WTB TCS Rim User's Manual

For WTB TCS rims only.

NOTE TO RETAILERS: If you are installing this component for your customer, please make sure that this User's Manual is passed along to the customer after you use it.
GI1-0410

Thank you for the confidence you have shown in WTB by selecting one of our products. We appreciate your business, and your satisfaction is important to us. Because we would like to make sure that you get the best performance and longest service life from any WTB product you use, you MUST read these instructions *BEFORE* you assemble, install or use your new WTB components. YOUR SAFETY DEPENDS ON THIS. And if you have any questions or problems, or feel you do not understand something about the product, its installation or its use, please talk with your WTB dealer or contact WTB.
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IMPORTANT NOTE: This WTB user's manual for this specific component on your bicycle is not a substitute for all the safety and use information contained in the owner's manual that was supplied with your bicycle. If you do not have such an owner's manual, contact the bicycle's manufacturer or retailer for a copy. To the extent that your bicycle user's manual and this component part user's manual conflict as to the use of this specific WTB component, this WTB user's manual should be followed. If you are unsure about the resolution of a conflict between this manual and any other manual or set of instructions, please consult your local bicycle retailer.
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READ BEFORE USE: This User's Manual refers to ESSENTIAL information for:

1(a) Intended Use
1(b) WTB TCS Rim Summary Chart
  Current Model Year
  Older Model Years
1(c) Rim Size Designation
1(d) Selecting the Correct Rim Tape Based on WTB TCS Inner Rim Width
1(e) Installing WTB TCS Rim Tape on a WTB TCS Rim with a WTB TCS Valve
1(f)) Rim/Tire Compatibility under ISO and ETRTO
1(g) Bike/Brake Compatibility
1(h) WTB TCS Tubeless Tire Installation on a WTB TCS Rim with WTB TCS Tape and a WTB TCS Valve

NOTE: For additional technical information on bicycle wheel rims and tires, see the below manual matrix available at wtb.com/manuals.

	WTB Technical Manuals (Detailed information)	**WTB User Manuals (Less detailed information)**
TUBE TYPE RIMS	A detailed technical explanation of international bicycle rim standards and fundamentals, as applied to WTB Tube Type Rims, including previous model year products.	Concise user information on WTB Tube Type Rims.
TCS RIMS	A detailed technical explanation of international bicycle rim standards and fundamentals, as applied to WTB Tube Type Rims, including previous model year products.	Concise user information on WTB Tube Type Rims.

TUBE TYPE TIRES	A detailed technical explanation of international bicycle tire standards and fundamentals, as applied to WTB Tube Type Tires, including previous model year products.	Concise user information on WTB Tube Type Tires.

TCS TIRES	A detailed technical explanation of international bicycle tire standards and fundamentals, as applied to WTB TCS Tires, including previous model year products.	Concise user information on WTB TCS tires.

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⚠WARNING BEFORE EACH USE CHECK EACH OF THE FOLLOWING:

▪ Break wear / operation	▪ Always check your disc brake rotors or caliper brake pads for excessive wear before you ride as well as the operation of the brake levers and cables.
▪ Spoke tension	▪ Before any ride, always check your spoke tension. See Section 3 *Maintenance and Repair,* below.
▪ Rim wear / damage / trueness	▪ Always check your rims for any wear, dents, gouges and damage and that the wheels are true before you ride. If there is any damage to your rims, replace them BEFORE you ride.
▪ Tires / Pressure / Sealant Retention	▪ Always check your tires for tire bead and tire sidewall fraying or damage. If either is damaged, see WARNING at Section 3(a). Additionally, check tire pressure and ensure that tires are within the specified range on the tire's sidewall. Visually inspect the tire's sidewall to ensure the bead is appropriately and evenly seated around the circumference of the rim on both sides. For WTB TCS rims and WTB TCS tires, take note and ensure that no sealant is seeping from the tire's sidewall. Any signs of seepage or sealant can and may be indicative of a damaged tire and require replacement before riding.

1. Before you start

⚠WARNING GENERAL WARNING:

No matter how experienced you are as a cyclist, do not fail to read this WARNING or to carefully follow the instructions below.

Technological advances have made bicycles and bicycle components more complex and many bicycle component installation, service and repair tasks require special knowledge and tools. *Improper installation, adjustment or service may result in damage to the component or component failure.*

All WTB products should be installed by a qualified bicycle mechanic using appropriate professional tools. *WTB assumes no liability for products which are improperly installed, assembled or configured.*

When installing WTB components in conjunction with another manufacturer's components, you should always follow that manufacturer's instructions for their components and WTB's for WTB components. If there is a conflict, ask your dealer to help you resolve it. *WTB assumes no liability for damage caused by installing other manufacturers' products.*

After any installation, adjustment or repair to your bicycle or components, test your work by taking a test ride in a controlled environment, away from cars, other cyclists, obstacles or other hazards.

Failure to follow these instructions can result in component failure. Component failure can cause you to lose control of the bicycle and fall, leading to serious injury or death. WTB cannot warn of all potential hazards resulting from misuse of its products, only those that it can reasonably foresee from anticipated use of the product.

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1(a) Intended Use: This product is not intended for use by children age 12 and under. Check the Intended Use information for this product at wtb.com/manuals to make sure this product is compatible with how you intend to use it. Also please check our website to make sure you have the most current version of the instructions for this product. If you have any questions or doubts, check with your WTB dealer or contact WTB.

⚠WARNING Understand your bike and its intended use. Choosing the wrong component for your intended purpose can be hazardous. Also read, in its entirety, the first WARNING of the Maintenance and Repair section of these instructions.

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⚠WARNING

Determine the Intended Use of your WTB Rim BEFORE you ride it.

Intended Use as used in this Manual is influenced by several factors:

- Rim Size Designation. See Section 1(c);
- Rim / Tire Compatibility. See Section 1(f);
- Bike / Brake Compatibility. See Section 1(g);
- ASTM Intended Use Classification. See Section 1(b); and
- Industry Standard for Intended Use. See Section 1(b).

Intended Use is not the same as "Rim Size." See also Section 1(c), Rim Size Designation for WTB rim sizes.

Information used to determine Intended Use of WTB Rims is contained in the WTB TCS Rim Summary Chart for Model Years 2023 and older in Section 1(b) below.

1(b) WTB TCS Rim Summary Chart

The Common Bicycle Type and Industry Standard Category Name for Intended Use, ASTM Intended Use Classifications, Brake Type, Rim Size Designation, Rim Bead Seat Diameter, and Inner Rim Width as set forth by ISO and ETRTO are integrated below for WTB TCS Rims:

Bicycle Type	WTB Rim Name	WTB Rim Std.	Industry Standard Name for Intended Use	ASTM Intended Use Classification	Brake Type	ISO / ETRTO Rim Size Designation	Rim Bead Seat Diameter	Inner Rim Width (Width in mm)	TCS Rim Tape Width (in mm)
Mountain 26" and under									
	KOM Team i25 16"	TCS	Cross Country	Condition 3	Disc	305 x 25c	305	25	30
	KOM Team i25 20"	TCS	Cross Country	Condition 3	Disc	407 x 25c	407	25	30
	KOM Team i25 24"	TCS	Cross Country	Condition 3	Disc	507 x 25c	507	25	30
	KOM Team i30 16"	TCS	Cross Country	Condition 3	Disc	305 x 30c	305	30	35
	KOM Team i30 20"	TCS	Cross Country	Condition 3	Disc	407 x 30c	407	30	35
	KOM team i30 24"	TCS	Cross Country	Condition 3	Disc	507 x 30c	507	30	35
	KOM Team i30 26"	TCS	Cross Country	Condition 3	Disc	559 x 30c	559	30	35
	ST i25 16"	TCS	Cross Country	Condition 3	Disc	305 x 25c	305	25	30
	ST i25 20"	TCS	Cross Country	Condition 3	Disc	407 x 25c	407	25	30
	ST i25 24"	TCS	Cross Country	Condition 3	Disc	507 x 25c	507	25	30
	ST i30 16"	TCS	Cross Country	Condition 3	Disc	305 x 30c	305	30	35
	ST i30 20"	TCS	Cross Country	Condition 3	Disc	407 x 30c	407	30	35
	ST i30 24"	TCS	Cross Country	Condition 3	Disc	507 x 30c	507	30	35
	SX25 26"	Tube Type	Cross Country	Condition 3	Disc	559 x 25c	559	25	30
Mountain 27.5"									
	CZR i30 27.5"	TCS	Downhill	Condition 5	Disc	584 x 30c	584	30	35
	EZR i25 27.5"	TCS	Cross Country	Condition 3	Disc	584 x 25c	584	25	30
	EZR i27 27.5"	TCS	Cross Country	Condition 3	Disc	584 x 27c	584	27	32
	KOM Light i25 27.5"	TCS	Cross Country	Condition 3	Disc	584 x 25c	584	25	30

	KOM Light i27 27.5"	TCS	Cross Country	Condition 3	Disc	584 x 27c	584	27	32
	KOM Light i30 27.5"	TCS	Cross Country	Condition 3	Disc	584 x 30c	584	30	35
	KOM Light i35 27.5"	TCS	Cross Country	Condition 3	Disc	584 x 35c	584	35	40
	KOM Light i40 27.5"	TCS	Cross Country	Condition 3	Disc	584 x 40c	584	40	45
	KOM Light i45 27.5"	TCS	Cross Country	Condition 3	Disc	584 x 45c	584	45	50
	KOM Light i76 27.5"	TCS	Cross Country	Condition 3	Disc	584 x 76c	584	76	81
	KOM Tough i25 27.5"	TCS	Cross Country	Condition 3	Disc	584 x 25c	584	25	30
	KOM Tough i27 27.5"	TCS	Cross Country	Condition 3	Disc	584 x 27c	584	27	32
	KOM Tough i30 27.5"	TCS	Trail/Enduro	Condition 4	Disc	584 x 30c	584	30	35
	KOM Tough i35 27.5"	TCS	Trail/Enduro	Condition 4	Disc	584 x 35c	584	35	40
	KOM Tough i40 27.5"	TCS	Trail/Enduro	Condition 4	Disc	584 x 40c	584	40	45
	KOM Tough i45 27.5"	TCS	Trail/Enduro	Condition 4	Disc	584 x 45c	584	45	50
	HTZ i23 27.5"	TCS	Cross Country	Condition 3	Disc	584 x 23c	584	23	28
	HTZ i27 27.5"	TCS	Trail/Enduro	Condition 4	Disc	584 x 27c	584	27	32
	HTZ i30 27.5"	TCS	Trail/Enduro	Condition 4	Disc	584 x 30c	584	30	35
	HTZ i35 27.5"	TCS	Trail/Enduro	Condition 4	Disc	584 x 35c	584	35	40
	HTZ i40 27.5"	TCS	Trail/Enduro	Condition 4	Disc	584 x 40c	584	40	45
	HTZ Trail i23 27.5"	TCS	Cross Country	Condition 3	Disc	584 x 23c	584	23	28
	HTZ Trail i25 27.5"	TCS	Cross Country	Condition 3	Disc	584 x 25c	584	25	30
	HTZ Trail i27 27.5"	TCS	Trail/Enduro	Condition 4	Disc	584 x 27c	584	27	32
	HTZ Trail i30 27.5"	TCS	Trail/Enduro	Condition 4	Disc	584 x 30c	584	30	35
	HTZ Trail i35 27.5"	TCS	Trail/Enduro	Condition 4	Disc	584 x 35c	584	35	40
	HTZ Trail i40 27.5"	TCS	Trail/Enduro	Condition 4	Disc	584 x 40c	584	40	45
	KOM Trail i27 27.5"	TCS	Cross Country	Condition 3	Disc	584 x 25c	584	27	30
	KOM Trail i30 27.5"	TCS	Trail/Enduro	Condition 4	Disc	584 x 27c	584	30	32
	KOM Trail i35 27.5"	TCS	Trail/Enduro	Condition 4	Disc	584 x 30c	584	35	35
	KOM Team i25 27.5"	TCS	Cross Country	Condition 3	Disc	584 x 35c	584	25	40
	KOM Team i27 27.5"	TCS	Cross Country	Condition 3	Disc	584 x 40c	584	27	45
	KOM Team i30 27.5"	TCS	Cross Country	Condition 3	Disc	584 x 30c	584	30	35
	KOM Team i35 27.5"	TCS	Cross Country	Condition 3	Disc	584 x 35c	584	35	40
	KOM Team i40 27.5"	TCS	Cross Country	Condition 3	Disc	584 x 40c	584	40	45
	ST Tough i30 27.5"	TCS	Trail/Enduro	Condition 4	Disc	584 x 30c	584	30	35
	ST Tough i35 27.5"	TCS	Trail/Enduro	Condition 4	Disc	584 x 35c	584	35	40
	ST i25 27.5"	TCS	Cross Country	Condition 3	Disc	584 x 25c	584	25	30
	ST i27 27.5"	TCS	Cross Country	Condition 3	Disc	584 x 27c	584	27	32
	ST i30 27.5"	TCS	Cross Country	Condition 3	Disc	584 x 30c	584	30	35
	ST i35 27.5"	TCS	Cross Country	Condition 3	Disc	584 x 35c	584	35	40
	ST i40 27.5"	TCS	Cross Country	Condition 3	Disc	584 x 40c	584	40	45

	ST i45 27.5"	TCS	Cross Country	Condition 3	Disc	584 x 45c	584	45	50
	ST i76 27.5"	TCS	Cross Country	Condition 3	Disc	584 x 76c	584	76	81
	SX25 27.5"	Tube Type	Cross Country	Condition 3	Disc	584 x 25c	584	25	30
Mountain 29"									
	CZR i30 29"	TCS	Downhill	Condition 5	Disc	622 x 30c	622	30	35
	EZR i25 29"	TCS	Cross Country	Condition 3	Disc	622 x 25c	622	25	30
	EZR i27 29"	TCS	Cross Country	Condition 3	Disc	622 x 27c	622	27	32
	KOM Light i25 29"	TCS	Cross Country	Condition 3	Disc	622 x 25c	622	25	30
	KOM Light i27 29"	TCS	Cross Country	Condition 3	Disc	622 x 27c	622	27	32
	KOM Light i30 29"	TCS	Cross Country	Condition 3	Disc	622 x 30c	622	30	35
	KOM Light i35 29"	TCS	Cross Country	Condition 3	Disc	622 x 35c	622	35	40
	KOM Light i40 29"	TCS	Cross Country	Condition 3	Disc	622 x 40c	622	40	45
	KOM Light i45 29"	TCS	Cross Country	Condition 3	Disc	622 x 45c	622	45	50
	KOM Tough i25 29"	TCS	Cross Country	Condition 3	Disc	622 x 25c	622	25	30
	KOM Tough i27 29"	TCS	Cross Country	Condition 3	Disc	622 x 27c	622	27	32
	KOM Tough i30 29"	TCS	Trail/Enduro	Condition 4	Disc	622 x 30c	622	30	35
	KOM Tough i35 29"	TCS	Trail/Enduro	Condition 4	Disc	622 x 35c	622	35	40
	KOM Tough i40 29"	TCS	Trail/Enduro	Condition 4	Disc	622 x 40c	622	40	45
	KOM Tough i45 29"	TCS	Trail/Enduro	Condition 4	Disc	622 x 45c	622	45	50
	HTZ i23 29"	TCS	Cross Country	Condition 3	Disc	622 x 23c	622	23	28
	HTZ i27 29"	TCS	Trail/Enduro	Condition 4	Disc	622 x 27c	622	27	32
	HTZ i30 29"	TCS	Trail/Enduro	Condition 4	Disc	622 x 30c	622	30	35
	HTZ i35 29"	TCS	Trail/Enduro	Condition 4	Disc	622 x 35c	622	35	40
	HTZ i40 29"	TCS	Trail/Enduro	Condition 4	Disc	622 x 40c	622	40	45
	HTZ Trail i23 29"	TCS	Cross Country	Condition 3	Disc	622 x 23c	622	23	28
	HTZ Trail i25 29"	TCS	Cross Country	Condition 3	Disc	622 x 25c	622	25	30
	HTZ Trail i27 29"	TCS	Trail/Enduro	Condition 4	Disc	622 x 27c	622	27	32
	HTZ Trail i30 29"	TCS	Trail/Enduro	Condition 4	Disc	622 x 30c	622	30	35
	HTZ Trail i35 29"	TCS	Trail/Enduro	Condition 4	Disc	622 x 35c	622	35	40
	HTZ Trail i40 29"	TCS	Trail/Enduro	Condition 4	Disc	622 x 40c	622	40	45
	KOM Trail i27 29"	TCS	Cross Country	Condition 3	Disc	622 x 25c	622	27	30
	KOM Trail i30 29"	TCS	Trail/Enduro	Condition 4	Disc	622 x 27c	622	30	32
	KOM Trail i35 29"	TCS	Trail/Enduro	Condition 4	Disc	622 x 30c	622	35	35
	KOM Team i25 29"	TCS	Cross Country	Condition 3	Disc	622 x 35c	622	25	40
	KOM Team i27 29"	TCS	Cross Country	Condition 3	Disc	622 x 40c	622	27	45
	KOM Team i30 29"	TCS	Cross Country	Condition 3	Disc	622 x 30c	622	30	35
	KOM Team i35 29"	TCS	Cross Country	Condition 3	Disc	622 x 35c	622	35	40
	KOM Team i40 29"	TCS	Cross Country	Condition 3	Disc	622 x 40c	622	40	45
	ST Tough i30 29"	TCS	Trail/Enduro	Condition 4	Disc	622 x 30c	622	30	35

	ST Tough i35 29"	TCS	Trail/Enduro	Condition 4	Disc	622 x 35c	622	35	40
	ST i25 29"	TCS	Cross Country	Condition 3	Disc	622 x 25c	622	25	30
	ST i27 29"	TCS	Cross Country	Condition 3	Disc	622 x 27c	622	27	32
	ST i30 29"	TCS	Cross Country	Condition 3	Disc	622 x 30c	622	30	35
	ST i35 29"	TCS	Cross Country	Condition 3	Disc	622 x 35c	622	35	40
	ST i40 29"	TCS	Cross Country	Condition 3	Disc	622 x 40c	622	40	45
	ST i45 29"	TCS	Cross Country	Condition 3	Disc	622 x 45c	622	45	50
	SX25 29"	Tube Type	Cross Country	Condition 3	Disc	622 x 25c	622	25	30

For previous model year WTB rims see WTB TCS Rim Summary Chart.

Where possible, in addition to industry standard descriptions, this WTB Rim User Manual references American Society for Testing and Materials ("ASTM") Standard Classifications for Bicycle Usage to describe Intended Use, along with Common Terms. See ASTM Designation F 2043-09 at www.astm.org

For clarification, WTB defines the following terms:

- Cross Country. ASTM Condition 3. Cross Country riding is focused as much on climbing as it is descending. This style of riding does not include technical terrain and/or jumps. Cross Country bikes are hardtails or short-travel full suspension bikes set up as minimally as possible to save weight. Riders do not wear protective gear (only helmets).
- Trail. ASTM Condition 4. Trail (also known as All Mountain) is the most often used term in mountain biking. Trail riding encompasses any and all conditions in mountain biking. Trail bikes are generally full suspension bikes with 4- to 6-inches of travel and they're built to handle Cross Country climbs, technical terrain and jumps.
- Enduro. ASTM Condition 4. Enduro is a style of mountain biking that involves excessive speed, big jumps and very technical terrain. Riders in this category are most concerned with speed down highly demanding and technical natural and man made terrain. Enduro bikes are generally full suspension bikes with 5- to 7-inches of travel.
- Freeride / Bike Park. ASTM Condition 4. Freeride is a style of mountain biking that involves high speeds, jumps, drops, slow speed maneuvering, skinny wood bridge riding, and air-based acrobatics. Man made and highly technical natural terrain are ridden. Freeride and bike park bikes tend to be full suspension bikes with between 6 and 8 inches of travel with priority put toward durability and ability to descend with somewhat of an ability to climb.
- Downhill. ASTM Condition 4. Downhill is often associated with racing and involves terrain-specific bikes on bike-specific trails. This category is most commonly found at lift-access bike parks that feature big jumps, excessive speed and technical terrain. Downhill bikes are full suspension bikes with 7- to 10-inches of travel and built for descending without concern for climbing. Riders wear protective gear (full face helmets and pads).
- Pavement. ASTM Condition 1. The pavement category can be called comfort, hybrid, city or trekking. This riding includes smooth or paved surfaces, on city streets as well as designated bike paths. Pavement riding does not include jumps of any kind, technical terrain or excessive speed.
- MTB/ATB. ASTM Condition 2. The MTB/ATB category involves non-technical terrain and moderate speeds on unpaved surfaces and gravel roads. This riding is often performed on entry-level mountain bikes or cyclocross bikes outfitted with offroad-capable tires.

If you would like to read a summary of the ASTM F2043 - 09 Standard Classification for Bicycle Usage please visit this link http://www.astm.org/Standards/F2043.htm You will need to purchase the complete standard from ASTM.

1(c) WTB Rim Size Designation

To identify Rim Size, WTB follows ETRTO (European Tire and Rim Technical Organization, www.etrto.org) and ISO (International Standards Organization, www.iso.org) definitions and standards, including "Rim Size Designation."

Mountain 26" bikes use 559mm bead seat diameter rims, which are often referred to as 26" or "Mountain Bike" rims. The 26" refers to a traditional measurement based on the outside diameter of a historical tire inflated on an undefined matching rim. DO NOT USE THE 26" REFERENCE TO DETERMINE THE RIM SIZE DESIGNATION. ALSO DO NOT USE THE 26" REFERENCE FOR TIRE SIZE DESIGNATION OR RIM / TIRE COMPATABILITY.

Mountain 27.5" or 650b bikes use 584mm bead seat diameter rims, which are often referred to as 27.5" or "650b" rims. DO NOT USE THE 27.5" NOR 650b REFERENCE TO DETERMINE THE RIM SIZE DESIGNATION. ALSO DO NOT USE THE 27.5" NOR 650b REFERENCE FOR TIRE SIZE DESIGNATION OR RIM / TIRE COMPATABILITY.

Mountain 29" bikes use 622mm bead seat diameter rims, which are often referred to as 29" or "29er" rims. The 29" refers to a traditional measurement based on the outside diameter of a historical tire inflated on an undefined matching rim. DO NOT USE THE 29" REFERENCE TO DETERMINE THE RIM SIZE DESIGNATION. ALSO DO NOT USE THE 29" REFERENCE FOR TIRE SIZE DESIGNATION OR RIM / TIRE COMPATABILITY.

The (1) Rim Bead Seat Diameter and (2) Inner Rim Width are the two measurements that define Rim Size or Rim Size Designation. Both numbers are necessary to determine correct rim and tire compatibility. They are measured as shown below.

1(c)(1) Rim Bead Seat Diameter

ISO/ETRTO set forth the measuring convention for rim diameter or Rim Bead Seat Diameter. In ISO/ETRTO, rims are grouped by their Bead Seat Diameter measurement. Rim Bead Seat Diameter is measured at the diameter line where the tire bead sits on the Inner Rim Profile. This Rim Bead Seat Diameter is often referred to as the D1 Dimension when referencing specific areas of a rim's inner profile in ISO and ETRTO.

It is very difficult to accurately measure the Rim Bead Seat Diameter pursuant to ISO/ETRTO. Special tools are required. Measurement methods are outlined in ISO and ETRTO. The information in the Summary Chart in Section 1(b) Intended Use above, can help you determine the Rim Bead Seat Diameter of WTB Rims.

WTB produces rims with three different Rim Bead Seat Diameters:

ISO/ETRTO Rim Bead Seat Diameter	Common Use	Common Reference Term
1. 559 mm	Mountain bike Comfort bike Cruiser Bike	26"
2. 584 mm	Mountain bike	650B / 27.5"

3.	622 mm	Includes road, trekking, hybrid and city bikes	700C
		29” Mountain Bike	29”, 29er
		Cyclocross / Gravel	Cyclocross / Gravel

1(c)(2) Inner Rim Width
The “Inner Rim Width” Size is shown below as the width between the two Rim Sidewall Crochet “hooks.” The Rim Sidewall Crochets are the “hooks” on the inside of the rim sidewall.

All WTB Rims are Crochet type rims as defined by ISO and ETRTO. All WTB Rims can be measured in the location shown in the diagram below to determine the ISO and ETRTO Inner Rim Width.

1(c)(3) Rim Size Designation Once you know the ISO/ETRTO Rim Bead Seat Diameter and Inner Rim Width of your WTB Rim you have the key measurements to determine the Rim Size Designation:

- The first number in the ISO/ETRTO form is the Rim Diameter.
- The second number, after “x” is the Inner Rim Width.

FOR EXAMPLE: A rim with a Rim Size Designation of 622 x 24C is a rim with a 622 Rim Bead Seat Diameter and a 24mm Inner Rim Width. The “C” designates that the rim is a Crochet type rim.

RIM SIZE DESIGNATION IS CRITICAL FOR DETERMINING RIM/TIRE COMPATIBILITY. Additionally, Rim Size Designation can be instructive for Intended Use. For Intended Use see Section 1(b), WTB Rim Summary Chart.


"Inner Rim Width"
"Tire Section Width"
D1 Measurement Location
Tire
Bead
Diameter
"D1"
Tire
Bead
Seat
Diameter
("Rim Size
Designation" Diameter)
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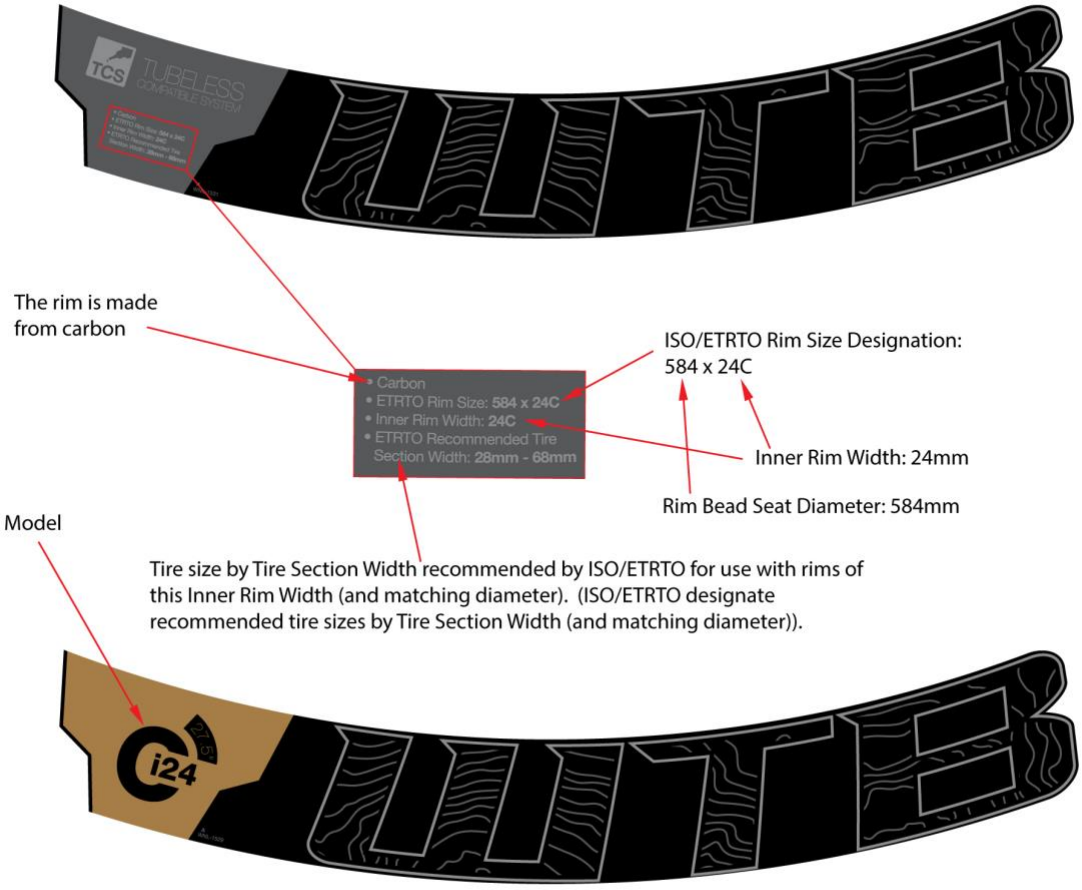
1(c)(4) Finding the WTB Rim Size Designation with the WTB Rim Sticker

(a) Model Year 2010 and newer WTB Rim Stickers identify each WTB Rim's Bead Seat Diameter, Inner Rim Width and Rim Size Designation:

Example: WTB Ci24 27.5" Rim Sticker



* See also Section 1(b) WTB Rim Summary Chart.

On the WTB Ci24 27.5" rim sticker shown above, the Rim Bead Seat Diameter is 584mm and the Inner Rim Width is 24mm, meaning this is a "27.5" / 650b" Mountain Bike Rim" with a 24mm Inner Rim Width and a 584mm Bead Seat Diameter. The Rim Size Designation is 584 x 24C.
RI2-0410 – CHANGE, NO LONGER VALID

1(d) Selecting the Correct WTB TCS Rim Tape Based on WTB TCS Inner Rim Width

Use only the correct size rim tape width, thickness and material on WTB Rims. The rim tape must be chosen to guarantee the complete covering of all spoke holes and spoke heads during use, not slip from side to side in the rim or slip around the rim's diameter, and permit proper mounting, fit and seating of the tire. Dirt, moisture, old sealant and tire mounting technique can contribute to the slippage or movement of some types of rim tape. WTB only recommends WTB TCS rim tape be used with WTB TCS rims.

When determining the appropriate TCS rim tape to use with TCS rims:

1. Locate and determine the inner rim width of the TCS rim in question. See Figure 1(c)(4) regarding WTB rim stickers to help locating the inner rim width description.
2. Add 5mm to the specified inner rim width. For example, A Frequency i23 27.5" Rim has an internal rim width of 23mm. Adding 5mm to the 23mm inner rim width results in the appropriate width of TCS rim tape required, 28mm in this case.
3. Select the appropriate TCS rim tape based on the sum of the inner rim width plus 5mm. See WTB TCS Rim Summary chart to find appropriate tape width for individual TCS rim models.

⚠WARNING Failure to use the correct width rim tape on your WTB wheel, or improper installation of any rim tape can result in improper seating of the tire bead in the rim, which may lead to the tire coming off the rim while riding and or to sudden tire deflation while riding. Failure to make sure that the rim tape covers all spoke holes completely and that it stays in place during use may also lead to the tire coming off the rim while riding and/or sudden tire deflation. Sudden tire deflation (or tire coming off while riding) can cause loss of control, resulting in serious injury or death. If you have any questions about the correct size, material, thickness or fitting of the rim tape, check with your WTB dealer or contact WTB.

RS1-0410 NEEDS TO BE UPDATED NOW

1(e) Installing WTB TCS Rim Tape on a WTB TCS Rim with a WTB TCS Valve

First:

Ensure that the rim is clean. All sealant remnants, old tape fragments, and other debris **need** be removed from the rim's inner rim well, On-Ramp, Bead Bump, Bead Shelf, and Crotchet or Bead Hook area. See illustration below for clarification of this area. Failure to do so could result in improperly seated tire beads, potentially resulting in deflation, the tire becoming unseated from the rim or being separated from the rim, loss of tire, loss of control, a crash, and / or death. If cleaning products have been used to ensure the inner surface of the rim is clean, ensure that the products used do not leave behind a slippery or slick residue and that the cleaning products have had more than ample time to dry. Rubbing alcohol is recommended.

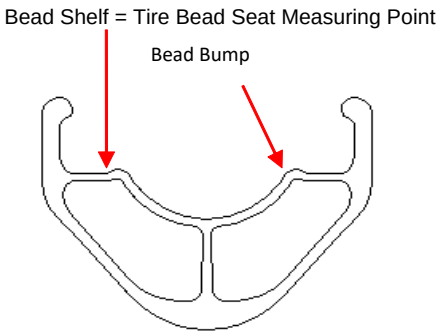
Double check tape width / rim width correlation. Remember that TCS rim tape needs to be 5mm wider than the inner rim width (inner rim width is found on the WTB Rim Size Designation of a WTB Rim Sticker.)

Inspect the TCS rim to ensure integrity and proper functionality. Visually search for any dents, dings, scratches, or cracks on both the TCS rim's external surface as well as internal surface. If there is any doubt as to the integrity or functionality of the rim, take it to a WTB Dealer or qualified mechanic to assess the state of the rim. Visually inspect each bead hook, ensuring no wavering or deviation from a straight and true line when eyeing the bead hook / crotchet hook holding the rim at eye level.

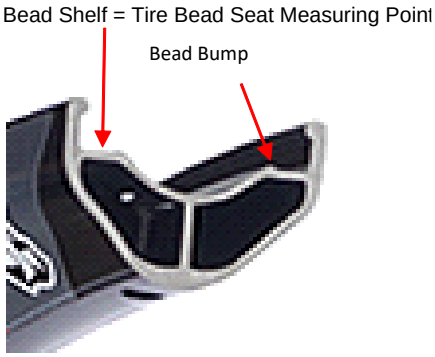
Applying the Tape:

TCS Rim

(Rim Cross Section Profile Drawing)



(Rim Cross Section Profile Actual Picture)



Items Required:

- WTB TCS Rim
- WTB TCS Rim tape (5mm wider than inner rim width of WTB TCS rim)
- Sharp razor blade, X-Acto knife or equivalent style knife, or small sharp pocket knife
- Scissors or appropriate tape cutting device
- WTB TCS Brass or Alloy Valve
- Non metal, tire lever with rounded end
- Shop rag

Steps:

1. Remove the appropriate width WTB TCS Rim Tape from its packaging making sure not to damage the TCS tape in the process. Double check that TCS tape is 5mm wider than the inner rim width of the

TCS rim (Model Year 2012 and newer WTB TCS rims, with the exception of Laser TCS rims, adhere to a naming convention specifying inner rim width – for example, a Frequency i23 29" rim has an inner rim width of 23mm as stated by the i23 in the naming convention – other examples include KOM i21 and Asym i29, featuring 21mm and 29mm inner rim widths respectively. For 2011 TCS rims, please see 1(b) WTB TCS Rim Summary Chart.). Ensure that the end of your WTB TCS tape is cleanly cut with a noticeable level of adhesiveness.

2. You may want to put something down over the floor or surface where you will be applying the rim tape. A towel or blanket will help prevent the crochet hook / bead hook area from being damaged when pressed against a concrete or hard floor.

3. Find the valve hole on your WTB TCS rim. On some WTB TCS rims, the valve hole will be clearly identified by a sticker, with others, when viewing from the inside trough of the rim, look for where three holes are more closely spaced together than any other part of the rim, with the center hole being substantially more round and larger than the two adjacent holes. Once found and identified, resting the rim perpendicularly on the ground in front of you, orient the valve hole so that it is in the tallest, highest, top position on the rim. See photo below for reference.

The valve hole in the WTB TCS rim is easily identified by closer spacing of three holes in the rim as seen above.

4. Pull roughly one foot of WTB TCS rim tape off of the roll and with your left hand, adhere the end of the tape roughly four inches to the left of the valve hole, holding the remaining roll with your right hand, ensuring that the tape is very taught.

Start to apply WTB TCS tape roughly four inches before valve hole in WTB TCS rims.

5. Place your left thumb firmly over the end of the WTB TCS tape adhered within the rim's trough. While maintaining pressure with your left thumb over the tape's end, in a tight and taught manner, pull roughly two feet of rim tape free from the roll with your right hand moving outward away from your body, in the same plane that the rim's trough extends outward and away from the tape's end. If done with appropriate force and tension, the tape should make buckling sounds as it becomes unstuck from the remaining roll.

Ensure that you have a firm grip on the tape's end as you apply ample tension when setting WTB TCS rim tape into the WTB TCS rim trough.

6. Begin to adhere the unstuck TCS tape to the central trough, taking care to ensure the tape maintains its tension and is applied in a taught manner while moving the tape in a downward motion with the right hand, pressing in toward the central trough, conforming to the falling away circumference of the rim, and taking care to line the width of the tape evenly within the crotchet hooks / bead hook area of the rim's inner well.

7. As you reach the roll of tape in your right hand, having now adhered the WTB TCS rim tape to your WTB TCS rim, move your left thumb now to the junction of the WTB TCS rim tape adhered to the WTB TCS rim and the remaining roll of WTB TCS rim tape. Firmly press your left thumb into the stuck tape,

ensuring that pressure is applied to the rim's inner well and trough. In the same fashion as before mentioned in Step 6, pull roughly two more feet of WTB TCS rim tape free from the remaining WTB TCS rim tape roll, taking care to ensure you are keeping the freed tape taught with even and deliberate tension.

8. Continue applying WTB TCS rim tape to the WTB TCS rim following the same instructions as outlined and followed in steps 5 through 7 above until reaching the starting point, located just before that rim's valve.

Approaching where the taping began, continue taping roughly 4 inches beyond the valve hole.

9. Having reached where the taping began, roughly four inches before the valve hole, continue taping with one last taught piece extending roughly four inches past the valve hole, double layering the tape. Ensure that this last piece is quite taught and applied firmly against the existing piece of tape. Take care to ensure that there are no air bubbles or bumps on this last piece of tape, smoothing it out by pressing one's thumb or finger deliberately along the trough toward the remaining roll of tape past the valve hole.

    a. Exercise caution moving your thumb or finger along the taped rim trough toward the remaining roll of tape. Rim tape can quickly heat up when pressure and friction are applied so if heat build up is felt, make sure to remove your thumb or finger to avoid injury or discomfort.

10. Once the rim tape has been smoothly and firmly pressed against the rim and there is no additional slack between applied tape and remaining roll, cut the rim tape free from the remaining roll. The rim tape should have passed roughly four inches beyond the valve hole area and should be firmly applied. You will not be able to see the valve hole as it will have already been taped over but you will have a general idea of where it is based on taping over the origin of tape application.

The darker color seen in the upper portion of the WTB TCS rim tape to the left signifies the portion that was double layered near the valve hole of the WTB TCS rim.

11. Starting at the rim hole, use the rounded smooth side of a tire lever – this would be the backside of the hook or portion that is used to remove a tire bead (see photo below for clarification,) and press firmly into the bottom of the rim trough, ensuring that the WTB TCS Rim tape is firmly adhere to the bottom base of the trough within the WTB TCS rim. Start at the valve hole of the WTB TCS rim and work your way around, following the same direction as the tape was applied, ensuring that if there are any bubbles or imperfections, they are worked out and along in the same direction as the tape was applied. When using a tire lever, make sure not to damage nor tear the rim tape by checking your work and progress immediately after starting to slide the lever across the WTB TCS rim tape's surface.
    a. Alternatively, you may use your thumb or finger with the use of a shop rag to protect your thumb or finger. Again, it is important to note that heat may build up when pressing against the WTB TCS rim tape – if excessive heat or discomfort is observed, remove your finger or thumb from the rim's surface and stop the process immediately.

Using the smooth end of a tire lever to firmly press WTB TCS tape into place as described in Step 12

12. Next, move to the crotchet / bead hook area. Use either the smooth butt end of a tire lever with care not to tear nor gouge the WTB TCS rim tape, or use your finger or thumb with a shop rag, paying attention and careful notice to heat build up. Push gently yet evenly against the rim's wall, ensuring that force is being applied both externally from the rim's center outward and well as downward and in the direction that the rim tape was applied. Start at the valve hole and work your way around the rim, following the direction in which the tape was applied. Once finished, move to the other crotchet / bead hook and being the process over again.

⚠WARNING Pocketknives, razors, X-Acto knives or equivalent sharp instruments need to be handled with the utmost care and caution as these aforementioned instruments are extremely dangerous and may result in direct bodily harm to the user or to a bystander. Do not use nor perform any of the following steps if you are not experienced, comfortable, or confident in your ability and performance with a pocketknife, razor, X-Acto knife or equivalent type of instrument or device. Instead take your taped rim to a qualified mechanic to perform the rest of the steps in this section.

13. Take out your small, sharp razor blade, X-Acto knife or equivalent device, or small, sharp pocket knife. Locate the rim's valve hole. Looking closely at your WTB TCS taped WTB TCS rim, you should be able to see darker circles dotting the rim's inner well, indicating spoke holes as well as the valve hole. Finding the tightest grouping of three darker circles should indicate your valve hole, double checking the outside surface of the rim should corroborate this.
    a. Alternatively, a sharpened spoke, handled cautiously, or sharp device as shown below may be used to create a small starter hole, as shown in the picture. Using the WTB TCS valve, you can widen your starter hole and then set the WTB TCS valve into place through the valve hole in the WTB TCS rim.

14. WTB TCS rim tape is composed of many fibers arranged lengthwise along rolls of WTB TCS tape. Holding the rim as shown below, so that the fibers are running lengthwise, position your small, sharp blade so that it is at a 45 degree angle to the rim well's surface and so that the blade is directly above the topmost portion of that valve hole. If the valve hole were a 12 hour clock, this would be the 12 o'clock position. Begin your incision, pressing into the edge of the valve hole at 45 degrees and with enough force to make direct and positive contact with the metallic circumference and circular edge of the valve hole. Press evenly as you cut from 12 o'clock downward, maintaining the 45 degree angle, toward 6 o'clock. You will initially be cutting with the grain, then into the grain as you near 2 – 3 o'clock, then once again with the grain as you near 6 o'clock. Once reaching 6 o'clock, stop.

Carefully making valve cut with a small pocketknife.

15. Start your cut again, this time moving in a counter clockwise direction. You will once again be cutting from 12 o'clock to 6 o'clock and maintaining a 45 degree angle with the blade firmly pressed against the rim's valve hole circumference. If done correctly, and with enough force, a small sliver of the valve hole's external alloy should follow the blade in its path from 12 o'clock to 6 o'clock. Stop once your blade has reached 6'oclock.

16. Inspect your freshly cut valve hole. You should be able to clearly see the hole's silver circumference signifying alloy material has been cut out in making your cut. Additionally, the valve hole cut should not have any fragments of rim tape nor interferences infringing upon a clean, circular circumference cut. Looking closely, there should not be any gaps nor voids between the edge of the cut and the rim tape.
    a. If there are noticeable gaps or voids, you may attempt to work them out of the tape, moving from within the rim's inner rim well toward the valve hole cut, working any bubbles or voids out, however any sign of gaps, voids, or bubbles may be indicative of an imperfect cut and may require beginning the WTB TCS rim tape application on a WTB TCS rim process over again.

17. If you do not have a clean cut, you may attempt to further rectify your less than perfect cut though it is not advisable as this is often indicative of a not tight enough tape application, resulting in an imperfect seal. It is recommended that the taping process be restarted if this is the case.

18. Upon verification of a clean valve hole, remove your WTB TCS valve from its packaging being careful not to damage it in the process. Unscrew the plastic top cap of the WTB CS valve as well as its washer. Place the WTB TCS valve through the WTB TCS rim's taped inner wall through the valve hole cut you have made. Ensure that the rubberized conical plug at the bottom of the WTB TCS valve is now visible within the WTB TCS rim's inner well. Take the washer and thread it onto the exposed threads of the WTB TCS valve, now visible from the outside surface of the rim as seen in the photo illustration below.

Conical plug of WTB TCS valve visible within WTB TCS rim's inner rim profile.

19. Ensure the washer is tightly fastened against the external portion of the WTB TCS rim, firmly threading onto the WTB TCS valve.

20. You have successfully completed taping a WTB TCS rim with WTB TCS Rim Tape and a WTB TCS Valve.

⚠WARNING 1(f) Rim / Tire Compatibility under ISO and ETRTO

Both ISO and ETRTO have recommendations for rim and tire compatibility. ETRTO has “Approved Rim Contours” for compatibility with specific Tire Section Widths. ISO has “Recommended Rims” for specific Tire Section Widths (referred to in ISO as “Nominal Section Width”).

Do not use tube-type tires without tubes with TCS rims. Tube-type tires are not subject to the same standards as tubeless tires, and are not designed to be run tubeless. Failure to use correct tires and tire beads with TCS rims can result in a sudden loss of air pressure and or a tire coming off a rim during riding resulting in serious injury or death.

For Rim / Tire compatibility information please see the WTB Rim / Tire Compatibility Manual and the WTB Rim Technical Manual at wtb.com/manuals.

See chart below for approved ETRTO Tire Section Widths and ISO Recommended Rims for Nominal Section Widths as well as suggested, additional recommended rim widths for tires with nominal section widths of 64, 47, 70, and 72.

⚠WARNING **Please note that Section Widths 64, 67, 70 and 72 are not yet addressed by ETRTO and ISO and are purely suggested rim widths. The user may or may not use the suggested rim widths at his or her own willing and knowing volition. Any resulting actions or occurrences following the decision to adhere to WTB’s suggested rim widths are the sole liability of the end user and the end user’s judgment and bear no responsibility on WTB, Wilderness Trail Bikes, nor any of its affiliated parties nor employees.**

tire section width (nominal)	ISO 5775-1 T4 recommended rim widths "Crotchet Type"	ETRTO - M13 recommended rim widths "Crotchet Type" revised	ETRTO - M13 recommended rim widths "Crotchet Type" additional	ETRTO measuring rim width code
(rim width refers to inner - C equates to millimeters)				
16	13C	(no recommendation given)		
18	13C	13C		
20	13C	13C		
23	13C, 15C	13C, 15C		
25	13C, 15C, 17C	13C, 15C, 17C		15C
28	15C, 17C, 19C	15C, 17C, 19C		
30	(no recommendation given)	15C, 17C, 19C		
32	15C, 17C, 19C	15C, 17C, 19C		
35	17C, 19C, 21C	17C, 19C, 21C		19C
37	17C, 19C, 21C	17C, 19C, 21C, 23C		19C
40	19C, 21C, 23C	17C, 19C, 21C, 23C		19C
42	(no recommendation given)	17C, 19C, 21C, 23C, 25C		
44	19C, 21C, 23C, 25C	17C, 19C, 21C, 23C, 25C		19C
47	19C, 21C, 23C, 25C	19C, 21C, 23C, 25C, 27C		19C
50	21C, 23C, 25C	19C, 21C, 23C, 25C, 27C		19C
52	(no recommendation given)	21C, 23C, 25C, 27C, 29C		19C
54	25C	21C, 23C, 25C, 27C, 29C	31C, 33C, 35C	19C
57	25C	23C, 25C, 27C, 29C	31C, 33C, 35C	19C
60	(no recommendation given)	23C, 25C, 27C, 29C	31C, 33C, 35C, 37C, 39C	21C
62	(no recommendation given)	25C, 27C, 29C	31C, 33C, 35C, 37C, 39C	21C
64		25C, 27C, 29C, 31C, 33C, 35C, 37C, 39C, 41C, 43C, 45C		unknown
67		27C, 29C, 31C, 33C, 35C, 37C, 39C, 41C, 43C, 45C		unknown
70		27C, 29C, 31C, 33C, 35C, 37C, 39C, 41C, 43C, 45C		unknown
72		29C, 31C, 33C, 35C, 37C, 39C, 41C, 43C, 45C		unknown

Section Widths 64, 67, 70 and 72 are not yet addressed by ETRTO and ISO. Rim widths shown here are suggested. Please advise.

Tire / Rim compatibility shown here is for ETRTO option 1 and option 2 rims. **Please confirm UST recommendations**.

⚠WARNING Failure to confirm tire/rim compatibility, properly install, operate and maintain any component or accessory can result in serious injury or death.
CO1-0410

⚠WARNING WTB rims and tires are designed to fit together within the ISO/ETRTO recommendations. If you choose to use non-WTB branded tires on WTB rims or vice versa WTB cannot guarantee that they will fit as optimally as WTB branded tires and rims. In some cases the misfit between a non-WTB and WTB product could result in a sudden loss of air pressure and or a tire coming off a rim during riding resulting in serious injury or death.
CO2-0410

⚠WARNING Tires and Rims *should* be compatible, because they should be made to the same basic international standards; but WTB cannot guarantee that all manufacturers make their products in compliance with international standards. While everyone in the bicycle industry tries to work to industry accepted standards, there is no guarantee of 100% inter-brand compatibility of components. All manufacturers recommend that you do not "mix and match" brands of components, so if you do, you are on your own.
CO3-0410

⚠WARNING *If your tire goes on and off your rim with little hand mounting effort do not ride it.* That is

the sign of a possible mismatch between that particular rim and tire. If you have another brand or model of rim that is compatible with that tire's size designation, try mounting the tire on that rim to see if it is looser or tighter. If sufficiently tight then use that rim and tire together or contact WTB for assistance. A tire that fits too loose can come off the rim while riding (causing serious injuries or death) especially at air pressure approaching or below the minimum posted on the tire or under hard riding and cornering conditions.
CO4-0410

1(g) Bike/Brake Compatibility

WTB sells different rims for disc brake and rim brake applications, and the two are **not** interchangeable. Check the WTB Rim Summary Chart in Section 1(b) above to make sure your WTB Rim is compatible with your Intended Use. If you have any questions or doubts, check with your WTB dealer or contact WTB.

- **Disc Brakes** consist of a metal disc attached to the wheel hub that rotates with the wheel. Calipers are attached to the frame or fork along with pads that squeeze together on the DISC.

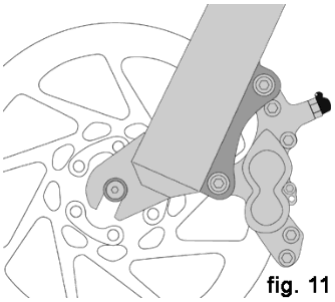


fig. 11

- **Rim Brakes** consist of a pair of brake arms that carry brake pads which move inwards and press on the RIM of the wheel.

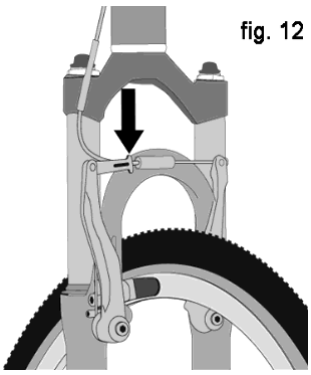


fig. 12

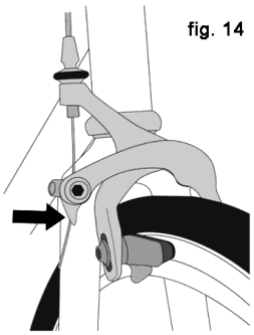


fig. 14

The warnings are different for Disc Brake and Rim Brake rims. Read the warning label on your WTB rim and always follow the directions.

(1) Disc Brake Warning Sticker

Warning:

- DISC BRAKE ONLY

Explanation:

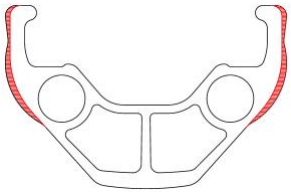
- Only use these rims with disc brakes. DO NOT use these rims with rim brakes.

  WTB rims designed for use with disc brakes have a "Disc Brake Only" warning label (above) and a convex shape on the rim's sidewall that does not work properly with rim brakes.

Some high end WTB disc brake rims have a raised "crescent moon" of extra material on the outside of the rim, which would make rim brake application more dangerous. This adds material to the exterior of a rim braking

surface. WTB refers to this feature as “Unbendium Bulge™.” This is a proprietary WTB Rim feature. The Unbendium Bulge feature is found on 2011Laser TCS, all Frequency Team and Race rims, Frequency CX rims, and all ST rims – both pinned and sleeved.

Drawing of Rim Profile Cross Section with Unbendium Bulge

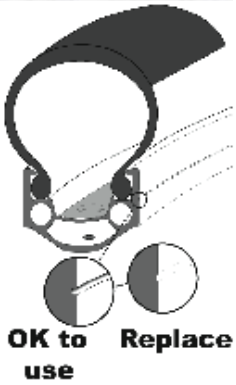


Unbendium Bulge

Actual Photo of Rim Profile Cross Section with Unbendium Bulge

(2) Rim Brake Warning Sticker

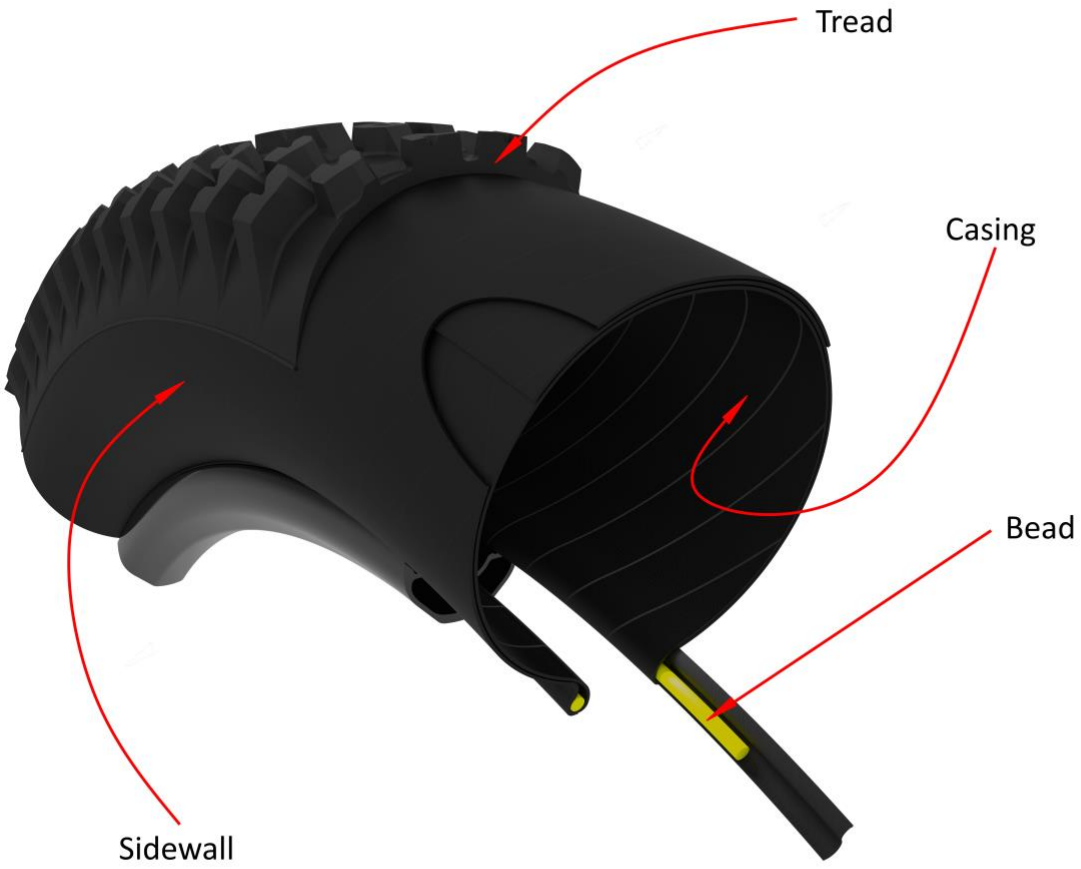
The Rim Brake Warning Label does not have the “Disc Brake Only” warning.
Rims with a Rim Brake Warning Label can be used with either caliper or disc brakes.



WTB Rim Brake Rims have a flat sidewall for brake pad engagement. There is also a groove in the sidewall braking surface that, when it begins to disappear or wears off at any point, shows that the rim needs to be replaced due to sidewall wear from the use of rim brakes.
RI5-0410 CHANGED text,

⚠WARNING The sidewalls of WTB rim brake rims are made out of materials that wear through the abrasive action of brake pads will have a limited lifetime. The lifetime of the bicycle rim will depend on the material of the brake pads and the use of the bicycle. As a result of excessive wear, the bicycle rim sidewall may collapse as it will not be capable of maintaining the tire pressure, causing instant deflation. To maintain safety and provide correct fitting of the tire, the user of such rims and brakes must be notified of the state of wear of the rims, allowing replacement of the rim when required. The sidewalls of WTB rim brake rims starting in Model Year 2003 should have an indicator line in the sidewall of the rim that shows when the rim must be replaced. See Section 3: Maintenance and Repair, below. For rims without indicator lines, WTB recommends immediate replacement of the rim with a new rim with an indicator line unless you can make a caliper measurement of the rim sidewall thickness and contact WTB for information about the proper thickness.
ETRTO-0410

1(g) WTB TCS Tubeless Tire Installation on a WTB TCS Rim with WTB TCS Tape and a WTB TCS Valve. Also See WTB Tire User Manual at wtb.com/manuals.



TIRE MOUNTING: Tires may be harder to install on TCS Rims than on ISO/ETRTO Rims (See also: WTB Tire User Manual: Tire Installation & Removal). **TCS Rims need the correct rim strip to properly fit a tire**. See Section 1(d) Selecting the Correct Rim Tape Based on WTB TCS Inner Rim Width for further understanding. If you are having a difficult time mounting a tire on a WTB TCS Rim, make sure that you are using the correct Rim Strip.

⚠WARNING Tires that fit too tightly often irritate riders. Tire levers should not be used to mount tires. Also in some cases users can damage the bead of the tire (or the rim tape) in attempting to mount a "tight" tire. *If your tire goes on and off your rim with little hand mounting effort do not ride it.* That is the sign of a possible mismatch between that particular rim and tire. If you have another brand or model of rim that is compatible with that tire's size designation, try mounting the tire on that rim to see if it is looser or tighter. If sufficiently tight then use that rim and tire together or contact WTB for assistance. A tire that fits too loose can come off the rim while riding (causing serious injuries or death) especially at air pressure approaching or below the minimum posted on the tire or under hard riding and cornering conditions.

TI1-0410 – update as Warning changed.

You can determine whether your WTB TCS Rim is the appropriate width for your WTB TCS tire by looking at the information written on the sidewall of the tire as well as on the WTB rim sticker, as depicted below:,

The sidewall of all TCS tires clearly displays ETRTO information that lists the ETRTO Approved range of inner rim widths for the given tire section width.

Prior to beginning installation, verify that:

- You have both a TCS tire and TCS rim

- Your TCS tires and TCS rims are the same diameter

- Your TCS tires and TCS rims adhere to ETRTO – M13 recommended rim widths "Crotchet Type" revised as defined by the table under section 1(f) Rim / Tire Compatibility under ISO and ETRTO of this user manual as well as the WTB TCS rim sticker and WTB TCS tire sidewall information.

Prior to beginning WTB TCS Tire installation on a WTB TCS rim, verify that you have the appropriate width WTB TCS rim tape and that your WTB TCS rim tape is installed as outlined in section **1(e) Installing WTB TCS Rim Tape on a WTB TCS Rim with a WTB TCS Valve**. Now that you have verified the above, ensure that you have the following tools and parts for installation:'

- Floor pump with presta valve
- WTB TCS sealant or similar/equivalent tubeless sealant
- WTB TCS tire
- Eye protection
- Latex or similar style gloves
- Valve core remover

Inspect the WTB TCS rim to ensure integrity and proper functionality. Visually search for any dents, dings, or scratches on both the TCS rim's external surface as well as internal surface. If there is any doubt as to the integrity or functionality of the rim, take it to a WTB Dealer or qualified mechanic to assess the state of the rim. Visually inspect each bead hook, ensuring no wavering or deviation from a straight and true line when eyeing the beadhook / crotchet holding the rim at eye level.

Ensure that the rim is clean. All sealant remnants, old tape fragments, and other debris **need** be removed from the rim's inner rim well, On-Ramp, Bead Bump, Bead Shelf, and Crotchet or Bead Hook area. Failure to do so could result in improperly seated tire beads, potentially resulting in deflation, the tire becoming unseated from the rim or being separated from the rim, loss of tire, loss of control, a crash, and / or death. WTB TCS rim tape should be clearly visible in the Bead Shelf region, mounted in an even and straight manner between the bead hooks, clearly defining the rim's inner well and trough.

Inspect the WTB TCS tire. Remove your WTB TCS tire from its hangtag if starting with a new tire. Unfold the tire and pay attention to creases where the tire was wrapped. Old tires, or those that have been exposed to heat or the elements may show signs of drying out. Visually inspect for any signs of cracking or drying out to ensure you are not starting with too old of a tire. If cracking is noticed, **do not use the tire**. Contact WTB's warranty department if purchased within two years from a certified WTB Dealer. If you are uncertain about the state of your TCS tire, **take it to a qualified mechanic or WTB Dealer to assess the state of the tire**.

Steps:

1. Unwrap tire. Ensure that the tread portion is facing outward, toward the ground, making a U shape all the way around the tire.

U shape of tire in Step 1

2. Holding your wheel, orient it so that the drive side portion is on your right side, the non drive side on your left. With disc brake front wheels, this is easily determined by positioning the brake rotor side to the left. On rear wheels, positioning the cassette to the right achieves this.

3. Locate the Rotation indicator on the tire's sidewall. On 2015 and newer TCS tires, this indication is at the top of the sidewall, directly beneath the outermost cornering knobs. On 2014 and older TCS tires, this indicator is located directly above the tire's chamfer tape line, or directly above the bead.

4. Ensure that the Rotation arrow is positioned away from you, moving forward.

5. Hold the rim, oriented in the same manner as step two so that the non-drive side is to your left, the drive side to your right, and place the rim within both beads of the tire, within the base of the U shaped tire created in step one. See photo below for clarification.

Placing WTB TCS rim within the U shape created by the WTB TCS tire.

6. Ensure that the WTB TCS tire surrounds the WTB TCS rim. With your fingers, carefully walk the U shaped tire completely over all portions of the rim, so that both beads are protruding beyond the edges of the rim. Your rim should still be positioned with the non-drive side to your left, with the drive side to your right. Visually inspect that the Rotation indicator and arrow on the sidewall is pointing forward, as though moving away from you.

7. Holding the rim and surrounding tire now perpendicularly to you, as shown in the photo illustration below, begin pressing one WTB TCS tire bead into the WTB TCS rim bead hook / crotchet hook area. This is usually most easily achieved resting the base of the tire and rim against one's waist, angling the tire at roughly a 45 degree angle, grabbing the tire and rim with both hands at the top (12 o'clock) position and then using both thumbs to gently work and coax the nearest WTB TCS tire bead into the WTB TCS bead hook / crotchet hook of the rim. See illustration below for further clarification.

Continuing to set the bead with the left thumb while holding the tire on with the right hand.

8. As the WTB TCS tire bead begins to set within the WTB TCS bead hook, rotate the tire and continue to press the WTB TCS bead into the WTB TCS bead hook with your thumbs as you did in Step 7. Be careful to ensure that already set portions do not pop out as you focus on new portions and that the tire and rim that you are resting against your waist do become further separating from the two beads resting atop and splaying over the rim. You may want to hold set portions of the WTB TCS bead / WTB TCS bead hook in place with one hand while continuing to work on other portions with the other, moving systematically along the tire and rim circumference, using your thumb to work the WTB TCS bead over the outer edge of the WTB TCS rim.

9. Once you have successfully set one WTB TCS tire bead within the entire circumference of the WTB TCS rim and WTB TCS bead hook, visually inspect to ensure that there appears to be roughly the same amount / height of sidewall showing above the top of the rim. Having verified this, now flip the rim and tire 180 degrees so that the unset portion of tire and rim are now facing you.

10. Begin working the WTB TCS beads gently into the WTB TCS bead hook with your thumbs in the same manner you used in Steps 7 and 8. Stop when you still have roughly 10 to 12 inches of remaining WTB TCS bead unset at the base of your WTB TCS tire and WTB TCS rim.

11. It is often easiest to hang your WTB TCS rim and WTB TCS tire on a hook or bike work stand at this point in order to apply sealant within the WTB TCS tire / WTB TCS rim inner well and tire region. If you choose to do this **ensure that your WTB TCS tire and WTB TCS rim are hanging in a secure manner**. If you choose not to, or do not have access to an appropriate hook or hanging device, you

may gently set your WTB TCS tire and WTB TCS rim on the ground with the unset portion of the bead closest to the ground – either prop the tire against a wall, or hold it upright with one hand.

⚠WARNING Put on protective eyewear before handling, opening, or using sealant. Put on Latex or similar style gloves before handling, opening, or using sealant. Avoid inhalation, ingestion, and skin contact. First Aid: If swallowed, do not induce vomiting. Call physician immediately. In case of eye contact, flush with water for 15 minutes and get prompt medial attention. Skin contact, wash immediately with soap and rinse with water. Do not use solvents or alcohol to remove from skin. For inhalation, move to fresh air. Contact poison center for health information. Product contains latex.

12. Pour WTB TCS tire sealant into the exposed portion of the bead – a minimum of 2 ounces is required to seal a 1.9 – 2.0 standard, 26” or 559 bead seat diameter tire. Downhill, plus sized tires, high volume tires, and 29” tires will require more sealant. Additional sealant provides additional protection though increases rotational weight.

Pouring in WTB TCS sealant to unset portion of WTB TCS bead.

13. With two thumbs, gently press the remaining 10 to 12 inches of the WTB TCS bead into the WTB TCS bead hook once adequate sealant has been added to the WTB TCS tire and WTB TCS rim inner profile and trough region. Visually inspect to ensure that the sidewall height is equidistant above the rim on the circumference of the tire.

Pre-seating TCS tire beads.

14. Take the WTB TCS Tire and WTB TCS rim from where it has been hanging or resting and begin to pull apart the edges of the tire's sidewall. You are attempting to evenly pre-seat the WTB TCS tire beads within the WTB TCS rim bead hooks. By grabbing each side of the junction of the sidewall and tread with each hand and gently pulling outward from the WTB TCS rim's central trough, the WTB TCS tire beads should move slightly outward until coming into contact with the WTB TCS rim bead hooks. Make sure to start this process at a recognizable starting point on the WTB TCS Tire / WTB TCS Rim – either a sidewall marking or perhaps the WTB TCS tire valve as a point of origin. Begin systematically moving along the top of the tire, gently pre-seating the WTB TCS tire bead within the WTB TCS rim bead hook in the manner described above. The most crucial area to ensure that his has been successfully completed is directly surrounding the WTB TCS Valve.

15. Locate the WTB TCS valve. WTB TCS valves utilize removable valve cores to allow for quicker inflation if desired. Using your valve core remover, remove the core of your WTB TCS valve and set it down in an easily accessible location, close to your tire, taking careful note of the inner and outer portion of the removable valve core.

Using valve core remover to take out TCS valve core.

16. Attach floor pump head to WTB TCS valve. Begin pumping. The tire will begin to fill with air and take shape. As this occurs, make sure that one portion of the sidewall does not appear significantly higher or different than other portions of the sidewall, which may indicate that the tire is improperly seating. If this is experienced, **stop pumping immediately, deflate, and attempt to pre-seat the WTB TCS tire within the WTB TCS rim bead hook again in the immediate vicinity where the issue was noticed.**

Attaching pump head directly to WTB TCS valve without core for faster inflation.

17. Pump to the upper limit of the WTB TCS tire recommended pressure range, listed on the sidewall of WTB TCS tires, or 45 psi for standard width 26", 27.5"/650b, and 29" tires. While pumping, pinging noises may be heard as the WTB TCS rire bead seats within the WTB TCS rim bead hook.

18. Having reached the upper pressure limit of the tire, stop pumping yet keep the pump attached to the WTB TCS valve. Visually inspect each side of the tire, ensuring that there is an equal distance between the rim and the chamfer tape line, located just above the rim at the base of the WTB TCS tire's sidewall. See picture below for clarification.


Chamfer tape line directly beneath rim and Frequency rim graphic. Also visible,: Rotation indicator.

19. Having verified Step 18, you will need to quickly remove the pump head from the WTB TCS valve and quickly rethread the WTB TCS removable valve core within the WTB TCS valve. Air will quickly escape from the WTB TCS valve during this process. The WTB TCS tire and WTB TCS tire beads should remain seated on the WTB TCS rim bead hooks during this process.

Rethreading the removable valve core into the WTB TCS valve. It can be a good idea to hold a finger over the open valve, as shown above, to prevent pressure loss.

20. Once the WTB TCS removable valve core has been rethreaded, inflate the tire to the desired riding pressure, taking note of the acceptable pressure range on the sidewall of the WTB TCS tire. You will need to loosen the presta valve tip of the WTB TCS removable valve core. Take caution not to unscrew the entire WTB TCS removable valve core but only to loosen the tip of the WTB TCS valve. After inflating to the desired pressure, ensure the tip of your WTB TCS valve is tightened and closed.

Swishing tire sealant around, gyrating the tire with both hands.

21. Hold the tire and swish the sealant all throughout the inside of the tire by gyrating the WTB TCS tire / WTB TCS rim. Sealant will need to coat the inner walls of the WTB TCS tire in order to effectively work.

Alternative method to swishing sealant around – dribbling tire.

22. Inspect the tire. Looks for any white patches of WTB TCS sealant that may be indicative of a hole or area of pressure loss. Small dots are acceptable if they do not continue to leak nor lose pressure. If small areas of sealant leakage are noticed, tip the WTB TCS tire on its side so fluid is pooled above the area of question. The leakage should stop. If the WTB TCS tire is still leaking after having been set for over 24 hours with sealant pooled above the area of question, contact WTB or take to a WTB Dealer.

23. Reconfirm that the WTB TCS tire is appropriately seated by holding and spinning, taking careful notice of the chamfer tape line above the top of the rim. The distance between the top of the rim and the chamfer tape line should be even. Additionally, when viewed from above while spinning, the WTB tire should spin true or straight. If hopping is noticed or a wobble, double check that the WTB TCS tire bead is appropriately seated and mounted in the area of question.

24. You have successfully completed WTB TCS Tire Installation on a WTB TCS Rim with WTB TCS Tape and a WTB TCS Valve

2. Wheel Assembly

Building a bicycle wheel or replacing a damaged rim requires a great deal of skill and experience, as well as special tools and special knowledge. **Do not entrust your WTB rim to anyone but the most skilled and experienced wheel builder in your area.**

RI6-0410

3. Maintenance and Repair

⚠WARNING Many bicycle component installation, service and repair tasks require special knowledge and tools. Do not begin any installation, adjustments or service on your bicycle until you have learned from your dealer, or an appropriate technical institute (e.g. United Bicycle Institute or Barnett's Bicycle Institute) how to properly complete it. Improper installation, configuration, adjustment or service may result in damage to the component or component failure. Component failure can cause you to lose control and fall.

BPSA-OM9-5

Like any mechanical device, a bicycle and its components are subject to wear and stress. Different materials and mechanisms wear or fatigue from stress at different rates and have different life cycles. If a component's life cycle is exceeded, the component can suddenly and catastrophically fail, causing serious injury or death to the rider. Creaks, scratches, cracks, fraying and discoloration are signs of stress-caused fatigue and indicate that a part is at the end of its useful life and needs to be replaced. While the materials and workmanship of your bicycle or of individual components may be covered by a

warranty for a specified period of time by the manufacturer, this is no guarantee that the product will last the term of the warranty. Product life is often related to the kind of riding you do and to the treatment to which you submit the bicycle and its components. The warranty is not meant to suggest that the bicycle or a component cannot be broken or will last forever. It only means that the bicycle or component is covered subject to the terms of the warranty.
BPSA-OM9-5A

***The "useful life" of this component (the time during which the component is safe to ride) will be reduced* if (1) you use it more than the average user; (2) you are heavier than the average rider; (3) the terrain/roads you ride on is rougher than average; (4) you tend to be harder on components than the average rider; (5) you fail to follow its installation instructions or maintenance instructions, including lubrication and adjustment; (6) it must endure more adverse environmental conditions than the average component (i.e. sweat, corrosive mud, salty beach air etc.); (7) you damage/weaken it in a crash, jump or through other abuse; (8) you fail to purchase the appropriate model of product for the type of riding it endures; and/or (9) you race with the component or participate in any other type of extreme, aggressive riding such as *Aggro, Hucking, Freeride, North Shore, Downhill, Jumping, Stunt Riding, Enduro, etc*. The more factors you meet and the more often they occur, the more this component's life will be reduced, however it is impossible to say how much.**

Racing places extreme stress on bicycles and their components (like it does riders) and significantly shortens their usable or "useful" life (the time during which the component is safe to ride). If you participate in these types of events, the lifetime of the product may be significantly shortened depending upon the level and amount of racing. The "normal wear" of a component may differ greatly between competitive and non-competitive uses, which is why professional level riders often use new bikes and components each season as well as having their bikes serviced by professional mechanics after each ride. Particular care should be placed in the regular examination of your bicycle and its components to ensure your safety.
UL2-0508-1 NEED TO ADJUST NOW

If you engage in extreme, aggressive stunt or competition riding, *you will get hurt,* and you voluntarily assume a greatly increased risk of injury or death.

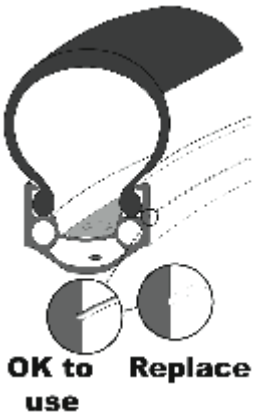
Not all bicycles, components or equipment are designed for these types of riding, and those that are may not be suitable for all types of aggressive riding. Check with the bicycle's or component's manufacturer about suitability before engaging in extreme riding.

When riding fast down hill, you can reach speeds achieved by motorcycles, and therefore face similar hazards and risks. Have your bicycle and equipment carefully inspected by a qualified mechanic and be sure it is in perfect condition. Consult with expert riders, area site personnel and race officials on conditions and equipment advisable at the site where you plan to ride. Wear appropriate safety gear, including an approved full face helmet, full finger gloves, and body armor. Ultimately, it is your responsibility to have proper equipment and to be familiar with course conditions.

Although many catalogs, advertisements and articles about bicycling depict riders engaged in extreme riding, this activity is extremely dangerous, increases your risk of injury or death, and increases the severity of any injury. Remember that the action depicted is being performed by professionals with many years of training and experience. Know your limits and always wear a helmet and other appropriate safety gear. Even with state-of-the-art protective safety gear, you could be seriously injured or killed when jumping, stunt riding, riding downhill at speed or in competition.
BPSA-OM9-2F

Over time, rims experience stresses and, depending on make, use, condition, proximity to salt water, and other material and product stresses, rims wear out and need to be replaced. Rims and wheels *should ALWAYS be checked before EVERY ride for wear, damage and trueness.* Further, you should consider replacing any rims over five (5) years old with more current designs. If tough terrains and tire flats are a concern, the Tubeless Compatible System TCS, provides a more secure tire / rim fit. If you are not on current WTB ISO/ETRTO Rims, WTB Global Bead System Rims, or WTB TCS rims, we recommend that you upgrade.
RI7-0410 - need to adjust now

3(a) Maintenance Keep wheel rims clean and free of grit, dirt and oil or grease. Never use strong abrasive materials or chemicals to clean your rims, as they can damage rim or tire surfaces and weaken the rim sides or tire and tube integrity.



Before each use, check brake wear and operation; spoke tension, rim wear, damage and trueness; and tire fit, wear, damage and inflation. Spin each wheel slowly and look for any signs of damage: dents, bulges, cracks, or deformation of the rims. If you do not have a spoke tensiometer, check spoke tension, by spinning the wheel to make sure it is true (no side-to-side wobble, no up-and-down hop); by squeezing pairs of spokes to make sure none are loose or broken; and by plucking each spoke to make sure they all sound about the same. If you discern a difference in tension when squeezing two adjoining spokes or in the pitch of the sound of a plucked spoke this may indicate a significant difference in that spoke's tension. If in doubt about spoke tension or wheel trueness, **do not ride the bike**. Take it to a qualified bicycle mechanic. With rim brakes, check that the wear indicator on the sidewall braking surface is still clearly visible.

Before every ride, check the tires for excess wear, cuts in the tread and cuts or bulges in the sidewall. Check the tire pressure of both tires. The tire's pressure rating is marked on the sidewall. Additionally, check to ensure no sealant is escaping from the tire's casing. Any signs of seepage may be indicative of a damaged tire warranting need of replacement prior to riding. Also ensure that both beads are appropriately seated by visually inspecting the chamfer tape line on the tire's sidewall in relation to the top of the rim's crotchet hook. Ensuring that the chamfer tape line is evenly visible above the rim's sidewall on both sides is indicative of a proper fit. Always check with a qualified mechanic or WTB Dealer to confirm this or if there is any doubt.

With noticeably wider WTB rims, as in the case of the WTB Scraper i45 27.5" TCS Rim, WTB Scraper i45 29" TCS Rim, WTB Asym i35 27.5" TCS Rim, and WTB Asym i35 29" Rim, please ensure that when mounted in a sealant-tubeless fashion, the following pressures, listed in pounds per square inch, or psi, are strictly adhered to:

Minimum: 20 psi

Maximum: 45 psi

Regardless of the tire's recommended pressure ratings, Scraper i45 27.5" TCS Rims, Scraper i45 29" TCS Rims, Asym i35 27.5" Rims, and Asym i35 29" Rims will need to fall within the 20 – 45 psi recommended range. Narrower tires, fewer than 57mm in Section Width (SW) will need to fall toward the higher end of the 20 – 45 psi recommended pressure range.

⚠WARNING Spoke tensioning and wheel truing (with or without spoke replacement) is a highly refined skill which requires expensive special tools and experience. Do not attempt to tension or true a wheel unless you have the knowledge, experience and tools needed to do the job correctly.
WH2-0410

⚠WARNING Do not ride a bike with a damaged tire or rim. Cuts or wear to critical portions of the tire bead or sidewall and dents, cracks or scrapes to critical portions of the rim may appear minor but can reflect more major latent damage to the rim or tire and could result in or be a warning sign of impending catastrophic failure. Riding a damaged tire or rim may lead to sudden tire deflation or improper braking function. Sudden tire deflation or improper braking function can cause loss of control, resulting in serious injury or death. Replace damaged tires and rims before riding the bike.

Never inflate a tire beyond the maximum pressure, or ride a tire with less than the minimum pressure marked on the tire's sidewall. Exceeding the recommended maximum or minimum pressure may cause sudden tire failure. Tire failure can cause loss of control, resulting in serious injury or death.
TI2-0410

3(b) Service and Repair

We strongly urge you to have any servicing or repair of your WTB components done by a qualified bicycle mechanic with the appropriate tools, knowledge and experience. If you believe that you are qualified to service,

replace parts or repair a WTB component, please download, read and follow the Service Instructions at wtb.com/manuals for the component which you plan to repair.
SE1-0410

WARNING **Wheel truing and spoke tension adjustment require special skills and tools. Do not attempt to tension or true a wheel. Take the wheel to a qualified bicycle mechanic before riding.**

Wheel rims with dents, bulges, cracks, or deformation are unsafe to ride and cannot be repaired. They must be replaced. Rim replacement requires special skills and tools. Do not attempt to replace a wheel rim. Take the wheel to a qualified bicycle mechanic before riding.
RI6-0410

4. Replacement Parts

WARNING **Use only genuine WTB replacement parts and follow the Service Instructions at wtb.com/manuals. Failure to do so could compromise the safety or performance of the component and result in component failure.**
GI4-0410

5. Warranty

WTB products are warranted against defects in materials and workmanship. To read the full current warranty for your WTB product, see the Warranty section of our Web site, wtb.com/warranty
GI5-0410

6. Making a warranty claim

To make a warranty claim, see the Warranty section of our Web site, wtb.com/warranty
GI6-0508-1

7. Contact Information

If you have any questions or problems with any WTB product, please go to wtb.com for help.
GI7-0508-1

8. Disclaimer

The original English language version/meaning of these instructions supercedes all translations. WTB is not responsible for any errors in translation of these or any product instructions.
GI8-0508-1