the crank-arms are labelled “L” and “R” for the left-

hand and right-hand sides respectively.

The saddle should be adjusted so that your leg is almost straight – but not locked – when the pedal is in the lowest position, as with a bicycle. Whilst learning, however, it may be more suitable to deliberately set the saddle 1–2 cm too low.

Learning to ride with your friends is great; you can help each other! If you prefer learning on your own, find a place with flat ground and a hand-rail or something at arm height to hold on to. A doorframe, as shown in the picture, can work well, too.

And now – let’s go! Rest one hand on the handrail or your friend’s shoulder. Try to keep the saddle between your legs and the right-hand pedal at the 4 o’clock position. As you press down on this pedal, the unicycle

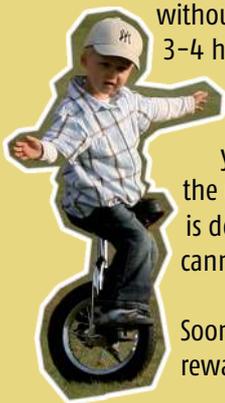


will roll, under your body. Now, you are sitting in an upright position on the unicycle. Congratulations; you are now only about 4 - 6 hours away from riding a unicycle!

The next goal should be to find the right balance on the unicycle. It is important that your body stays in an upright position; do not try to look down, or at the wheel. Hold on to your friend, or your handrail.

First step: to find the balance

In order to ride forward, hold onto your friend or hand-rail and pedal forward carefully. When you master this, or find it no longer useful, try pedaling for a little while without holding a support. Now you are only 3-4 hours away from free riding!



Most importantly, when you feel yourself losing your balance, abandon the unicycle by jumping or stepping off; it is designed to withstand these crashes! It cannot cry - but can you?

Soon, the journey will become its own reward! You will suddenly find yourself

able to ride one meter, then two, and soon you won't understand how the first step could have been so difficult. If you like, you can stop practicing in private and ride in a public place. People who see you are likely to be most impressed!

Remember, always keep cool. If you have to step off, relax and try to find a handhold, perhaps a tree or streetlight, to hold onto when you climb aboard to continue.

I feel I can fly!

Now you should practice this over several days. During this time you will develop an understanding for how your unicycle behaves.

Your riding will not be very smooth or precise, but do not worry; this is typical for unicycling in the beginning. Whilst riding, you may discover that you can exercise some control of the unicycle by moving your hips. If you feel you are falling from the front of the unicycle, pedal a little faster and it will catch you up; if you feel you are falling from the back, pedal slower and you will catch it up!



The next exercise will be to free-mount. Your preferred legs pedal should be in a 7 o'clock position. Try to do this in a place that prevents the wheel from rolling forward, such as against a kerb. Press on the 7 o'clock position pedal, and the unicycle will roll back and underneath you, lifting you up. Try to remain in an upright position.

It is very unlikely that you will do this successfully for quite a long time! You will need to make hundreds of attempts - but when it clicks, you genuinely will feel like you can fly!

Turning without handlebar?

Changing direction at will involves a similar technique to snowboarding or skiing. Your hips initiate the movement and your upper body indicates the direction. Point your upper body in the direction you want to go and the unicycle will follow. It is vital that you look firmly in the direction you want to go. Initially, you will describe a broad circle, but eventually you will be able to turn more and more tightly. Now you have learned the most crucial elements of unicycling. As always; the most important of these is still the ability to keep cool!

The best way to develop your skills is to join a unicycling club (of course, you can always establish a new club of your own!) In addition, you can find out more about the world of unicycling using the internet links are provided in the appendix.

By the way - in Japan, unicycling is taught in school sports lessons, as a matter of course! Personally, I only scored an "E" in Maths but I merited an "A" in sports! I learned unicycling at the age of 35, but it is quite normal for younger people to learn unicycling much faster.

Pit stop

A unicycle is a comparatively simple machine, requiring only minimal maintenance. The wheel and pedals need to bear the greatest stress. After a few days you should ensure the spokes are tensioned correctly and the wheel is trued. A cycle shop can do this for you.



The pedals and crank-arms are handed; they are labelled "R" and "L" for the right-hand side and left-hand side, respectively. When fitting the left-hand components, be aware that they are counter-threaded and so must be turned in the opposite direction (counter-clockwise to tighten) to the right-hand components (clockwise).

On the next pages, you will find general information about unicycle components. **QU-AX** manufactures all parts needed for repairs or aftermarket upgrades. If any components become damaged, your unicycle dealer will have spares.

Toolbox

The **QU-AX** toolbox is specifically designed for unicyclists to ensure you always have the right tools for every part of your unicycle!

- colour-indexed allen keys
- heavy duty tyre levers
- spoke key
- **QU-AX** ratchet (e.g. for bearing-cup bolts)
- high-end pipe-cutter for seatposts
- heavy duty 15mm pedal wrench
- professional **QU-AX** bearing extractor
- bearing assembly-tool
- crank-extractor
- Q-Axle-adjusting-tool



This toolbox allows you to completely strip and reassemble your unicycle.

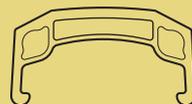
The wheel

The wheel is the most important part of the uni-cycle and ought to be of the highest quality. A good wheel should have a metal rim made from alloy or steel. Plastic wheels will quickly break.

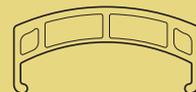
For a 20" wheel, 36 spokes should be the minimum. For smaller wheels, 12" to 18" in diameter, 20 - 28 spokes are acceptable, because their riders are smaller and thus weigh less than 30 kg (65 lbs). Wheels intended for more extreme use can have 48 spokes; more spokes makes a wheel stronger, more reliable and easier to true. Eyelets at the spoke hole allow a higher spoke-tension spokes.

Rims:

Steel rims are heavy. Alloy rims are sturdy and lighter and rustproof. Double-walled alloy rims are the strongest and yet lightest rims. This is an example cross-section of two of our double-walled rims:



<< **QU-AX** DB-45
QU-AX BX-32 >>



Tires:

Tire designs vary significantly depending on the intended use. Standard tire: Normal bicycle tires are okay for most ordinary riding. Indoor/Freestyle tire: These can be ridden at much higher pressures, offering more smoothness and less rolling resistance. A white or light color allows you to ride indoors without marking the floor.

Muni/Trials tire: Wide tires with an aggressive tread pattern, these can absorb the impact of drops and offer better rebound and traction.

Hub & Cranks

Unlike a bicycle, a unicycle has just one hub; it is at the same time the centre of transmission, and so quite unique! It is exposed to much greater stresses than bicycle hubs, bearing both the weight of the rider and the entire force of transmission. These forces can be compounded by aggressive or extreme riding.

Standard unicycles have a square-taper crankshaft, which is sufficient for normal riding. Crankshafts made of better-quality steel alloys, like Cro-Mo, are tempered to be harder and stronger. **QU-AX** unicycles with such crankshafts are colour-coded:

QU-AX black and silver hubs are square-taper, ISIS-splined hubs are red or yellow and Race hubs are blue. Q-Axle-hubs are anodized red (shiny). Yellow hubs are tougher than red ones, but all red, yellow and blue hubs are made from a specially-tempered steel. The Q-axle-crank-system has a wider axle and pinched cranks - which is the best way to combine strength, lightweight and durability.



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ISIS crankshafts end not in a square-taper but in ten splines, giving a much greater surface area to transfer torque safely from the crank-arms to the hub. They also have a large diameter and bigger bearings.

The **QU-AX** ISIS crankshaft is a standard 10-spline ISIS crankshaft, but there are also brands making 8 and 48-spline crankshafts. The ISIS standard was established by the bicycle industry. The Q-axle standard follows the current bicycle-technique evolution.

The yellow **QU-AX** hub is almost legendary among Trial-riders as the first genuinely solid hub. The first front-flip on a unicycle was done on a yellow **QU-AX** hub!

All high-end **QU-AX** unicycles are built with up to 36 to 48 spokes for stiffness and resilience when performing tricks or for extreme riding.



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Bearings

Unicycle bearings are industry-standard sealed bearing units. They are fully enclosed and don't require servicing. **QU-AX** bearings have an outer diameter of 40mm (square-taper) or 42mm (Q-axle, ISIS), making them compatible with almost all popular unicycle frames.



Crank-arms

The crank-arm length has a crucial influence on the transmission ratio of the unicycle; a longer cranks gives you more control and a shorter crank gives you more efficiency. The length is a very personal choice - depending on your riding-style and type. A long crank, for example, can be helpful for small pilots to easily control their speed down a hill. Typical lengths are e.g.:

16-18": 102 mm
20": 114 mm
24": 127 mm

For multi-purpose, cranks with 2 holes are available.

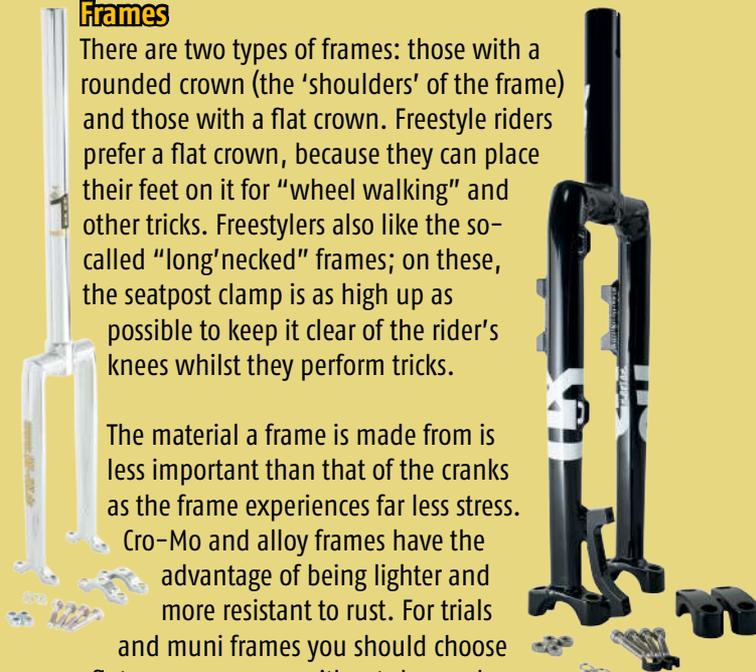


Frames

There are two types of frames: those with a rounded crown (the 'shoulders' of the frame) and those with a flat crown. Freestyle riders prefer a flat crown, because they can place their feet on it for "wheel walking" and other tricks. Freestylers also like the so-called "long-necked" frames; on these, the seatpost clamp is as high up as possible to keep it clear of the rider's knees whilst they perform tricks.

The material a frame is made from is less important than that of the cranks as the frame experiences far less stress.

Cro-Mo and alloy frames have the advantage of being lighter and more resistant to rust. For trials and muni frames you should choose a flat, narrow crown without sharp edges - which could injure you. Some frames already have disc- or magura-brakemounts brazed-on, so a brake can be fitted at some point in future without difficulty. Alloy frames are lighter - and still more rigid.



Seatposts

A unicycle's seatpost must be the correct length; riders measuring about up to 1,60 m (5' 3") ought to be able to ride the unicycle without needing a longer one than that supplied with the unicycle. If you need a shorter one, cutting down a seatpost is not difficult. Seatposts can have a diamond-knurled surface which prevents it from twisting in the frame. A diameter of at least 25.4mm offers more stability and a wider choice of seatpost clamps owing to compatibility with bicycle seatpost clamps.

When you first slide the seatpost into the frame you will observe that at some point it stops - either on the tyre or within the frame. When this happens, if the saddle is still too high, you need to cut the seatpost shorter. This is why **QU-AX** Luxus unicycles come with two seatposts; one is made shorter (200mm) for smaller riders. This removes the need for cutting a seatpost to length; simply mount the saddle on the shorter post!

It is vital that the seatpost is inserted at least 60mm into the frame. When riding hard or riding muni, trials, downhill or jumping it ought to be inserted even fur-

ther. For such types of riding, **QU-AX** have developed a reinforced seatpost with a support gusset (pictured left) for additional strength.

For very tall riders, **QU-AX** offers 700mm seatposts. Simply ask your **QU-AX** dealer, who should be able to order one for you.

Light alloy-seatposts save weight - and a gusset reinforces seatposts that need more strength - as for trials or muni for example.

Long distance riders often attach a handlebar-like device under their seat to provide a hand-rest, something to lean on and to make steering easier.



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Seatpost clamps

The seatpost clamp secures the seatpost to the frame. This component must be reliable and of high quality as it is very stressed, even during casual riding. Of course, these stresses are even greater during Muni, Trials and Downhill riding, or during certain tricks.

There are single-bolt, twin-bolt and quick-release seatpost clamps; the latter are most commonly used in clubs, schools and other situations where the seat height may need to be adjusted frequently and without tools, but bolted clamps have the advantage of being more secure and able to withstand being tightened to a much greater torque.

Saddles

On a unicycle, the design and performance of the saddle is more important than on a bicycle; it is the only instrument of control and, without handlebars to lean on, must bear the entire weight of the rider. Different riders, of course, may have quite different ideas about what saddles are comfortable!



A good saddle ought to have a tough, rigid baseplate for security and responsiveness. For Trials, Muni and certain tricks, it will need a handle at the front, which must also be tough and rigid, as under some conditions it bears a very large part of the riders weight.

An integrated handle makes the saddle more handy and compact for tricks. A smooth surface underneath prevents fingers from getting injured. As the handlebar and/or bumpers are located at the very front and rear of the saddle, they bear the brunt of any impact when the unicycle is dropped or falls over; they ought to be replaceable. In this way they can protect the rest of the saddle from being damaged. All **QU-AX** Luxus unicycles from a 20" wheel and upwards are equipped with such a handle.

For smaller unicycles (12" to 18"), look for a smaller, child-sized saddle. **QU-AX** also offers special saddles for long distance riders, the **QX**-Eleven saddle is built with a special dual-compound material for maximum comfort.





Stands

Unfortunately, unicycles cannot stand on their own! **QU-AX** has unicycle stands available; check out our website for details: www.QU-AX.de

Pedals

The pedals' surface, on which the rider's foot is placed, shouldn't be slippery. The surrounding cage ought to be rounded for indoor riding to minimize damage to floors if the unicycle falls over or is dropped. Most of the time, plastic pedals are good enough. Flatland riders, however, often prefer magnesium or PVC pedals, for their reduced weight.

Other extreme riders prefer alloy, magnesium or steel pedals, which are more sturdy and offer better grip. Some riders perform tricks, such as grinds and pedal grabs, which requires pedals with a stronger axle, better quality bearings and sometimes a completely different shape. Most of such pedals have pins along their surface, for better grip; on some high-end pedals these pins are exchangeable. With any pedals that have pins, an angular cage or sharp surface, protective clothing and equipment should be worn to prevent injuries.



The different types of unicycles

Unicycle sports are evolving rapidly and spawning, as a result, new types of unicycles and disciplines. This section will describe some of the more prevalent forms:

Race unicycle

During a race, overall weight and rolling resistance (the resistance to motion caused by friction between the tyre and the ground) are important considerations. A narrow wheel and thin tyre helps with both. In competition, international regulations impose limits on the tyre dimensions and crank lengths that can be used.

Long distance / Touring unicycle

This type of unicycle has become more popular in recent years, for road riding, touring, commuting and so forth. Most have 29" or 36" wheels, and they can be equipped with a brake, geared hub, a handlebar and other practical accessories. They can usually handle an amount of light off-road duties.

Mountain Unicycle (Muni)

Typically with a wheel size between 20" and 27,5", although commonly 24", use to have largest tyres with knobbly treads that can be run at relatively low

pressures for traction over loose surfaces and to dampen out the jolts and jars of Muni riding. Some models can be equipped with a brake. Of late, there are even different types of Muni! Sub-disciplines may have their own types of equipment adapted to the conditions they encounter. Downhill (24" wheel) and long distance, trips (29" and 27,5" wheel) are two good examples of this.

Trials and Flatland Unicycles

These are very similar in design to Munis. They are never equipped with brakes or handlebars, they have 19" or 20" wheels, they can have forks with a flat crown, useful for certain tricks, and occasionally tyres with a less knobbly tread.

Downhill (24"), Flat & Trials (19"), long distance (29" and 36") and all of them have some special equipment adapted to their kind of practice.

Classic unicycle

The classic unicycle usually has a 20" wheel. Better quality ones have a 20"x1.95" tire. Those unicycles are pretty versatile. Some people play hockey or basketball on them, other people do Freestyle-tricks on them. The main difference between a bad and a good unicycle lays in the materials they are made from.

Some more help...

Link: www.unicyclist.com

QU-AX Videos: www.youtube.com/user/QUAXUnicycles

The unicyclist forum contains information about local clubs, regional tournaments and all sorts of other aspects of the unicyclist community. The QU-AX Youtube channel contains assembly guides and instructions, videos of our team riders and more.

contact:

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Credits:

Thanx to Roland & Petra for some pictures in the assembling instructions. Copyright therefore: www.municycle.com

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Luxus-unicycle



muni-unicycle



race-unicycle