WHYTE
PERFORMANCE BY DESIGN

www.whytebikes.co.uk

DESIGNED IN THE U.K.

WHEELSETS

Safety & Installation Instructions
Edition 1: February 2012

INTRODUCTION

Thanks for choosing to purchase this Whyte product. We hope you will enjoy all the benefits its advanced design and engineering will bring to your riding experience.

Please read and follow these instructions carefully. Failure to comply with the warnings and instructions could result in damage to this product that is not covered under warranty. Also possible damage to bicycle; or cause an accident resulting in injury or death.

Please remember, if you are in any doubt about your ability to safely install, service or repair this Whyte component, do not use it and instead arrange for a qualified bicycle mechanic at your local Whyte dealer to do the job correctly. Whyte Bikes assumes no responsibility for damages or injury related to improperly installed components.

Happy and safe riding, *Whyte design team. February 2012.*

WARRANTY

Whyte Bikes warrants all Whyte products to be free from defects in materials or workmanship for a period of two years after original purchase unless otherwise stated in the full warranty policy. The warranty is non-transferable and valid to the original purchaser of the product only. Any attempt to modify the product in any way such as drilling, grinding, and painting will void the warranty. For more information on warranty policy and instructions for completing a warranty claim, check out the Warranty Policy found at our website:
www.whytebikes.com

SPECIFICATION

Item Number / Model Name: All Whyte branded Wheelsets.

Whyte branded wheels are compatible with industry standard fork/frame drop-outs, transmission cassettes, disc brake rotors, rim-tape, inner tubes and tyres. Also wheel attachment systems such as "Quick Release" skewers or "Through Axle" types. There are a wide variety of component options available in the marketplace, many requiring specific custom tools to install or service them. To avoid compromises in terms of safety, performance, durability, function and to prevent voiding of the warranty, be sure to use the correct components and tools with the Whyte wheelset. If your are in any doubt about correct compatibility and tools, consult your local Whyte dealer for advice.

We recommend that both wheels are fitted with wheel reflectors, especially for night-time riding. Also the rear wheel should have a spoke protector fitted behind the cassette sprockets, so as to protect the spokes from damage if the chain is accidentally derailed.

Maximum Rider Weight Limit for Whyte Wheelsets: 19 Stone/120kg

Maximum Operating Pressures. The rims are limited to the tyre inflation pressure values displayed in the table below.

Maximum Inflation Pressure		Tyre Width																									
	mm	18	20	23	25	28	30	32	35	37	40	42	44	47	50	52	54	57	60	61	63	66	69	71	74	76
(Bars / PSI)	inches	0.7	0.8	0.9	1.0	1.1	1.2	1.25	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0
Rim Width	Road 13C	10	9.5	9.5	9																					
		146	138	138	131																					
	Road 15C			9.5	9	8	7	6.7																		
				138	131	117	103	99																		
	Hybrid 17C				9	8	7	6.7	6.3	6	5.7	5.5	5.2	4.8	4.5	4.3											
					131	117	103	99	93	88	83	80	76	71	66	63											
	Hybrid 19C					8	7	6.7	6.3	6	5.7	5.5	5.2	4.8	4.5	4.3	4	3.7	3.4								
						117	103	99	93	88	83	80	76	71	66	63	59	55	50								
	Mountain Bike 21C								6.3	6	5.7	5.5	5.2	4.8	4.5	4.3	4	3.7	3.4	3.2	3	2.8	2.7				
									93	88	83	80	76	71	66	63	59	55	50	47	44	41	39				
	Mountain Bike 23C									6	5.7	5.5	5.2	4.8	4.5	4.3	4	3.7	3.4	3.2	3	2.8	2.7	2.5	2.4	2.1
										88	83	80	76	71	66	63	59	55	50	47	44	41	39	36	34	30
	Mountain Bike 25C											5.5	5.2	4.8	4.5	4.3	4	3.7	3.4	3.2	3	2.8	2.7	2.5	2.4	2.1
												80	76	71	66	63	59	55	50	47	44	41	39	36	34	30
	Mountain Bike 27C													4.8	4.5	4.3	4	3.7	3.4	3.2	3	2.8	2.7	2.5	2.4	2.1
														71	66	63	59	55	50	47	44	41	39	36	34	30
	Mountain Bike 29C															4.3	4	3.7	3.4	3.2	3	2.8	2.7	2.5	2.4	2.1
																63	59	55	50	47	44	41	39	36	34	30

Also check the tyre sidewall for the maximum operating pressure of the tyre, since this may be lower than that shown in the table above. You **MUST** inflate the tyre to a safe pressure, ie: below that either shown in this table or that shown on the tyre sidewall. If in any doubt, consult your local Whyte dealer for advice.

WARNING: Failure to follow this recommendation might cause unexpected tyre or rim failure, resulting in an accident, personal injury or death.

RIM TAPE & TYRE INSTALLATION

Tools Required: *Tyre Pump, minimum pressure 10bar / 146psi.*
Pressure Gauge (may be integral with pump), min. pressure 10bar / 146psi.
Tyre Levers, 1 pair

Note - The following instructions do not cover tubeless tyre installation. Please consult the tyre manufacturer's installation instructions and/or your local Whyte dealer if fitting that type of tyre.

1. Before installing the parts, make sure they are all clean from dirt and have been thoroughly de-greased.

2. Study the labelling on the rim, which should contain some size information. For example "ETRTO 622x17". This is related to the diameter (622) and width (17) of the rim, in millimetres. Then study the sidewall of the tyre, the rim tape and also the inner tube (if applicable) as all these items will have information marked on them which will confirm that they are suitable to be fitted to each other. If your are in any doubt about correct mating sizes, consult your local Whyte dealer for advice.

WARNING: Failure to fit the correct size of tyre, inner tube or rim tape might cause unexpected tyre failure, resulting in an accident, personal injury or death.

3. The rims fitted to Whyte wheelsets are dimensionally very precise. If a tyre is too easy to install on the rim, it may be too large and may not seat properly in the clinching recesses. Conversely, this is also true if the tyre is too small, with the added complication that the wheel may be damaged if excessive force is used to fit the tyre to the rim. Use only high quality tyres that require a reasonable installation effort.

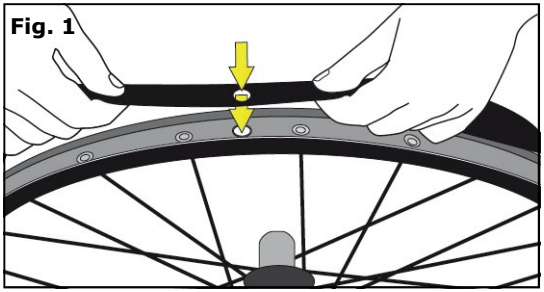


Fig. 1

WARNING: Failure to follow this recommendation might cause unexpected tyre failure, resulting in an accident, personal injury or death.

4. Place the rim tape into the rim, such that the hole in the rim tape is aligned with the valve hole in the rim, see figure 1.

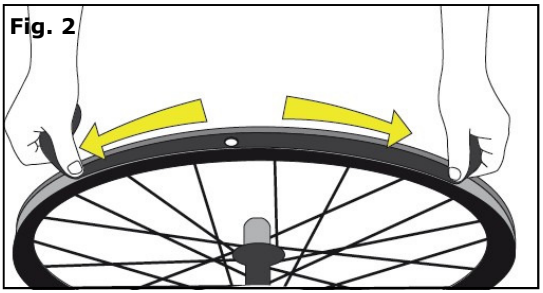


Fig. 2

5. Carefully wrap the tape around the rim, keeping the valve holes aligned, see figure 2.

6. Finish the tape installation with both hands as shown in figure 3.

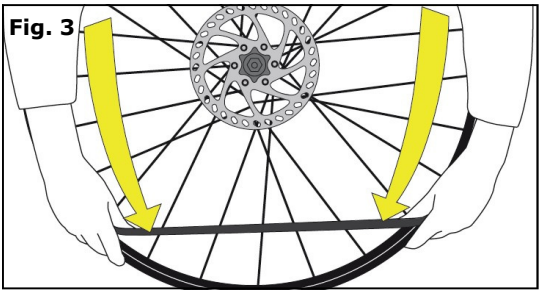


Fig. 3

7. Check that the tape is correctly centred on the inside of the rim, as shown in figure 4. If it is not centred correctly, as shown in figure 5, it must be adjusted back into the centre.

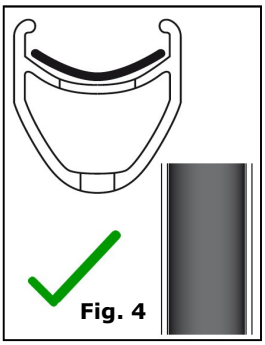


Fig. 4

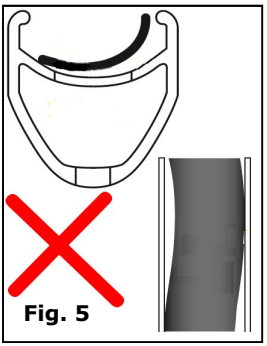


Fig. 5

8. Now offer up the tyre to the rim and fit one edge of the tyre into the well of the rim, see figure 6.

9. Slightly inflate the inner tube to make it easier to fit it and stop it from being trapped between the tyre bead and rim. Then insert the valve in the inner tube through the hole in the rim, see figure 7. Then insert the rest of the inner tube between the tyre and the rim. Make sure that the valve goes through the hole in the rim so that it points towards the centre of the wheel.

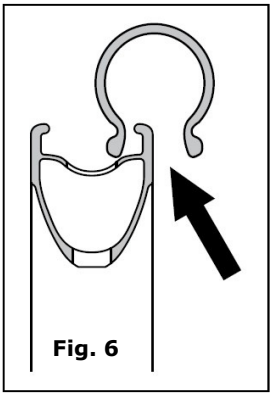


Fig. 6

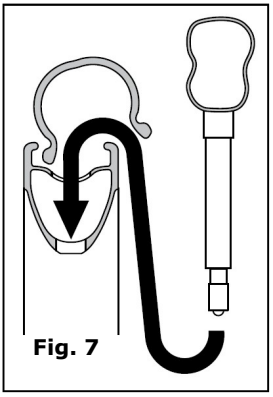


Fig. 7

10. Insert the second side of the tyre over the rim, all the way around, see figure 8. When nearing the end of this process, it may become difficult to push the tyre over the rim. To make this easier, aim to finish pushing the tyre over the rim next to the valve. Also, push as much of the tyre bead into the centre of the rim as possible, as this is a smaller diameter than the outer area, which leaves more tyre available to clear the rim. Avoid using tyre levers. If this is not possible, take great care not to pinch and cut the inner tube with the tyre levers.

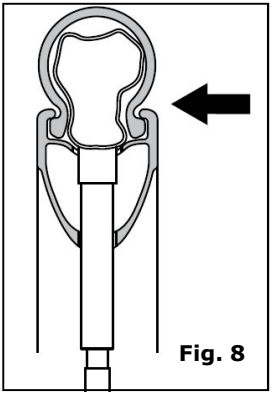


Fig. 8

11. With the tyre fully installed, it should then be inflated firstly to a low pressure, say 0.5bar / 8psi so that the tyre can be checked for correct seating on the rim and also to check that the inner tube is not trapped by the edge of the tyre. At this low pressure the tyre may be manipulated to improve the seating location, if necessary. If all looks satisfactory, gradually continue inflation up to the correct working pressure.

WARNING: Failure to follow inflate the tyre correctly might cause unexpected tyre or rim failure, resulting in an accident, personal injury or death.

SPROCKET CASSETTE INSTALLATION

Tools Required: *Cassette Lockring tool Shimano TL-LR15 or Park Tool FR-5.*
24mm A/F hexagon socket fitted to a 10-60 Nm Torque Wrench

There are a wide variety of sprocket cassettes available in the marketplace. Please consult the sprocket cassette manufacturer's installation instructions and/or your local Whyte dealer for advice on:

1) Whether the splines on the free hub body will mate correctly with the splines inside the cassette.

2) Whether there are the correct quantity of sprockets and correct spacing between the

sprockets for your transmission system.

3) Whether there are the correct combination of sprocket teeth numbers, for the type of riding for which you intend to use the bicycle.

4) Whether the sprocket cassette has to be assembled onto the free hub body in the correct order of sprockets and spacers - in some cases. Some other cassettes are single piece construction so are easier to fit in this respect.

5) Whether you have the correct tool to fit the locking nut and also to be able to tighten it to the sprocket cassette manufacturer's recommended torque setting.

CAUTION: Failure to install the sprocket cassette correctly may result in poor transmission performance or damage to the frame.

BRAKE DISC INSTALLATION

Tools Required: Torx® T25 bit fitted to a 3-15 Nm Torque Wrench.

Important Note - mounting the brake disc to the wheel is quite a simple procedure, but still requires care. If the wheel has to be rebuilt, have it done by a qualified technician using a 3 cross spoke pattern. 2 cross or radial spoke patterns are incompatible with disc brake forces. We also recommend the use of a high strength alloy steel quick release skewers only. These instructions are for 6-bolt disc-hub mounting only, standard configuration on the hubs in Whyte wheelsets.

1) Clean the disc and hub mounting surface with isopropyl alcohol (do not use disc brake cleaners).

2) Place the disc on the hub mounting surface. **Be sure that the arrow on the disc is pointing in the same direction of the forward wheel rotation.**

WARNING: Failure to observe the correct rotation direction of the brake disc might cause unexpected disc failure, resulting in an accident, personal injury or death.

3) Using the Torx® T25 driver, carefully screw in and then torque tighten the disc screws to 5.5Nm to 6.0Nm (49 to 53 lbs-in), following a star pattern tightening sequence.

WARNING: The disc should be periodically inspected for wear and damage. The minimum disc thickness allowed is 1.6mm. Failure to check this may cause unexpected disc failure, resulting in an accident, personal injury or death.

INSTALLING THE WHEELS INTO THE BICYCLE

CAUTION: If the bicycle has a disc brake, take care if touching the rotor or caliper. Disc rotors have sharp edges. Avoid damaging the disk, caliper or friction pads when installing the wheel. Never activate a disk brake's control lever unless the disk is correctly inserted in the caliper.

For a Quick Release Skewer retention device

To install the wheels with a quick-release skewer securing them into the bicycle, it is best to do this on the ground rather than with the frame held in a bike-stand. This is because this allows the wheels to sit correctly in the drop-outs when they are being secured. Always start by inserting the rear wheel, avoid inserting the front wheel first otherwise it will be difficult to keep the bike stable enough.

Make sure the cam lever is in the OPEN position (see figure 9). The lever should be on the side of the wheel opposite the derailleur and freewheel sprockets.


fig. 9

On a derailleur bike, make sure that the rear derailleur is still in its outermost, high gear, position; then pull the derailleur body back with your right hand. Put the chain on top of the smallest freewheel sprocket.

On single-speed, remove the chain from the front sprocket, so that you have plenty of slack in the chain. Put the chain on the rear wheel sprocket.

Then, insert the wheel into the frame dropouts and pull it all the way in to the dropouts. On a single speed or an internal gear hub, replace the chain onto the front chain-ring; pull the wheel back in the dropouts so that it is straight in the frame and the chain has about 6mm (1/4 inches) of up-and-down play.

With a cam action system, move the cam lever upwards and swing it into the CLOSED position (figure 10). The lever should now be parallel to the seat stay or chain stay and curved toward the wheel. To apply enough clamping force, you should have to wrap your fingers around the seat stay or chainstay for leverage, and the lever should leave a clear imprint in the palm of your hand.


fig. 10

NOTE: If, on a traditional cam action system, the lever cannot be pushed all the way to a position parallel to the seat stay or chain stay, return the lever to the OPEN position. Then turn the tension adjusting nut counterclockwise one-quarter turn and try tightening the lever again.

WARNING: Securely clamping the wheel with a cam action retention device takes considerable force. If you can fully close the cam lever without wrapping your fingers around the seat stay or chain stay for leverage, the lever does not leave a clear imprint in the palm of your hand, and the serrations on the wheel fastener do not emboss the surfaces of the dropouts, the tension is insufficient. Open the lever; turn the tension adjusting nut clockwise a quarter turn; then try again.

If you disengaged the brake quick-release mechanism to remove the wheel, re-engage it to restore correct brake pad-to-rim clearance. Follow the manufacturer's instructions or ask your Whyte dealer to make sure that you understand the way the brake quick release works on your bike.

Spin the wheel to make sure that it is centered in the frame and clears the brake pads; then squeeze the brake lever and make sure that the brakes are operating correctly. If the brakes are dragging or the friction pads are not aligned with the rim or disc, then follow the brake manufacturer's installation instructions to set up the brake correctly or consult your local Whyte dealer.

Follow a similar procedure to install the front wheel, except in this case there is no chain to be concerned about.

For a Through Axle retention device:
Make sure that the rear derailleur is still in its outermost, high gear, position; then pull the derailleur body back with your right hand. Put the chain on top of the smallest freewheel sprocket.
Then, insert the wheel into the frame dropouts and pull it all the way in to the dropouts.
Insert the through axle from the left side until it engages in it's thread.
Make sure the cam lever of the retention device is in the OPEN position (figure 11) and turn the cam lever clockwise until hand tight. If Fox / Shimano, then unwind until the cam lever is opposite the location where it was unlocked from, whilst removing the wheel.

fig. 11

Swing the cam lever into the CLOSED position (figure 12). To apply enough clamping force, you should have to wrap your fingers around the seat-stay or chain-stay for leverage, and the lever should leave a clear imprint in the palm of your hand.
NOTE: If the cam lever cannot be pushed all the way to a position parallel to the fork blade, follow the manufacturer's instructions for adjustment or consult your local Whyte dealer.

fig. 12

WARNING: Securely clamping the wheel with a cam action retention device takes considerable force. If you can fully close the cam lever without wrapping your fingers around the seat-stay or chain-stay for leverage and the lever does not leave a clear imprint in the palm of your hand, the tension is insufficient.

If you disengaged the brake quick-release mechanism to remove the wheel, re-engage it to restore correct brake pad-to-rim clearance.
Spin the wheel to make sure that it is centered in the frame and clears the brake pads; then squeeze the brake lever and make sure that the brakes are operating correctly. If the brakes are dragging or the friction pads are not aligned with the rim or disc, then follow the brake manufacturer's installation instructions to set up the brake correctly or consult your local Whyte dealer. Follow a similar procedure to install the front wheel, except in this case there is no chain to be concerned about.

For a Lock-On Skewer retention device
Tools Required: Special 5mm A/F bit fitted to a 3-15 Nm Torque Wrench.

Installing the wheels with a lock-on skewer is quite similar to the method using a quick-release skewer. Except that instead of closing the cam lever, a special tool supplied with the Lock-On Skewer is used to turn the skewer clockwise into the nut on the far side of the skewer. Torque tighten to 6.6Nm to 8.0Nm (58 to 71 lbs-in).

REMOVING THE WHEELS FROM THE BICYCLE

CAUTION: If your bike has a disc brake, exercise care in touching the rotor or caliper. Disc rotors have sharp edges, and also both rotor and caliper can get very hot during use.

This is basically the reverse procedure of wheel installation. Start with the front wheel first. If your bike has rim brakes, disengage the brake's quick-release mechanism to increase the clearance between the tyre and the brake pads. Follow the manufacturer's instructions or ask your Whyte dealer to make sure that you understand the way the brake quick release works on your bike.
If your bike has a Fox or Shimano branded Through Axle retention device, carefully note the current orientation of the cam lever, since it must be located in the same orientation when refitted.
Move the cam lever at the end of the wheel axle from the locked or CLOSED position (figures 10 or 12) to the OPEN position (figures 9 or 11).
For a Through Axle retention device, unscrew this in an anti-clockwise direction using the cam lever. Once the threads have disengaged, pull it out completely.
For a Quick Release Skewer retention device, loosen the tension adjusting nut enough to allow removing the wheel from the dropouts. Do not unscrew the tension adjusting nut all the way off the skewer.
For a Lock-On Skewer retention device use the special 5mm A/F Allen Key supplied with the skewer to turn it anti-clockwise, whilst holding the tension adjusting nut still with your other hand. Turn the skewer just enough to allow removing the wheel from the dropouts. Do not unscrew the tension adjusting nut all the way off the skewer.
You may need to tap the top of the wheel with the palm of your hand to release the wheel from the front fork.

CAUTION: Take care not to damage the front brake system when removing the front wheel.

For the rear wheel if you have a multi-speed bike with a derailleur gear system: shift the rear derailleur to high gear (the smallest, outermost rear sprocket). If you have an internal gear rear hub, consult your Whyte dealer or the hub manufacturer's instructions before attempting to remove the rear wheel.
If your bike has a Fox or Shimano branded Through Axle retention device, carefully note the current orientation of the cam lever, since it must be located in the same orientation when refitted.
If your bike has rim brakes, disengage the brake's quick-release mechanism to increase the clearance between the wheel rim and the brake pads. Follow the manufacturer's instructions or ask your Whyte dealer to make sure that you understand the way the brake quick release works on your bike.
Move the cam lever at the end of the wheel axle from the locked or CLOSED position (figures 10 or 12) to the OPEN position (figures 9 or 11).
For a Through Axle retention device unscrew this in an anti-clockwise direction using the cam lever. Once the threads have disengaged, pull it out completely. For a Quick Release Skewer retention device unlike the front fork drop-outs, there is no secondary retention device at the rear drop-outs. Consequently it is not necessary to undo the adjusting nut.
On a derailleur gear system, pull the derailleur body back with your right hand. Lift the rear wheel off the ground a few inches and then remove it from the rear dropouts.
On a single-speed system, after releasing the tension of the axle retention fasteners, move

the wheel forward in the drop-outs, lift the chain off the rear sprocket and then pull the rear wheel out of the back of the drop-outs.

CAUTION: Take care not to damage the transmission or rear brake systems when removing the rear wheel.

MAINTENANCE

Regularly remove the wheels, wash them with a soft sponge and soapy water, do not use abrasive pan cleaner or suchlike as this will damage the finish. **Never** wash the wheels with a high pressure water jet, as this will force water past the hub seals and cause the bearings to fail prematurely. Allow the wheels to dry after washing or when riding in the rain, to avoid corrosion damage. Do not apply oil to the hubs, as this will remove the grease that is already present. Instead, top-up with grease if necessary.

Also, remove the quick release skewer, security skewer or through axle, clean and re-grease this prior to re-fitting.

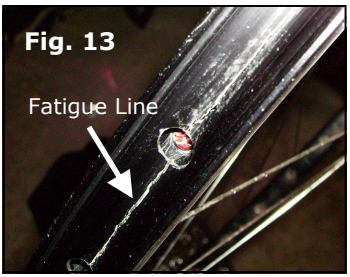
Run your fingers carefully around the spokes to check if any are loose or broken, especially after a running in period of 1000 km. Note that a rim running out-of-true when the wheel is spun may help to indicate this. Take the wheel to a qualified bicycle mechanic at your local Whyte dealer to have the wheel re-tensioned, if you are in any doubt about your ability to do it competently yourself.

Make sure the brake surfaces on either the rim or the disc are clean and free of oil or grease, since these will reduce braking force significantly. Also check the brake blocks or brake pads for any particles such as gravel or metal shavings, remove them if necessary since these will damage the braking surface. Check the blocks/pads for wear—look for a wear indicator marker - and replace if necessary, consult the brake manufacturer's user instructions or your local Whyte dealer. Only use genuine brake manufacturer replacement blocks/pads and be sure to order the exact identical model number. Some brake blocks are only compatible with certain rim surface materials, such as carbon fibre or ceramics.

If the rim has a braking surface, when it is new it will have some kind of slot or recess that acts a wear indicator. If after some long period of use this slot or recess cannot be found, the rim MUST be replaced as soon as possible.

WARNING: Do not continue riding the bicycle with an excessively worn rim, as it could fracture and result in an accident, personal injury or death.

Whenever a tyre has to be replaced after a long period of service, also carefully check the rim for fatigue marks or cracks on the inside, especially under the rim tape between and near the spoke holes. See figure 13 as an example of a rim that must be replaced. Take the wheel to your local Whyte dealer to have this investigated further, if you are in any doubt about the safety of the rim.



We strongly recommend to only use genuine Whyte replacement parts.

WARNINGS

Tyres MUST be inflated to a suitable pressure before use. See the specification section on page 2 of this manual for details of safe inflation pressures.

Use a rim tape which is a correct size for the rim and which is also suitable for the tyre pressure.

Do not make any modifications to your wheel set, such as drilling, welding or grinding. This may cause the wheel to come apart whilst riding the bicycle, which can cause serious injury or death.

Riding with an improperly secured wheel can allow the wheel to wobble or fall off the bicycle, which can cause serious injury or death.

Regularly check the wheels to be certain they are fastened securely to the bicycle drop-outs. If a Skewer or Through Axle is not installed correctly, a wheel may become separated from the bicycle drop-outs and result in an accident, personal injury or death.

If you are at all unsure if a wheel is not secured correctly, DO NOT RIDE YOUR BICYCLE. Contact your local Whyte dealer for advice.

Each wheel is specifically restricted to a particular style of cycling. For example a road wheel is designed and tested for riding on the road only. A cross-country mountain-bike wheel is designed and tested only for cross-country off-road terrain and so on. Consult your local Whyte dealer if in doubt as to what style of cycling activity you may safely use your wheels for.

A rim that is specifically designed for use in a wheel with a disc braked hub MUST NOT be use as a rim brake. Such a rim will be labelled "Rim for disc braked use only" or similar. You must obey that requirement, otherwise the rim is likely to fail prematurely and result in an accident, personal injury or death.

Adjust brakes according to the brake manufacturer's instructions. Always check brake performance and correct adjustment before each ride.

If your bike has a disc brake, exercise care in touching the rotor or caliper. Disc rotors have sharp edges, and also both rotor and caliper can get very hot during use.

IMPROPER INSTALLATION MIGHT RESULT IN A LOOSE WHEEL AND THIS COULD CAUSE PERSONAL INJURY OR DEATH.