



# Owners Guide & Assembly Instructions

Please Read Carefully Before Riding



- Powabyke **X-6 LS**
- Powabyke **X-6**
- Powabyke **X-24**

[www.powabyke.com](http://www.powabyke.com)

# Pre-Delivery Inspection (PDI)

## PACKAGING

Powabykes are well packaged to prevent transport damage. Typically a bike will be delivered in three master cartons, bike frame, front motor wheel and battery. During transport a number of items are removed from the bike e.g. The seat, front wheel, mudguards, handlebars, pedals and battery.

## IMPORTANT SAFETY NOTICE

It is imperative that your new Powabyke or Powatryke is assembled and adjusted for use by a qualified & authorised Powabyke dealer only. Failure to comply with this stipulation may put your safety at risk and void the warranty. Please consult with your dealer to ensure you have an adequate & legal lighting system for your bike, and we would strongly recommend that you wear a bicycle helmet. Finally, remember to post your warranty card to Powabyke.

The following items form part of the PDI procedure.  
This must be carried out by the supplying dealer.

### • BATTERY & CHARGER UNIT

1. The battery is a sealed unit and the casing should be checked to ensure it is free from physical defect or damage.
2. The battery fuse holder should be checked to ensure that a correctly rated (20AMP) fuse is present and working.
3. The key lock should be checked to ensure the correct key, barrel movement, locking position and key removal can be obtained.
4. Examine and check that the charger unit is free from physical defect and damage and is fitted with a U.K. plug and a 13amp fuse.
5. Ensure that charging begins and that the charger LED turns red. Place a known fully charged battery on the bike and ensure the charger unit turns yellow/green within a few minutes.

### • BRAKES

6. The brake levers should be checked to ensure free movement and return along with the correct seating of brake cable within the lever.
7. Brake cables should be checked to ensure free movement to the calliper, that they are free from damage and that the cable locking nut on the calliper is secure. Any excess cable should be tied or cut to a sensible length and capped.
8. Locate and check brake blocks, ensure that they are correctly positioned to make contact with the wheel rim and that the retaining nuts are secure.
9. Ensure that the front and rear brake callipers are correctly centred and that the movement is smooth and effective in gripping the wheel rims.

### • BRAKE & ELECTRIC CABLES

10. Check to ensure that all cables are correctly routed, free from chaffing or snagging and cable tied to the frame or handlebars as appropriate.

### • CHAIN, CHAIN GUARD & SPROCKET

11. Check to ensure that the chain is correctly tensioned between the front and rear sprockets and free from physical defect.
12. Where a speed gear sprocket is fitted. Ensure that the chain and gear selector assembly moves freely and correctly through the gear selections and that the gear selection mechanism is securely fixed to the handlebars.
13. Check to ensure that the chain guard is free from physical defect or damage, that the guard is correctly positioned and that the retaining nuts are secure.

### • ELECTRIC MOTOR

14. The front hub motor should not need any specific examination, however upon completion of all checks and assembly of the bike, the motor should be tested as part of the final road test.
15. All electric connectors and retaining nuts on the assembly and cable feeds should be checked to ensure that they are free from physical defect or damage and that they are correctly positioned and tight.

### • FRAME

16. The frame should be carefully examined to ensure it is free from damage or defect.
17. All frame joints and frame mounted bearings should be inspected to ensure that they are free from physical defect or damage and operate smoothly.

### • HANDLEBARS

18. The stem will be loose, the handlebars will have turned level with the frame for the purposes of transport. The handlebars should therefore be straighten to the correct position and the stem tightened.
19. The handlebars should be examined to check that they are free from physical defect or damage.
20. Both brake levers should be checked to ensure they are free from physical defect or damage, that the retaining nut is tight and that they are correctly positioned.
21. Check that the mudguards are firmly attached to the bodywork and that all supports are in place and tight.
22. The pedals (left & right specific) are removed during transit, therefore they need to be located and secured to the pedal arms of the bike.

### • REFLECTORS

23. Check to ensure that reflectors are both present and securely fastened to the front and rear wheels, at the front of the bike extending from the handlebar stem and at the rear of the bike on the mudguard.

### • SADDLE & STAND

24. The saddle is sprung loaded and should be securely fixed to the frame. The saddle should be checked to ensure it is free from physical damage or defect.

25. The stand should be checked to ensure that it is free from physical damage or defect.

26. The spring mechanism should be checked to ensure that it moves easily and freely and lubricated as necessary.

### • THROTTLE

27. The throttle mechanism should be checked to ensure it is free from physical damage or defect and that the assembly is securely fastened to the handlebars.
28. Check to ensure that the throttle control fully opens and closes smoothly and without jamming.

### • WHEELS & TYRES

29. Check to ensure that the tyres are free from physical damage or defect and that the valves are correctly seated.
30. Check and inflate tyres to the correct pressure and ensure that dust caps are present on the valves.
31. Inspect the wheel rims, bearings and spokes for physical damage or defect and that the wheel nuts, spoke nuts and bearings are tight.
32. Rotate both the front and rear wheel and ensure it is free from wobble or buckle and does not foul the brake blocks.

### • THE FINAL ROAD TEST

33. Having performed all of the above tests and checks, the bike should be road tested to ensure the following operations;
34. That the throttle opens and closes correctly and the pick up with the motor is correct and the brakes efficiently stop the cycle.

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Mechanic's signature:

Customer's signature:

Date:

# Powabyke X Byke Electric Bike

## Operation Guide

Your Powabyke X-Byke is the same as any normal cycle and requires the same care, maintenance and attention when riding.

In addition your X-Byke has:-

1. A 200 Watt Motor built into its Front Wheel
2. A Twist operation Throttle mounted on the right hand side of the Handle Bars.
3. Battery Level Lights on the Throttle
4. A Key operated Control Box on the Bracket of the Rear Rack.
5. A Pedal Sensor and disc on the Left Hand Pedal Crank Arm.
6. Removable 36V 6 Amp Lithium Battery Pack located on the Bottle Holder on the Down Tube in the centre of the bike.
7. A 100VAC – 240VAC 1.5A Charger with output of 42V
8. An Anti-Rotation Bracket on Right Hand Forks
9. Wider Front Forks to accommodate the Motor Hub

## Power System Instructions

The rider has two choices of power system:

a) First Ignition Position; Pure Power mode

b) Second Ignition Position; Pedal Assist mode

Choose which function you want using the ignition key.

- a) In Pure Power mode you must rotate the pedals at least 3 COMPLETE revolutions (Forwards or Backwards) and twist the throttle. Then, until the bike comes to a complete standstill for at least 5 seconds, the Motor (by use of the throttle) will power the bike whether you are rotating the pedals or not. The throttle controls the output from the motor. The motor will cut out at the pre-set limit of 15mph. The rider can pedal the bike at any time whilst the motor is in operation using the gears as appropriate. During the 5 seconds when the bike comes to a standstill there will be a small "Pulsing" allowing pull away without again pedaling.
- b) If you choose Pedal Assist mode the motor (by use of the throttle) will assist you only while the pedals are rotating. The throttle controls the power output from the motor. The motor will cut out at the pre-set limit of 15mph. The rider can pedal the bike at any time whilst the motor is in operation using the gears as appropriate.

## Battery Care & Charging Guide

- a) Your Lithium Battery does not suffer from "Memory Effect" so the amount you charge it or regularity with which you charge it will not affect its "Long Term" life.
- b) Unlike other types of Battery, your Lithium Battery can be left "Uncharged" for several months with no affect on its "Long Term" life.
- c) Storage temperature Parameters -20C to +45C
- d) Charging - Please follow the instructions on the charger for status of charging - as a guide the Battery will be 80% charged in the first 4 hours. The remaining 20% may take a further 4 hours. (To turn the Charger light to Green)
- e) With all Electrical equipment it is best to turn off when complete but you can leave the charger "Charging" as it will cut off automatically.
- f) Please do not attempt to open your Battery Pack, your dealer must do servicing and fault finding.
- g) Do not dispose of your battery other than through your dealer. In no circumstances attempt to burn your Battery.

## IMPORTANT - Know Your Bike

### Check that you use your bike correctly.

There are different European Standards for bicycles depending on how the bicycle is intended to be used.

You can check the table below what type of riding your bicycle has been designed for.



**Note: To find the correct BS:EN standard for your bicycle please refer to the label on the frame**

	Type of use for which bike is designed	Permissible total weight of rider + luggage
BS: EN 14764 Trekking Bikes	Riding on roads and tracks. <b>Not</b> for off road or rough terrain	120 Kg (19 stone)
BS: EN 14766 Mountain Bikes	Off road, rough terrain, cycle tracks or road	120 Kg (19 stone)
BS: EN 14781 Racing Bikes	High Speed amateur use on public roads <b>Not</b> for off road or rough terrain.	120 Kg (19 stone)

## Quick Assembly Guide

### IMPORTANT

Please read these instructions carefully.

For more detailed information and tips, including a comprehensive guide to care and maintenance we recommend you read the owners guide in detail.

Powabyke bikes are fully adjusted and checked over at the factory. The handlebars may be removed or assembled in the bike and turned through 90 degrees. The pedals will be removed and in some cases the front wheel will have been removed too. It is a relatively simple operation to re-assemble these parts, however if you do not feel competent to do this you should ask someone who is, as it is important that these simple tasks are done correctly for the integral safety of the bike. If in doubt consult a qualified mechanic or cycle dealer.

### Unpacking

Please remove all packaging very carefully, especially if using a knife or sharp blade. Take care not to scratch any of the parts of the bike or slash the tyres.

We suggest that you keep hold of the carton in case you need to return the bike.

### Supplied With Your Bike\*

- Allen key (s)\*
- Pedals
- Multi-spanner\*
- Reflectors

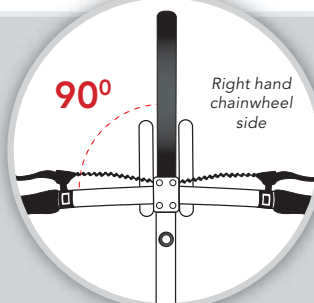
\*Where applicable

**For detailed adjustment and other information please refer to the specific sections in this guide**

## Preparing your bike for assembly



- |                         |                         |
|-------------------------|-------------------------|
| 1. Chain wheel set      | 7. Top tube             |
| 2. Front gear mechanism | 8. Seat tube            |
| 3. Rear gear mechanism  | 9. Down tube            |
| 4. Handlebar stem       | 10. V-style brake       |
| 5. Seat post            | 11. Chain set axle bolt |
| 6. Multiple sprockets   | 12. Hub motor           |



### Safety Points

*This sign is used in this booklet, wherever a particular topic is safety sensitive or needs extra care. Some of these items are specified in the British Standard covering bicycles but many others are Powabyke recommendations.*

# Attaching the handlebars

There are two types of handlebar attachment in general use, the stem type (single bolt) and the threadless or A-Head type (two bolts).

## Stem Type (Single Bolt)



**1** Remove the plastic cap (if present) from the top of the handlebar stem cap and loosen the bolt using the 6mm allen key.

**2** Turn the handlebar and set at 90 degrees to the front wheel. Set at the required height and re-tighten the bolt.

**Important:** Do not position the stem outside the limit mark.

## Threadless Type (3 Bolts)



**1** Using an allen key, loosen the 2 sides bolts (A) followed by top bolt (B) and turn the handlebar through 90 degrees.

**2** Re-tighten all bolts fully so there is no movement whatsoever and the handlebars are securely fixed.

## Saddle Adjustment



To adjust the saddle height, loosen the clamp bolt using an Allen key, spanner or the quick release lever and adjust the seat post to the required height. Adjust the height of the saddle so that when cycling along, your leg will be slightly bent with the pedal at its lowest point.

**Important:** When altering the height of the saddle, you must not pull the seat post out further than the limit mark.



## Front Wheel

### Unhooking the brake pipe



In order to fit the front wheel it will be necessary to unhook the brake pipe ferrule from the brake arm bracket.



**IMPORTANT**

**CHECK THE BRAKES ARE  
CORRECTLY LINKED**

**RH LEVER > FRONT BRAKE  
LH LEVER > REAR BRAKE**

### Replacing the front wheel motor



Left side of the Motor Wheel



Unscrew the motor  
connection cover



Undo the motor wires



Undo Anti-rotation bracket



Release "V" Brakes.



Loosen the 2 nuts on both sides  
of Motor Wheel. (18mm spanner)  
Remove wheel.

**Important: Ensure the nuts  
are fully tightened.**

### Re-linking the brake:

- 1 Squeeze the brake arms inward in the direction of the arrows.
- 2 Locate the ferrule on the brake pipe in the cut out of the bracket.
- 3 Apply the right-hand brake lever to check for smooth efficient operation of the brake.

### Models with Disc Brakes

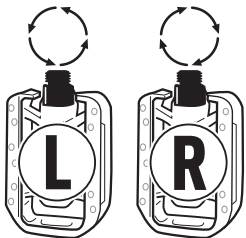
It is better if the bike is upside down when fitting a disc brake wheel.

Disc brakes use 2 pads and these are usually kept in place with packing pieces during transit. Remove the packaging from between the disc pads making sure that the pads are not displaced.

Fit the wheel in place with the rotor plate between the 2 pads.

Follow previous instructions for tightening quick release and wheel nuts.

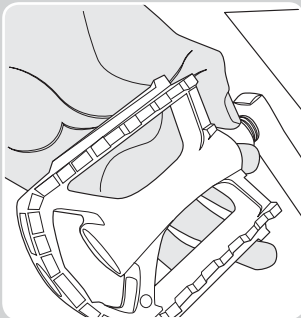
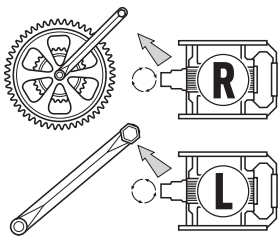
## Pedals



- 1 Identify left and right pedals by the letter R & L stamped on the end of the thread.
- 2 Identify left and right cranks. Tighten pedal by hand into the correct crank. **Note the correct rotation.**
- 3 Tighten the pedals by hand, then using a spanner fully tighten in the correct rotation.

### Remember

- Correct pedal and crank
- Correct tightening rotation
- Do not cross-thread
- Always keep pedals tight
- Check and retighten regularly



Ensure pedal is tight up against the crank when fully tightened

## Reflectors

For safety reasons it is very important that these are fitted correctly as the photograph below. Depending on the type supplied, the front reflector may be fitted to the handlebar or fork and the rear fitted to the seat post or rear bridge (see photos below).



### Important: Be safe!

#### Before you ride check the following:

1. Tyres are inflated to the recommended pressure.
2. Brakes are functioning properly.
3. Axle nuts or quick release levers are tightened.
4. Handlebar bolt(s) is tightened.
5. Seat bolt is tightened.



**KEEP YOUR REFLECTORS CLEAN - CYCLISTS MUST BE SEEN.**

**THE REFLECTORS FITTED TO YOUR NEW BIKE ARE A LEGAL REQUIREMENT, SUPPLIED FOR YOUR SAFETY. DON'T BE TEMPTED TO REMOVE THEM.**

## Front Mudguard (Where Applicable)

Take out the screws in the fork ends. Using these screws, loosely fit the stays to the fork ends. Fit the mudguard bracket behind the fork. Ensure all screws are tightened.



Fitting for suspension forks.



## PERSONAL SAFETY

### HELMETS

There's no doubt that a certain amount of equipment can improve cycling safety, particularly at night. On the other hand, however much equipment you have, there's no substitute for cycling skills and a full awareness of other traffic.

When you buy a cycle helmet, it's important to check that it's manufactured to a proper standard. The minimum legal requirement for any helmet sold in the UK and the rest of Europe is that they are CE certified and conform to the EN1078:1997 European Standard.

### LIGHTS

As for lights, you must have a front and rear light marked to show that they comply with British Standard. Legally, you must not fit a flashing light to a bike, though you can fit one to your clothing if you wish to. Only a few LED lights produce enough light to comply with the British Standard, even when they're in the non-flashing mode. This means they can only be used as a supplement to British Standard lights and mustn't be used on their own. If you find yourself fitting new batteries too often, consider fitting rechargeable lights or a dynamo. Your Powabyke Dealer will advise.



Once a helmet has been in an accident, it must be replaced. The shell may have been weakened and the liner will be less able to absorb shocks. Remember that some manufacturers offer free replacement of crash-damaged helmets.



When riding in the dark, it's a legal requirement to fit and use a front and rear light marked to show that they conform to the British Standard BS 6102/2. Clean the lenses and reflectors every week or so to keep them fully effective.



When buying a helmet, try out several different styles and different sizes within each style as well. Select one that feels comfortable and secure, that fits well down on your forehead and which has straps that lie well away from your ears.



Once you've got a good fit, adjust the straps carefully, making sure that the adjusters sit well below the ears and don't get twisted. Many helmets also have an adjustable nape strap at the back of the helmet. Follow manufacturers' instructions.



To get a good fit, helmets have either an exterior adjuster, simple pads or inflatable side pieces. Once adjusted, hold the helmet upside down with the straps out of the way to make it easier to put on. Follow manufacturers' instructions.



Check frequently that your lights are as bright as they should be. The batteries in particular need changing frequently, so keep spares at home and at work. When replacing bulbs, especially halogen ones, don't touch the glass at all.



Good lighting should be backed up by other visibility aids. If a bright yellow reflective jersey is too much for you, wear a reflective belt, preferably one that goes round waist and shoulders. They're very effective at letting motorists know you're on the road.



You can also fit reflective material to the bike itself. Large areas are best but even small strips make you more visible. It'll stick better if you clean any grease or oil off the frame before fitting. Try to blend the reflective areas in with the shape of the bike.

## LED Rear Lights



LED bike lights usually have a clip so you can attach them to your clothing. There is also a switch to select a steady or a flashing light. They should only be fitted as a back-up to a legal light, or to a dynamo.



Most LED lights have a close-fitting plastic case. To fit new batteries, find the notch in the case and prise the two halves apart with a screwdriver. There is no bulb as such. When putting the case back together, take care to avoid damaging or moving the rubber seal.

**WARNING:** *There is a risk of injury to the rider and to others if all necessary repairs and adjustments are not made. Take every precaution to ensure safe riding.*

## • BEFORE RIDING

Carry out the checks listed on page 3 and also refer to 'Know your bike' section so that you understand the type of use your bike is designed for. If you have any problems refer them to your Powabyke Dealer at once.

Make sure you are able to use your gears and brakes effectively and that you can handle your bicycle safely in traffic. To-familiarise yourself with the many rules of the road, Powabyke recommend you obtain a current copy of the Highway Code, available from Post Offices and most good bookshops.

All new or inexperienced cyclists are strongly recommended to take a training course in cycling. Details may be obtained from council offices or Police stations.

## • ANTICIPATION

The most important general riding skills you need to develop are keeping track of what other road users are doing and working out what they are going to do next. That way you can position yourself safely on the road and let them know, by your road position, what you are going to do next. Do not follow too closely behind other road vehicles or other cyclists and avoid riding up the inside of traffic queues. Make use of "cycle lanes" where they are provided. Always concentrate and keep a good grip on the handlebars at all time in case you suddenly need to steer out of harms way.

## • RIDING IN BAD WEATHER

Always take extra care when the weather is wet, foggy, windy or icy. Wear warm waterproof clothing - in bright, reflective colours if possible. Ride slowly and brake early, as stopping distances can be doubled or trebled. Sudden braking could lead to skidding on hazards such as mud, gravel, snow, etc. When it's like that don't just rely on hearing other traffic because snow, wind and fog can carry away the sound of approaching vehicles. When conditions are really bad or an area is particularly congested be prepared to walk your bike around roundabouts and difficult right turns.

## • RIDING IN THE DARK

Again, take extra care in the dark. Make sure your signals are in good time, so motorists are aware of your intentions.

Make sure you can see and be seen - front and rear lights, a rear reflector, pedal and wheel reflectors are legal requirements. They should conform to British Standard BS 6102. Carry spare bulbs and batteries if needed. Light coloured and reflective clothing will help you to be seen - ask to see the range stocked by your Powabyke Dealer.

## • PERSONAL MUSIC PLAYERS/HEADPHONES

We recommend that **YOU DO NOT LISTEN** to such devices while riding. They distract your attention from the traffic around you and prevent you from hearing approaching danger.

## • AFTER YOUR FIRST FEW RIDES

All the nuts and bolts on your bicycle bed-down in the first few weeks of use, we recommend you regularly check your bike as per the maintenance section.

## SAFE BRAKING DISTANCES

### Bicycle travelling at approx 15 mph

#### IN DRY WEATHER



#### IN WET WEATHER



# Bike Service Log

Date

Dealer Name

Information/Description

## Steering, Headsets and Handlebars

When you've got the saddle height and position right, you can fine tune your riding position by altering the angle of the handlebars. On some bikes, you can also adjust the height of the handlebars. Don't forget that altering the angle of an adjustable stem also alters the height of the handlebars.

Your back should be roughly 45° to the ground but this is not a hard and fast rule. It's also a good thing to have a slight bend at the elbow to help absorb road shocks. In fact, most mountain bikes are designed to provide the correct back angle and arm reach for the majority of riders. If you have a problem getting comfortable, consult your Powabyke Dealer about altering the height of the handlebars or even fitting different ones. Always check the alignment of the handlebar stem with the front wheel, if you move anything else.

If there's any free play in the steering bearings, you'll get brake judder, judder over bumps and steering wobble as well. Tight steering may also be a problem. These are potentially dangerous so if you don't feel confident about making the adjustment, take the bike to your Powabyke Dealer.



*As part of the Safety Check, make sure the stem clamp bolts and the handlebar clamp bolts are all tight enough to prevent the handlebars moving.*

### Steering Play - Too Loose

To check the steering bearings, pull the front brake on and wrap your fingers round the top steering bearing. Then try to push the bike gently backwards and forwards, keeping the back wheel on the ground. If you can feel or hear any movement the headset needs to be tightened.

### Steering Play - Too Tight

While there should be no play in the steering there should be no stiffness either. This can be checked by lifting the front of the bike so that the wheel is off the ground and turning the handlebar with a finger. The wheel should move smoothly right and left without sticking. For adjustment of steering bearings see the appropriate section on the next page.



## Threadless headset adjustment



Start by loosening the stem clamp bolts (A) just enough to allow the stem to turn when pushed but not to swing freely. If the steering is too loose adjust the bearings by tightening the top screw (B) until you can no longer feel any movement.

To adjust for tight steering undo the top bolt slightly until the steering moves freely. You may need to repeat the above process until the adjustment is correct.



### Height Limit Mark

Some models are fitted with a continental design of stem. Here, you remove the rubber bung at the top to reveal a socket-headed bolt, then undo the bolt a few turns. Once it's loose, raise or lower the handlebars by holding the front wheel between your legs and twisting the handlebars from side to side. Don't pull it out any further than the limit mark shown by the arrow in the picture. Next, re-tighten the bolt and fit the rubber bung. Then, hold the wheel between your legs and check that the handlebars won't twist in the frame. Check also that the handlebar clamp is tight. Repeat both these final checks during Safety Check.

## Threaded headset adjustment



First undo the top head locknut (C) using a suitable spanner. To correct loose steering turn the screwed race clockwise slightly until there is no play. To relieve tight steering, turn the screwed race (D) anti-clockwise a little. Once adjusted re-tighten the top head locknut and test the steering. You may need to repeat the above procedure until the adjustment is correct.

## Checking Pedals

Don't underestimate the importance of the pedals. If they're not tight enough, if the toe clips are loose, if the toe straps are missing or if the pedals don't turn smoothly, it's only too easy to lose control.

### ANY PROBLEMS ALONG THE WAY?

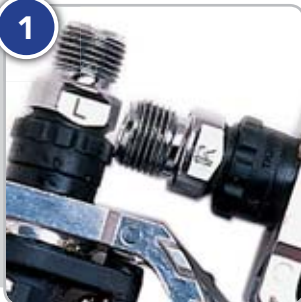
**CONSULT YOUR POWABYKE DEALER.**

### Torque settings

*Powabyke recommend the use of a torque wrench, whenever working on your bike. This will ensure that all nuts and bolts are tightened using the correct amount of force, so preventing damage to components. See page 31 for a list of torque settings*



1



If the pedals haven't been fitted or you've removed them when storing the bike, check which side they fit on. One pedal is marked L for the left hand crank and the other R for the right hand crank. Don't try to fit them the wrong way round.

2



You fit the R pedal onto the crank by turning the spindle clockwise. But when fitting the L pedal, you turn it anti-clockwise. To finish the job off or as part of your regular safety check, tighten both pedals with an open-ended spanner.

3



Toe clips can be fitted to prevent your foot sliding off the pedal as well as to hold it in the correct position. That makes them a safety device as well as a vital part of efficient cycling. It'll take practice before you can slip into them automatically.

## Checking The Cranks

All the power that you generate with your legs passes through the chainset and the bottom bracket bearings, which means that the hexagon bolts holding the cranks onto the bottom bracket must be kept very tight. Powabyke recommend using a torque wrench but a long hexagon key will do. You won't be able to tighten them enough with a standard one.

If you ever hear a creaking noise from the bottom bracket, it may be a sign that one or other of the crank bolts need tightening. Don't ride a bike with creaking cranks or you'll damage them and it'll be impossible to ever tighten them properly again. From time to time, it's also worth checking that the bolts holding the chainrings to the cranks are tight.



To tighten the crank bolts, grasp one crank firmly with one hand to hold the chainset still. Then apply as much force with a torque wrench or hexagon key as you can with the other. Don't forget to tighten the other crank as well.



When you've tightened both crank bolts, check that the thread of both crank bolt covers is lightly coated with anti-seize grease. Then tighten the covers, where fitted, with a pin spanner so they won't come out while you're riding.



Before you check how tight the chainring bolts are, it's worth undoing each one in turn and coating the thread with copper-based anti-seize compound before refitting. This prevents corrosion and stops the bolts seizing up.



Check the crank bolts for tightness by holding one crank absolutely still while you try to move the other. Test for movement from side to side as well as backwards and forwards. Then apply the test to the other crank.

## Checking bottom bracket



To test for wear in the bottom bracket bearings, take hold of the ends of both cranks and try to rock them from side to side. If only one crank seems to move, it's loose on the axle and the crank bolts should be tightened up before you ride the bike again.

On the other hand, if both cranks move sideways the same amount, the bottom bracket bearings have got some play in them.

Sometimes the bearings can be adjusted to eliminate this play but if it's a modern, sealed bottom bracket, the whole thing has to be replaced. In either case, it's a job for your Powabyke Dealer. However, depending on how much you use your bike, it's unlikely to need doing for several years.

## Saddle Adjustment

There's no hard and fast rule for setting up the riding position on a bike. The best starting point is to set the saddle height so that you can get the ball of your foot on the ground while you're sitting on the saddle.

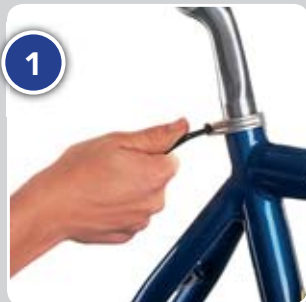
When you have to raise the saddle, don't lift it any higher than the limit mark. There's a danger that the seat post will break or fall out of the frame if you do. Fit a longer seat post or buy a bigger bike if you need the saddle higher than allowed by the limit mark.

There is also a fore-and-aft adjustment but you must only move the saddle to another position along the parallel section of the saddle wire, marked by the arrows below. Don't try to force the saddle any further in either direction or you'll break the saddle clip. Be careful also when tightening the bolt under the saddle or you'll damage the alloy threads.

Start with the saddle right in the middle of the range of adjustment and try a short ride. The main thing is to find an easy and comfortable reach to the handlebar grips. But this also controls the angle of your body, so experiment by moving the saddle a centimetre at a time until you find the best combination. Check also that you've got a good view of the road ahead, without cranking your head back at an uncomfortable angle. As for saddle angle, keep it more-or-less parallel to the ground.

If your bike is fitted with a shockpost that moves up and down to absorb bumps, adjust the saddle a little higher than normal to allow for your own weight. If you find that the shock post hits the bottom of its travel quite often, even after adjusting it, your Powabyke Dealer will supply you with a stronger spring, which should stop that happening. Different springs are easy to fit - just undo the adjustment screw all the way.

## Saddle Height Adjustment



To alter saddle height, undo the seat post clamp bolt at least two turns. Then work the saddle from side to side as you lift it up or push it down. Finally, check that the nose of the saddle is in line with the top tube and re-tighten the clamp bolt.



A quick release seat post clamp must be tight enough to hold the seat post in place on the roughest terrain. With the quick release lever fully open, tighten the knurled nut as far as you can with your fingers, then undo it one full turn. Next, start to move the Q/R lever.



It should be easy to move at first, then harder as the lever gets nearer to the frame, then easier just before it hits the frame. Turn the knurled nut anti-clockwise if the lever is too tight to reach the frame and the other way if it's too loose.



When altering the height of the saddle, you must not pull the seat post out any further than the limit mark. If you do, there's a danger that the seat post will either break or fall out of the frame when riding over rough terrain.

## Fore & aft adjustment



To adjust the saddle angle or the fore-and aft position, undo the bolt under the saddle a couple of turns and move the saddle to its' new position, holding the clip together with the other hand. Tighten the bolt and test the new position.

## Shock post



When using a shock post, set saddle height a little above normal, then check how far it sinks with your full weight on it. If it drops more or less than half an inch, adjust the pre-loading to make sure you get the full comfort benefits.

To adjust the pre-loading, undo the clamp bolt and pull the shock post right out of the frame. If you want the saddle to sag more, turn the adjuster two turns clockwise. If you want it to sink less, try two turns anti-clockwise.



## Clip type saddle



To adjust the saddle fore-and-aft, undo one of the large nuts about two turns, then tap the saddle backwards or forwards with your hand. If you want to alter the angle, undo both nuts at least two turns and click the saddle into the new position.



## Riding Position

Adjust the height of the saddle so that when cycling along, your leg will be slightly bent with the pedal at its lowest point. If the first time you use this riding position you feel that the muscles in the back of your leg are too stretched, lower the saddle a few millimetres at a time until you feel comfortable.

Check that with the saddle in this position you can place the ball of your foot comfortably on the ground while sitting on the bicycle.

## Setting Up The Suspension (If fitted)

**To make the best of your suspension bike, it must be set up to take your own individual weight and riding style into consideration.**

The objective is to adjust the strength of the springs so that when you put your weight on the saddle, the bike sinks down or sags about thirty per cent of the total spring travel. That is the total distance that the forks or the rear triangle will move.

The only problem with suspension on bikes is that over big bumps, all the spring travel can get used up. The moving part will then crash into the fixed part - a situation called bottoming out. This will destroy the suspension if it happens too often, so avoid crashing into potholes. It can also happen when the front of the bike pitches upwards and it reaches the other end of the suspension travel. This is called rebound. However, adjusting the suspension for thirty per cent sag minimises the amount of bottoming out because it allows for the rebound.

Where only the forks have suspension, again go for the thirty per cent sag. When you adjust the forks, whether the bike has sprung forks only or full suspension, make sure you adjust both legs equally. If you don't, the legs will wear unevenly and become distorted.

As for riding technique, try to develop a smooth pedalling style to stop the bike bobbing around. And when climbing hills, change to a lower gear earlier than you would otherwise. That way, you should be able to stay in the saddle and so keep the back wheel glued to the ground, not bumping around in mid air, wasting a lot of effort.



*If there's not enough adjustment to get the right amount of sag, talk to your Powabyke Dealer about fitting alternative springs. In addition, get your dealer to grease the forks every six months, or sooner if the corrugated gaiters get damaged.*

### Suspension forks



Select one convenient point on the fixed part of the forks and another on the lower, moveable part and measure the distance between them. Then, while someone holds the handlebars level, check that your riding position is roughly right.



Bounce up and down to settle the suspension, then measure the distance between the two points. Take that figure away from the first one to give you the amount the suspension goes down (sags) when you sit on the bike.



The amount of sag should be about 30% of total fork travel. If it's less, the forks are too stiff and you should turn the adjusters anti-clockwise. Do the opposite if it's well over a third. Then repeat steps one and two to check the adjustment.

## Check brake pads



When the pads are correctly aligned, there will be a gap (arrow) between the top of the pad and the top of the rim. As the pads wear down, check they don't overlap onto the tyre. Check also that curved pads follow the curve of the rim.



Now a check on pad wear. If there's a 'wear line', as on the pad at the front, they're OK until the line is reached. If there's no wear line, change the pads when they reach 2 mm from the bottom of the grooves, as on the back two pads.

## Brake modulators *\*Where applicable*



Modulator devices are fitted to some braking systems. The one arrowed above is an inline modulator, usually found on a child's bike but there are various other types. Do not tamper with modulator settings as they are set at the factory.

## V-style brakes



V-style brakes are very efficient and only need a very light pull on the lever when properly adjusted. If you have to reach too far for the brake levers, you can bring them closer to the handlebars with a hexagon key or Philips screwdriver.



For maximum braking power, check pad alignment and wear. Check also that there's an equal gap between the pad and the rim on either side. If there isn't, adjust the gap using the tiny adjuster screws at the pivots.

## Wheel Rim Condition

On most bicycles the brakes work by pressing on the wheel rim. This gradually wears the rim wall away. If the rim wall gets too thin it may fail allowing the tyre to come off the rim - which is potentially dangerous.

**New rim**



**Worn rim**



To prevent this occurring there are two ways of checking when a rim has come to the end of its useful life and should be changed:

A "wear-line" on the outside of the rim in the form of a groove. When this groove has been worn away the rim should be changed. A special cavity inside the rim. The rim should be changed when this starts to appear as a slot in the sidewall.

**Special cavity**



During winter, the rims can become very greasy. So to maintain full braking power, clean them with an Extreme Degreaser, if the brakes don't seem to have their usual bite.



## V-Style and Cantilever Brakes

If the Safety Check has revealed that the brake pads are worn down to the wear line or close to the bottom of the grooves in the pad, don't delay fitting new ones.

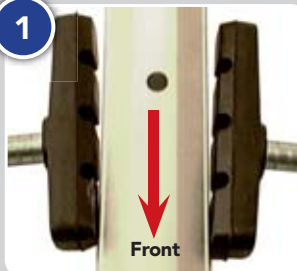
To remove the old pads, try to identify how they're fixed to the brake arms. Two different designs are shown on the opposite page but once you loosen the fixing bolt, usually low down at the back of the brake arm, you should be able to pull the old pads out quite easily. Although in some cases you'll find it easier if you remove the wheel first.

When fitting the new pads, take a moment to work out how they go. If the pads are curved, they must follow the curve of the rim. On the other hand, if there's an arrow on the side of the pads, it must point forwards. And there must be at least 1mm between the top of the pad and the top of the rim. When you've checked all these points, tighten the fixing nut but leave it loose enough to allow you to do two more adjustments.

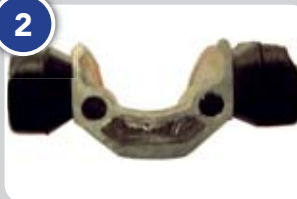
The first of these is toe-in. This means that when the brakes are applied, the front of the pad hits the rim before the back does. Then, when the moving wheel rim drags the brake pad forward, the brake arm bends a little. So the rest of the pad reaches the rim smoothly, without juddering or snatch. Sometimes a 'pip' of rubber at the back of the pad helps you to gauge the 1 to 2 mm toe-in normally recommended. In other cases, a special gauge is supplied with the pads but it's often just a matter of eye.

The second adjustment concerns alignment with the wall of the rim. You must adjust the pad so that it touches the wheel rim square on when the brakes are applied. This ensures that the largest possible area of rubber is in contact with the wall of the rim, so you get the best possible braking.

### New Brake Pads



If there's no gauge to help you set the toe-in, aim to position each pad so that there's a 1 to 2 mm gap between the back of the pad and the rim. There's no need to measure it exactly, so long as the gap is exactly the same both sides.



Once you've got the toe-in right, pull the brake lever and bring the pads up close to the rim. Then adjust the angle of the pad so that it contacts the rim square on. Finally, tighten the fixing nuts and check all three adjustments.

### V-Style Brakes



V-style brakes work best when the brake arms are almost upright. If the brakes look wrong or don't work well, there's probably too much inner cable showing between the brake arms. If you suspect this, undo the cable clamp.



Then make sure that the cable is completely free. Push the brake arms into a more upright position and lightly do up the cable clamp. Check that there's enough room for the wheel between the pads and tighten the cable clamp again.

## Standard Cantilever

*\*Where applicable*



To fit new brake pads to standard cantilevers, slacken off the cable adjuster on the brake lever and then unhook the wire from the brake arm. Loosen the nut at the back of the pad holder, using a hexagon key to stop it turning round and round.



Turn the pad clamp so that the brake pad faces away from the rim. Pull the worn pad out of the clamp and fit the new one. Align it with the rim leaving a gap at the top and set toe-in at 1mm. Check again when the pads have worn down.



Check also that the angle of the brake pad brings it square on to the wheel rim. When you've checked all these points, tighten up the pad clamp nut. Make sure the pad doesn't move by holding the front of the pad clamp with a hexagon key.



If a standard cantilever is not working well, check that the straddle wire lines up with the diagonal mark running across the cable carrier (arrow). If it doesn't, undo the straddle wire clamp and adjust the length of the straddle wire.

## How pads are fitted to V-style brakes



This type of pad fixing is similar to the one used on caliper brakes. The main difference is the use of two curved, interlocking washers each side of the brake arm, which allow the pad to be moved in any direction. You need a hexagon key for the fixing nut.



On the other common design of pad fixing, you need a spanner to undo the nut at the back of the brake arm. The dished washer, shown in the enlarged inset picture, allows you to adjust the pad in all directions.

## Gear Changing

There are two different types of gear changer. Those fitted to the right hand side of the handlebar control the rear gear. This moves the chain across the six, seven, eight or nine sprockets on the back wheel. To help you keep track of which gear you are in, they are usually fitted with an indicator. When the rear changer is working correctly, gear changes are almost silent and go through very quickly. However, it's always best to change gear well before you start struggling to keep the speed up. It also helps to take a little pressure off the pedals and change a maximum of three gears at a time.

If a changer is fitted to the left hand side of the handle bar, this controls the front chainwheel gears.

Don't try to changer gear when the bike is standing still or coasting downhill. In addition, don't try to take a gear changer apart, just give them a quick squirt of Multi lube over the exterior of the moving parts and then wipe off the surplus. As for rotational changers, leave both lubrication and fault finding entirely to your Powabyke Dealer.

## Indexing adjustment



If gears are slow to change up to top gear or tend to jump off when you select bottom gear, try tightening the cable adjuster half a turn. If that doesn't work, try another half turn. If there's still a problem, check the basic adjustment.

*Don't ride a bike with badly adjusted gears. If you can't rely on finding the right gear every time, if the chain keeps jumping off or you're stuck in a high gear, it's only too easy to lose control.*

**AND REMEMBER:** bottom and the rest of the low gears are for climbing hills. Top and the other high gears are for descents.

**AT THE BACK WHEEL, the small sprocket is top gear, the large sprocket is bottom.**

**BUT AT THE CHAINWHEEL, the small ring is bottom gear, the big ring is top gear.**

## Easy-Fire shifters

1



On some bikes, the lever for changing gear upwards has a large thumb grip. To change up, reduce the pressure on the pedals but keep them turning. Then push the lever once or more, depending on how many gears you want to shift.

2



To change downwards, hook your forefinger round the bottom lever, pull it upwards until it clicks and then release it. If you want to change more than one gear, pull the lever two or three times but again, keep pedalling while you do so.

3



If you find it awkward to use this type of changer, or cannot see the gear indicator, try adjusting its position on the handlebars. Just loosen the bolt on the handlebar clamp two turns and twist the whole changer assembly.

## Gear Selection



Using the small chainring and small sprocket together causes excessive chain crossover . . .



. . . as does using the big chainring with the biggest sprocket. Use these gear combinations as little as possible, otherwise the chain and sprockets will wear out faster than they should.

## Rotational changer *\*Where applicable*

1



The idea of a rotary changer is to allow you to change gear with a simple wrist movement. When changing up, take a firm grip on the inboard end of the hand grip drop your wrist, clicking the changer once for every gear that you want to change through on the right. The LH may be a friction shifter.

2



To change down, lift your wrist and then grasp the rotary part of the hand grip. Then click down quickly but smoothly. However, if you want to change from top to near bottom gear, it's best to do it in two stages, pausing a second half way.

## Making Adjustments: Gears

When your gears are running properly, you should be able to select any gear first time. There should be almost no noise, either from the chain running over the sprockets or when you change gears. If there's a clicking or a clacking noise in any gear, try tightening the cable slightly. Try lubricating the gear cable as well.

On the other hand, if the chain starts to drop off the chainwheel or it feels as if it's trying to jump off the largest or the smallest sprocket, clean the chain and both gear mechanisms with an Extreme Degreaser. Then check all the adjustments, as shown.

This is also a good time to check the jockey wheels for wear. On Shimano, the top jockey wheel should have a little bit of sideways movement but the bottom one should not. On SRAM, both jockey wheels should be free of any play. But all jockey wheels should turn smoothly, quietly and with very little drag, so clean and grease them if they don't. And ask your Powabyke Dealer to fit new jockey wheels if that doesn't do the trick.

If you can't get the gears to change smoothly and precisely, get your Dealer to check if the cables need replacing and that the gear mechanisms and frame are not damaged in any way.

### Remember, at the back wheel:

The smaller the sprocket, the higher the gear. So adjust the screw marked H for High. The larger the sprocket, the lower the gear. So adjust the screw marked L for Low.

### But at the chainwheel:

The larger the chainring, the higher the gear. So adjust the screw marked H for High. The smaller the chainring, the lower the gear. So adjust the screw marked L for Low.

## Shimano Derailleur

(back wheel removed for clarity)

1



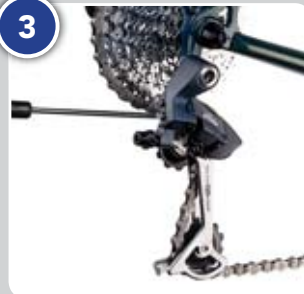
To set up Shimano gears correctly, let the chain down onto the smallest sprocket. Try turning the H adjuster either way until the chain runs almost silently when you turn the pedals. Then undo the H screw another half turn anti-clockwise.

2



Next, turn the pedals slowly and use your thumb to push the gear inwards against the spring, lifting the chain up onto the big sprocket. Adjust the L screw until the chain runs almost silently, then let it jump back down onto the smallest sprocket.

3



Test the change from the smallest sprocket to the next. It should click up and down without delay. If it doesn't, give the cable adjuster half a turn anti-clockwise. Then test the top to bottom change and adjust the L screw if necessary.

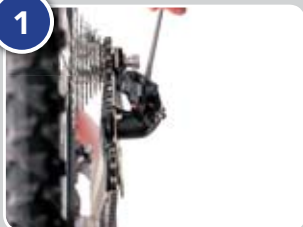
4



Keep on increasing the cable tension half a turn at a time until the top to second change works really well going both ways. Finally, flick up and down the whole range of sprockets several times, as fast as you can, just to check.

## Sram Derailleur

1



Adjust the H screw so that a line through the centre of both jockey wheels hits the outer edge of the smallest sprocket. Then press the gear inwards with your thumb and adjust the L screw so that the jockey wheels line up exactly with the largest sprocket.

2



Now check that there are 3 chain rivets between the point where the chain leaves the biggest sprocket and where it first touches the top jockey wheel. Adjust the B screw if necessary.

## Front Changer

1



1 If the chain cage is more than 1 mm from the biggest chainring, slacken off the bolt on the clip a little. Then drop the front changer until it is as close as the indicator shown here. The outer chain cage must also be parallel with the chainring.

2



Turn the L screw clockwise if the chain tends to get thrown off the small chain-ring. Turn the H screw clockwise if the chain tends to come off the big chainring. Turn the adjuster screws anti-clockwise if the chain doesn't climb easily onto the chainring.

## Stiff Link

Sometimes, you may notice a little jerk of the pedals that happens in every gear. It won't happen every turn of the pedals but roughly every two and a half turns.



This is caused by one link of the chain stiffening up, so it must be loosened off. Clean the chain first because it'll be a filthy job otherwise. Then turn the bike upside down and turn the pedals. As you watch the chain running over the jockey wheels, you'll easily spot the link which doesn't run through the chain cage smoothly but which jumps or kicks a little.

This is the stiff link, so flex it from side to side with your thumbs, until it loosens up. If this does not work, ask your Powabyke Dealer for advice.



## Chainwear Indicator

Ensure you fit the correct type of chain.

- Single Speed
- 5-8 Speed
- 9 Speed
- 10 Speed



A chainwear indicator tells you if the chain has stretched. If you ride with a stretched chain you will prematurely wear out your chain rings and cassette and in extreme cases it will cause your gears to slip.

# Maintenance

It is extremely important that your bike is checked and serviced at regular intervals to ensure its reliability and especially that it is safe to ride.

Cleaning and lubrication also forms an important tool in the proper maintenance of your bike and this is covered in more detail immediately after this section.



*Some servicing and repair tasks require specialised knowledge and tools. Improper adjustment may result in damage to the bike or may lead to a serious accident, if you have any doubts consult your cycle dealer.*

The following checks are suggested: -

## **Before you ride - Check:-**

- Wheels are tightly secured.
- Tyres are inflated to correct pressure (indicated on side-wall of tyre). Also check condition of tyres for cuts etc. (Note: It is a good idea to carry a puncture repair kit or spare inner tube, tyre levers and pump with you).
- Handlebar, stem and headset locknut are tight and that the steering turns smoothly.
- Brakes – Squeeze levers to ensure sufficient pressure can be applied without the lever touching the handlebars. Also ensure brake blocks are aligned correctly with rim and the blocks are not badly worn.
- Brake cables are not frayed at the end.
- Gears operate correctly.
- Wheels are running true by spinning them. You can also check that mudguards, if fitted, are correctly adjusted at this time.
- Saddle is adjusted to the correct riding position and the seat pin is tightened.

## **After long or hard rides or at least every month of regular use –**

**Check same points as above + the following: -**

- Clean, degrease and lubricate your bike.
- Cranks, bottom bracket fittings and pedals are tight.
- Tyre wear and general condition for cuts, glass, thorns etc.
- Spokes are not loose or broken. These need to be attended to before the bike can be ridden again and you would probably need to get these done at your dealer.
- Hubs are running smoothly.

## Every 12 months

Before you start make sure your bike is thoroughly clean and degreased.

Unless you have a good knowledge of bikes, we suggest that you take your bike to your local dealer for a full service. If this is not feasible we suggest you use the following checks: -

- Frame and forks for any damage or cracks.
- Wheels are true. Replace or repair if necessary.
- Brake tracks on rims are not badly worn. Also clean and degrease.
- Brake levers, brake adjusters + cable and nipple attached to lever is in good order. Any sign of wear on cable to nipple joint replace inner wire.
- Brakes - Brake blocks – Replace if excessive wear is evident. Re-set brakes.
- Chainwheel teeth – These wear, especially if it is an alloy chainwheel and the same chainwheel ring is used most of the time. Worn chainwheels can significantly affect gear changing.
- Chain for wear and stiff links, clean and re-grease chain or replace if necessary. Chains stretch with use and should be changed before causing excessive wear of the chainwheel or sprockets (approximately every 1500 – 2000 miles or every 2 years if riding approximately 25 miles per week)
- Cranks are attached securely
- Front shifter and rear derailleur for wear and especially check the rear derailleur in respect of straightness and the Jockey wheel.
- Bottom bracket fittings for wear and disassemble and re-grease or replace if required.
- Headset moves smoothly by turning wheel. Also check side movement by applying the front brake and try rocking the bike. If any movement is found, the headset may need cleaning, adjusting and re-greasing or the bearing may need replacing or even a complete new headset may need fitting.

*If in doubt always consult a bike dealer or qualified mechanic.*

Please note that these schedules are suggestions, frequent and heavy use of your bike such as off road riding will require more frequent maintenance.

*Remember good maintenance will prolong the life of your bike and components and ensure yours and other peoples safety. Always use genuine replacement parts for safety critical items such as brakes.*

## How to rectify a problem with a cycle whilst it is covered under the Powabyke warranty:

In the first instance, refer back to the dealer you purchased the bike from. If you purchased your bike from a shop which is not local to you, or over the internet, go to [www.powabyke.com](http://www.powabyke.com) to see our dealer locator. Select the Powabyke dealer of your choice and contact them to request that they undertake the work required. **In this instance, dealers may charge for labour.**

What is covered under warranty is specified in this booklet.

Should you have any further queries relating to cycle maintenance, sizing, or assembly, please refer to the Manuals section on the Powabyke website at [www.powabyke.com](http://www.powabyke.com)

On the Powabyke website, you can view our full range of cycles and accessories, purchase goods online and view details of Powabyke dealers local to you.

If you require additional assistance, please e-mail [sales@powabyke.com](mailto:sales@powabyke.com), stating your requirements. We will endeavour to answer all queries within 1 working day.

*Frames and components of bicycles can be subject to high stress and extreme wear conditions.*

*Different materials - especially Aluminium and Carbon fibre react to stress in different ways and may fail suddenly.*


*If the design life of a component has been reached it may fail without warning. Any scratches, cracks or change of appearance in highly stressed areas should be checked carefully and if in any doubt the components should be replaced. You should pay particular attention to frames, forks, handlebars and stems, seatposts aluminium cranks and wheel rims.*

## Torque Wrench Settings

	Lbf-In	Nm		Lbf-In	Nm
Front/rear wheel nut	220-225	24.8-25.4	Handlebar to stem bolt including 4 bolt	150-155	17-17.5
Seat bolt – recessed type bolt	100-105	11.3-11.7	Saddle clip to seat pin	150-155	17-17.5
Handlebar expander bolt	140-145	15.9-16.4	Saddle clamp – allen bolt type	80-85	9-9.5
Handlebar/seat clamp bolt (Welded frame)	100-120	11.3-13.5	Cotterless crank main axle bolt nut	354-398	40-45
Suspension models Suspension shock unit / Frame pivot(s)				150 - 200	17.5 - 22.5


## Bike Storage

**WARNING: Wipe off all grease before use. Make sure that rims and brake blocks are totally free from grease.**

 When your bicycle is not in regular use we suggest it is stored upside down to protect the tyres, or hung from securely mounted padded hooks. Care must be taken to ensure that the cycle is not damaged, eg cables pinched or paintwork scratched. If the bicycle is to be stored upright, protect the tyres by keeping them regularly inflated.

If storing for some time, protect chrome parts by smearing them lightly with grease. Keep grease off plastic parts.

## Fitting Mudguards

 Badly-fitted mudguards are a major safety hazard. It's only too easy for them to shake loose and get entangled with the wheel. If the wheel then jams, you'll come to a dead stop and be unable to stay upright.

So make sure mudguards are properly fitted. Use spring washers to prevent the frame mounting screws coming loose and tighten the stay to mudguard fixing during the Safety Check. The same applies to luggage racks. As for luggage straps and bungees, don't let them hang down where they could jam in the wheel.

## Wash and Lube

Regular washing followed by oiling and greasing prevents wear and so keeps your bike running smoothly. It also ensures that the energy you put in is used to propel the bike and not wasted in unnecessary friction. Don't leave out the washing part of the job because oil is much less effective when it's mixed with even small amounts of dirt. On the other hand, don't overdo things because surplus oil attracts dirt and that means more wear.

A bike chain runs in the open and has more moving parts than the rest of your bike put together, so a weekly or fortnightly squirt with a high quality aerosol like Dry Chain Lube is vital. Don't let the lubricant run onto the wheel rims, brake pads or tyres and wipe up any that does. If you've been plunging through deep water splashes or riding through heavy rain, it's best to clean the chain before re-oiling. You can use a chain cleaning machine or Dirt Attack Extreme Degreaser applied with a toothbrush or a special chain brush and wash off with water and an old sponge.

Dry off the chain with a clean rag, not paper, because that will shred and possibly clog the chain. Apply the chain lube next, allowing the first lot to soak in, then give the chain a second coat a few hours later. Lightly lube gears and brakes at the same time.

**Avoid overspray on rims and disc brake rotor surface.**

### Regular Washing

Most bike bearings are protected against water but not water under pressure. So wash your bike while it's standing upright on its wheels and use a sponge and a bucket of warm water plus detergent or car shampoo only. Rinse with clean water, taking extra care to rinse all traces of detergent off the brake pads and wheel rims. Finish off with a clean, dry duster. Your bike is now ready for oiling and greasing.



**NEVER USE A PRESSURE WASHER ON YOUR BIKE  
OR PUT IT THROUGH A CAR WASH.**

1



Apart from the safety items, perhaps the most important part of maintaining any bike is to keep the chain clean and well lubricated. Unfortunately it's also the dirtiest but a chain cleaning device helps to keep the mess under control.

2

When you plan to ride in extreme conditions, perhaps very rainy weather or deep mud, consider using one of the water resistant lubricants. However, you must clean the chain first or you'll simply form an abrasive paste.





## Powabyke Recommended Lubricants

⊕ **Multi Lube** - all points bike spray. For light lubrication, freeing parts that are stuck together and cleaning.

⊕ **Chain Lube** - formulated to get right into the moving parts of bike chains. Less messy than other chain lubricants.

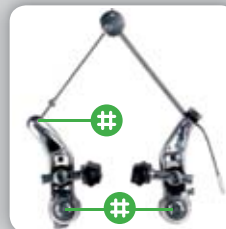
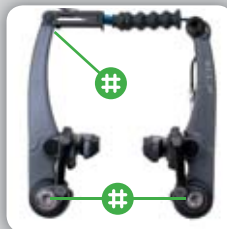
**Extreme Degreaser** - for cleaning chains either directly or using a chain cleaning machine. Also works well on disc brake rotors, wheel rims and drive systems.

⊕ **Grease** - for packing hub and bottom bracket bearings. Waterproof but inclined to thicken up over time. Do not ever use on rotary gear changes.

## Lubrication Intervals

- ⊕ **WEEKLY** - Multi Purpose Spray or Bike Lube
- ⊕ **MONTHLY** - Bike Lube and Dry Chain Lube
- ⊕ **PERIODICALLY** - Clean and pack with fresh Grease

**DON'T FORGET TO LUBE CANTILEVER BRAKES, AS SHOWN ON THE RIGHT.**



**WARNING: WHEN USING AN AEROSOL LUBRICANT, KEEP IT TO THE EXACT POINT INDICATED HERE. WIPE UP ANY DRIPS AND KEEP THEM OFF THE WHEEL RIMS, BRAKE PADS AND TYRES IN PARTICULAR.**

## Tyres and Tyre Care

Punctures should only be an occasional nuisance on a properly maintained bike. If you find yourself regularly getting out the puncture outfit, something is wrong and you should hunt down the basic cause, rather than go on suffering. Among the possibilities are not keeping the tyres pumped up enough, badly worn tyres, tubes that have been repaired too often and picking up thorns and flints when riding across country.

When the tyres are too soft, you'll get snakebite punctures. These are caused by the tube getting nipped between the ground and the wheel rim. Always remember to inflate tyres to the pressure indicated on the sidewall of the tyre and repair any slow punctures.

Worn tyres must be replaced but if you want to increase puncture resistance and tyre life, consult your Powabyke Dealer about fitting tyres with Kevlar carcasses. Your Dealer can also tell you about what types and sizes of tyre can be used safely on your particular bike. If you go for directional tyres, fit them with the arrow on the side wall pointing forwards.

Finally, if you tend to get a lot of punctures caused by small, sharp objects like flints and thorns, the solution is Slime tyre sealant. This is a green liquid which you feed into the tube and which stays liquid until you get a puncture. A small amount of Slime is then forced out through the puncture, which then solidifies and seals the puncture.

Flat tyres can also be caused by poor repair technique, often when the tube gets pinched between the rim and the tyre lever. So make sure the end of the tyre lever sits on the rim and not the tube or you can also get slow punctures by using poor quality patches or using them without care. The solution here is to use Skabs glueless patches and always prepare the surface of the tube with the abrasive paper supplied, before applying the patch to the tube.

If you can't find a slow puncture, pump the tube up lightly and dip it in a bowl of water (or a handy puddle). The bubbles will show you where it is.



To remove a tyre, undo the valve nut if fitted, then move to the other side of the wheel. Push back the tyre wall with your thumb and insert the first tyre lever. Pull the lever downwards and hook onto a spoke. Repeat with the other tyre levers.



As you fit the third tyre lever, the middle one will fall out, then repeat the process if necessary. Once the tyre is loose, pull the lever around the rest of the rim to free the remaining part of the tyre, ready to pull the tube out.



Pull the tube out and repair the tube, then check inside the tyre for foreign bodies. Take care to avoid cutting your fingers. Pump the tube up lightly and push the valve back through the hole, checking that it's straight.



Please fill in the registration page and return it to Powabyke as soon as you take delivery of your Powabyke product.

## Owners Registration Customer Details

### 1 Year Standard Warranty (UK)

The qualification for In-Warranty is conditional on owners of Powabyke registering their purchase through the completion of the Powabyke Owners Warranty Registration. Under this scheme bicycle parts are guaranteed for twelve (12) months from date of purchase including Lithium battery or six (6) months Lead battery.

Mr/Mrs/Ms \_\_\_\_\_ First Name \_\_\_\_\_

Surname \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Postcode \_\_\_\_\_

Tel Number (inc. STD code) \_\_\_\_\_

Email \_\_\_\_\_

**Powabyke Ltd. Registration Department**  
3 Wood Street, Queen Square, Bath BA1 2JQ, UK

Tel 01225 44 37 37 • Email [sales@powabyke.com](mailto:sales@powabyke.com)

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R E G I S T R A T I O N  
F O R 1 Y E A R W A R R A N T Y

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## Your Powabyke Details

Model (i.e. 24 Speed Commuter) \_\_\_\_\_

Colour \_\_\_\_\_ Wheel Size \_\_\_\_\_

Serial No. \_\_\_\_\_

Shop Name \_\_\_\_\_ Purchase Price £ \_\_\_\_\_

Date of Purchase \_\_\_\_\_ Year \_\_\_\_\_

Reason For Purchase (i.e. Commuting, Leisure) \_\_\_\_\_

How Did You Hear of Powabyke? \_\_\_\_\_

Are You Replacing The Use Of Another Vehicle With Your Bike? YES ☐ NO ☐

Would You Like To Join The **FREE** Powabyke Users Club? YES ☐ NO ☐

Would You Like Details of Powabyke Insurance? YES ☐ NO ☐

Age UNDER 20 ☐ 20-30 ☐ 31-40 ☐ 41-50 ☐ 51-60 ☐ 61+ ☐

**Powabyke Ltd. Registration Department**  
3 Wood Street, Queen Square, Bath BA1 2JQ, UK

Tel **01225 44 37 37** • Email **sales@powabyke.com**

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Powabyke's associates may mail our customers occasionally with relevant offers, news and special offers. If you **DO** wish to be contacted, **please tick this box** ☐

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## Notes & Information



[www.powabyke.com](http://www.powabyke.com)

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Errors and Omissions Excepted