

MEILENSTEIN
GIPFELSTURM
RUNDKURS
AUTOBAHN
FERNWEG
MEILENSTEIN C
FERNWEG C



Owner's manual



Chip number



Dealer

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RIDING & BRAKING

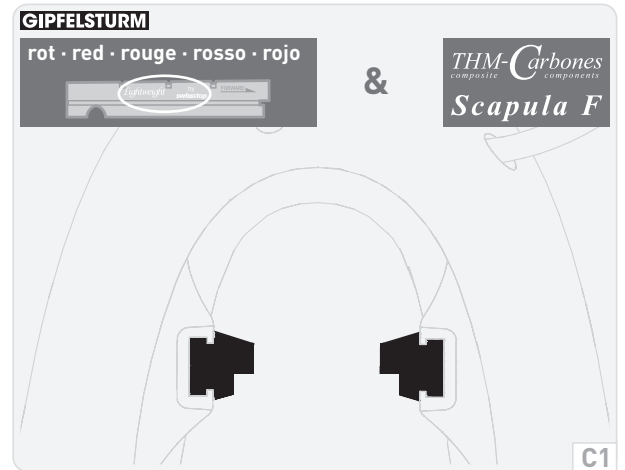
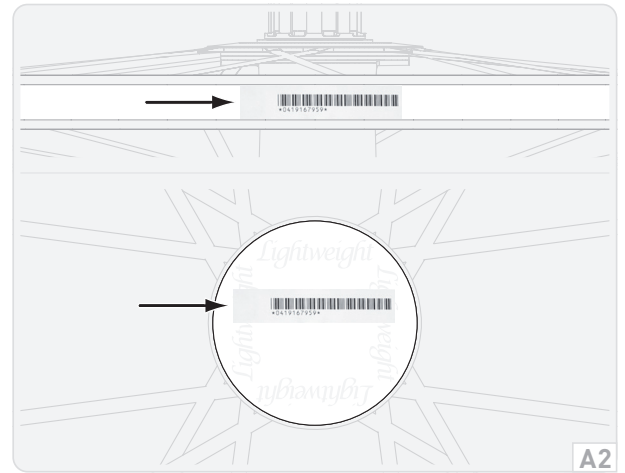
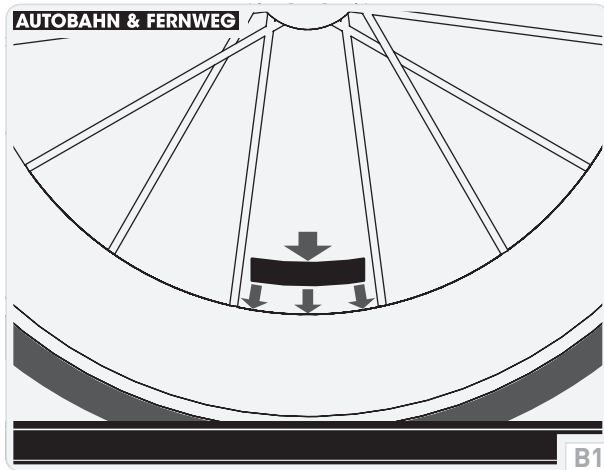
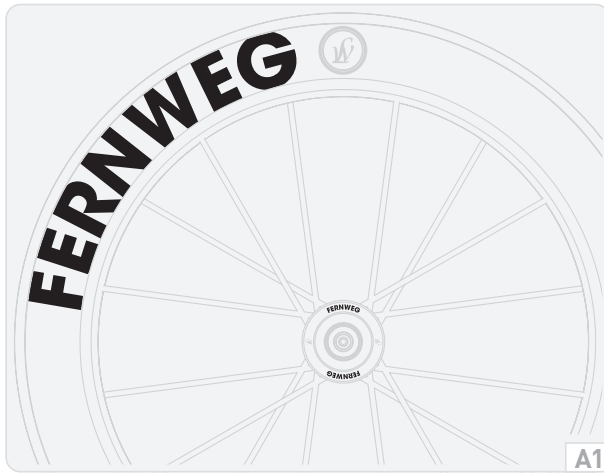
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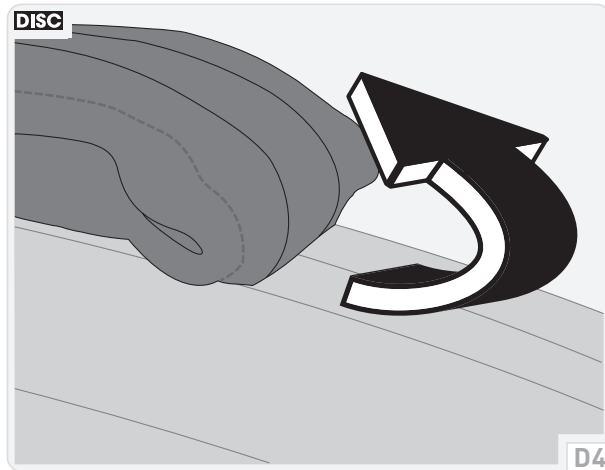
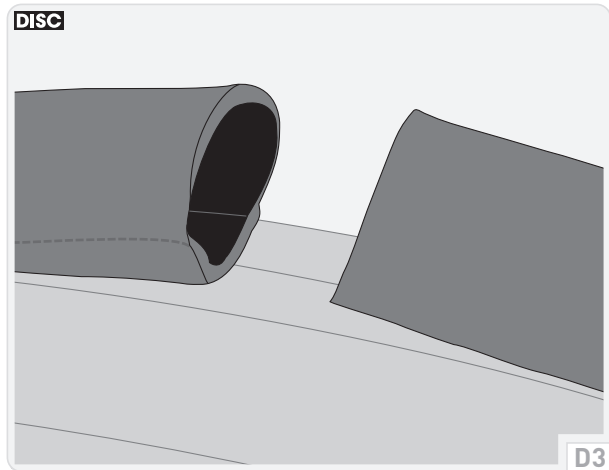
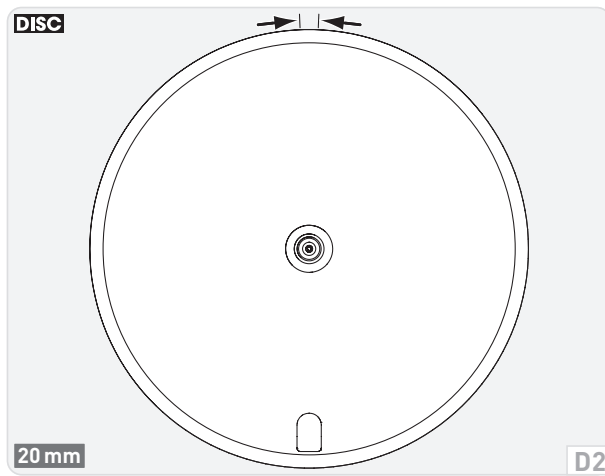
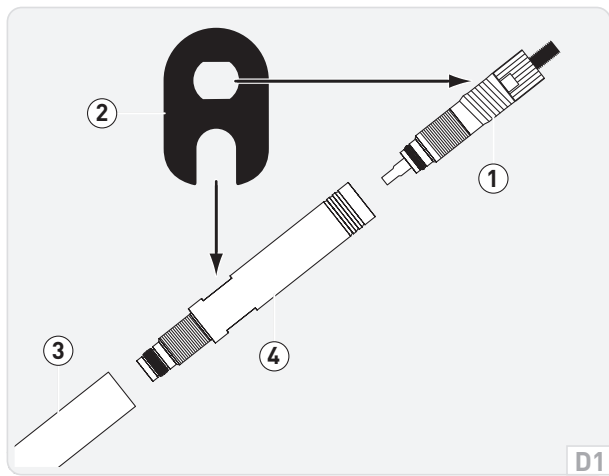
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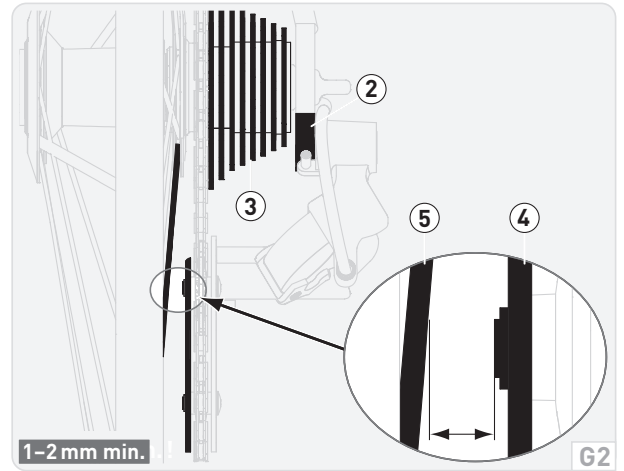
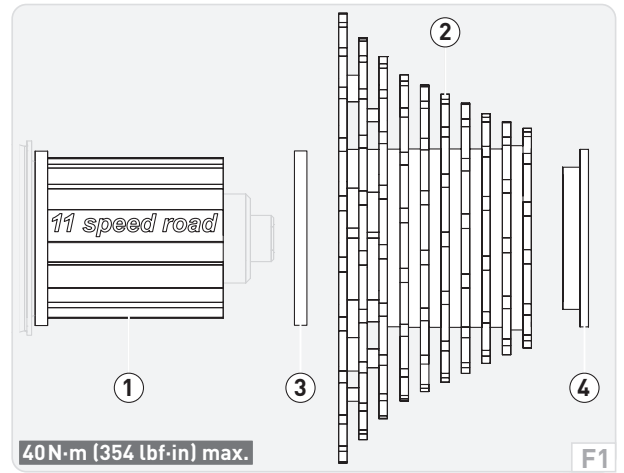
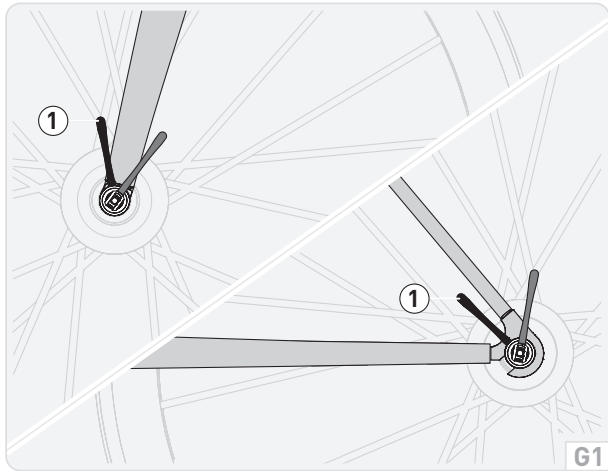
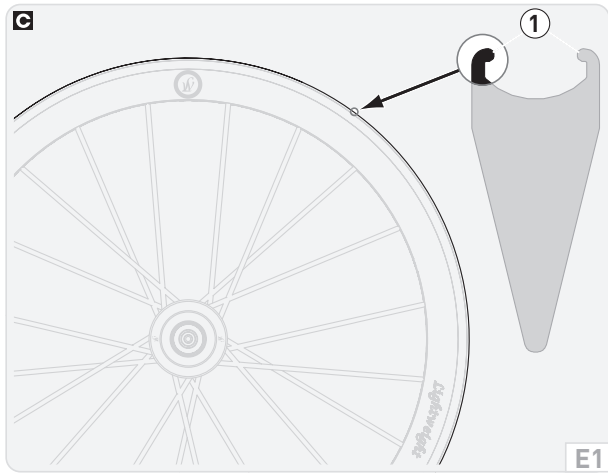
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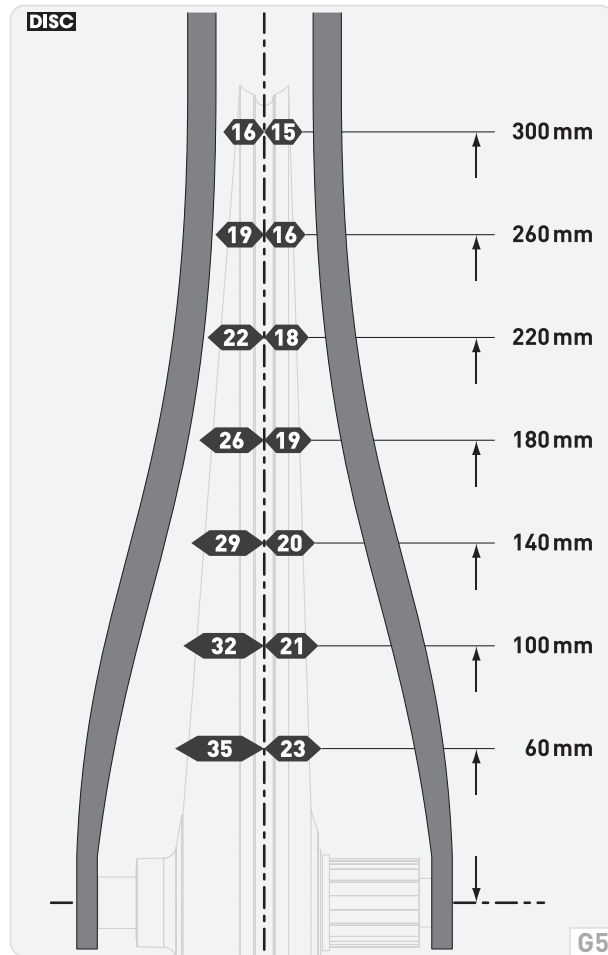
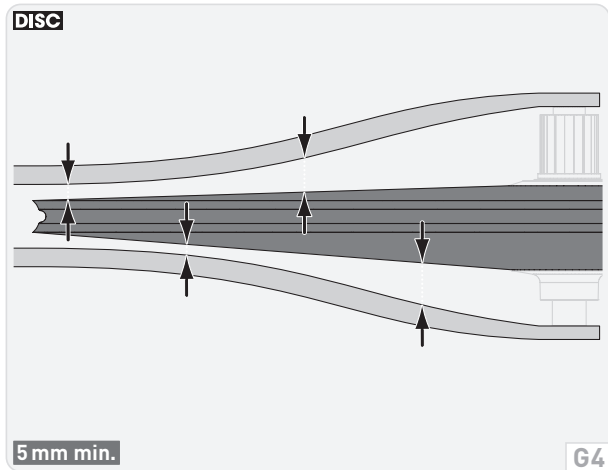
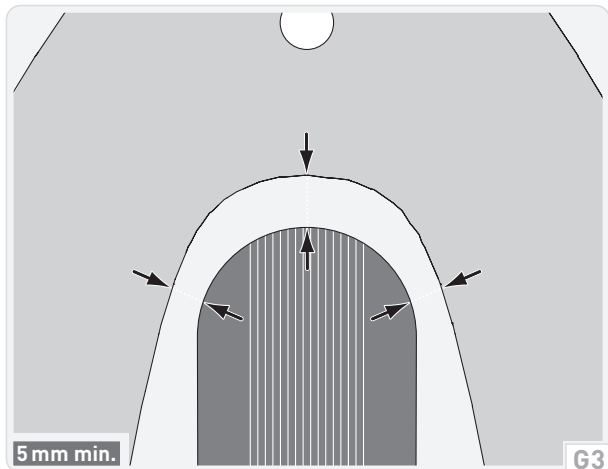
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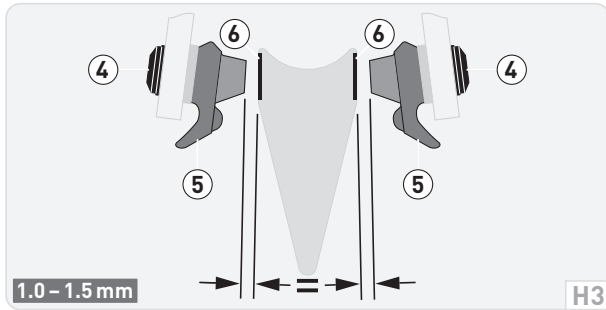
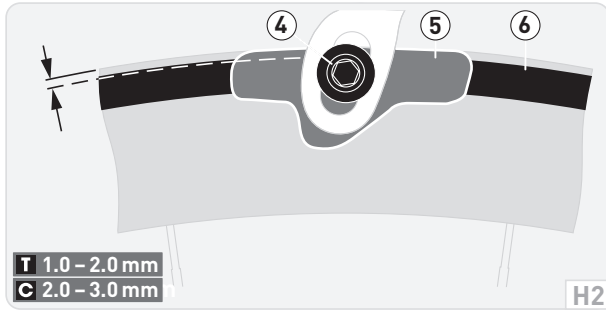
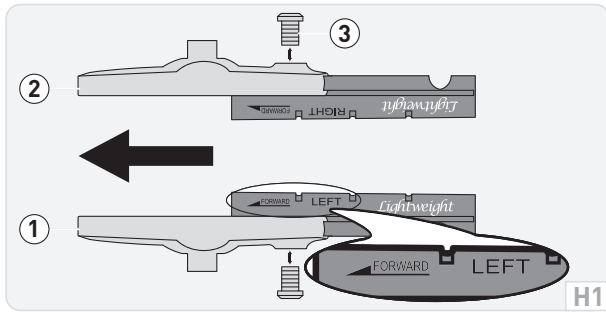
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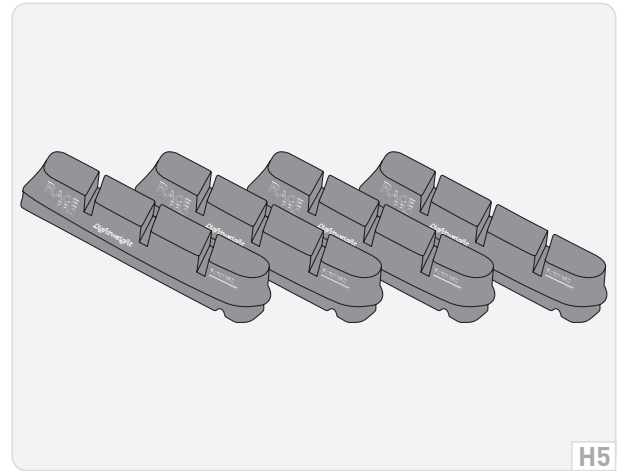
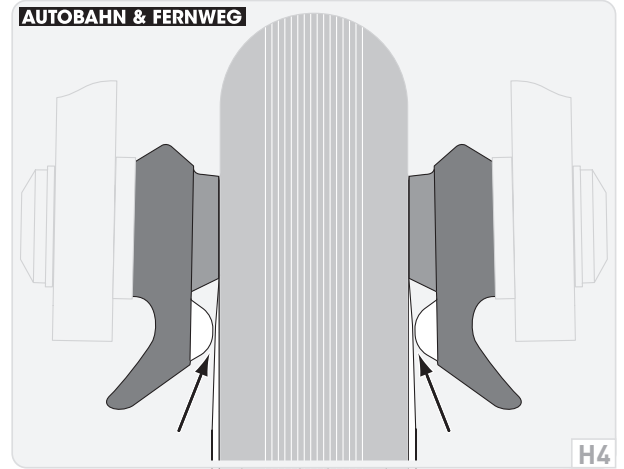


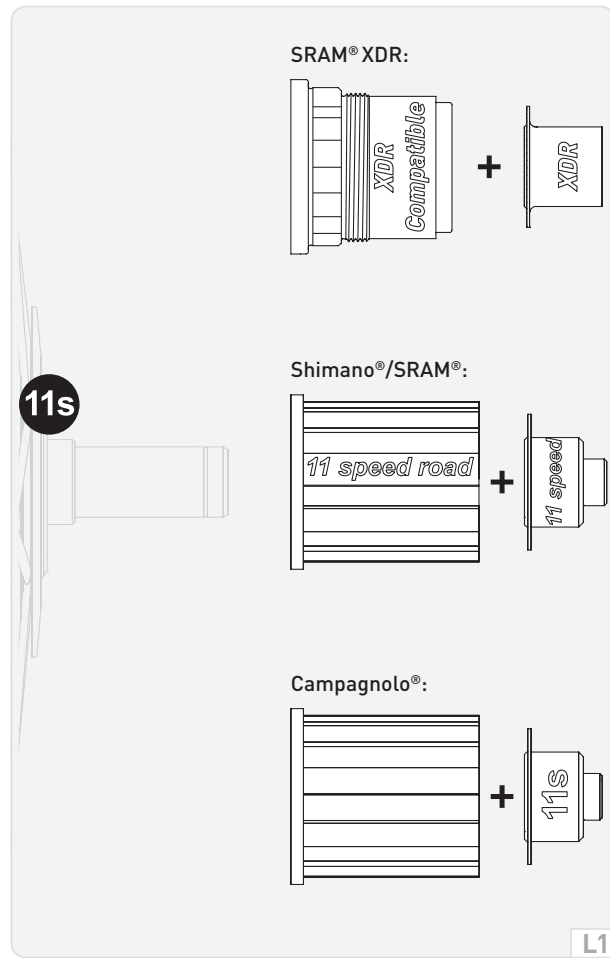
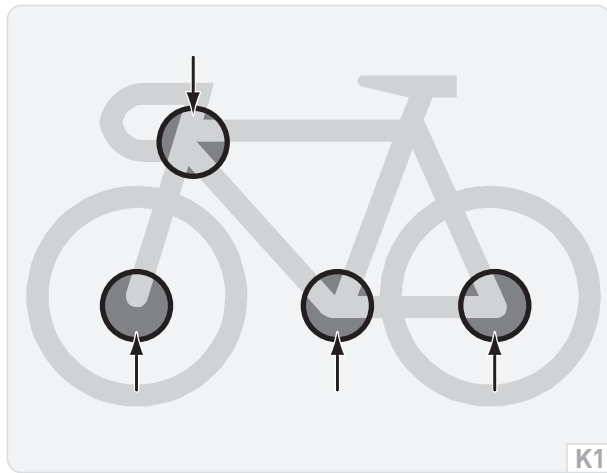
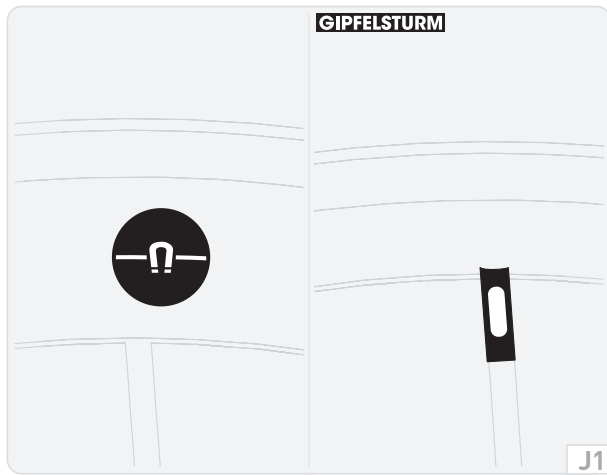


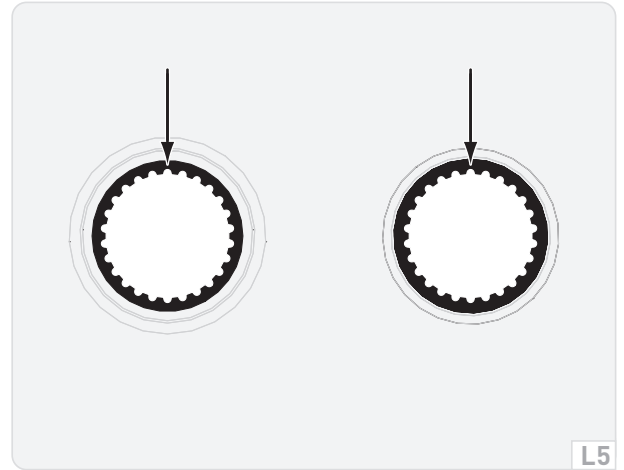
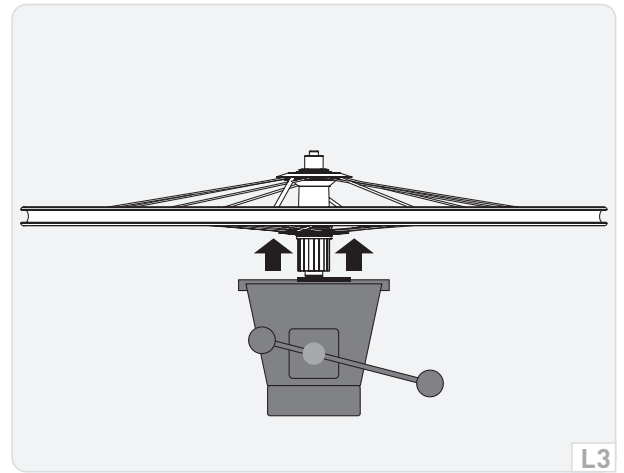
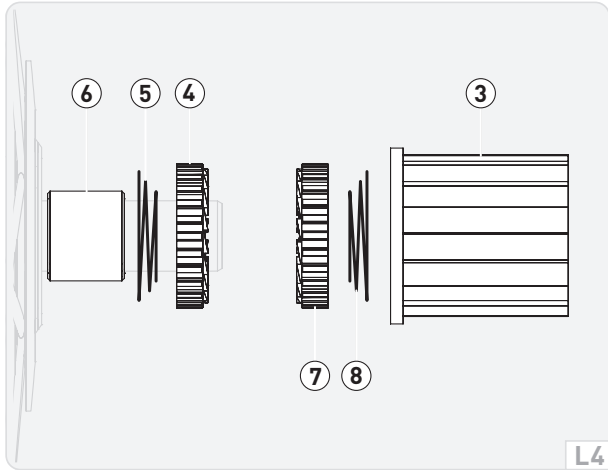
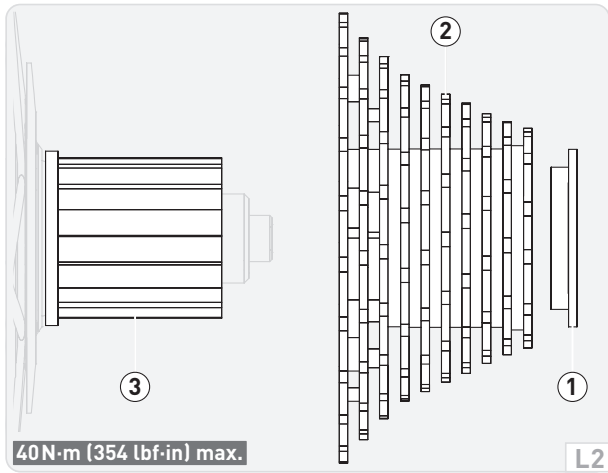


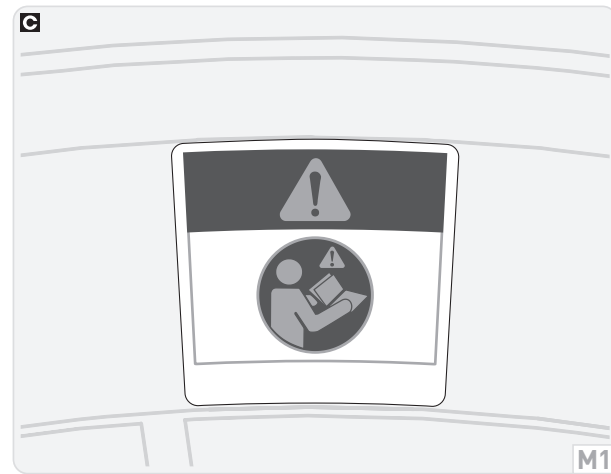
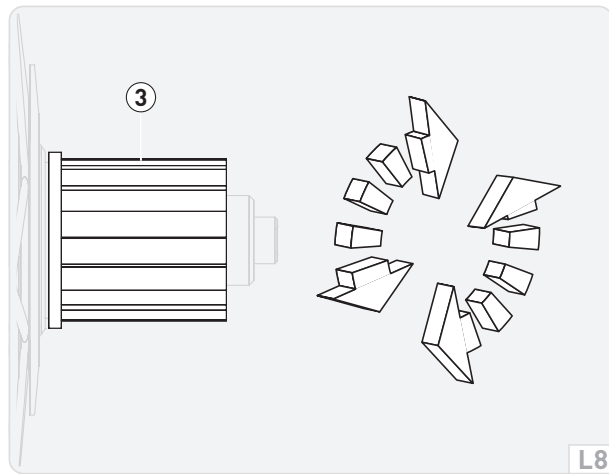
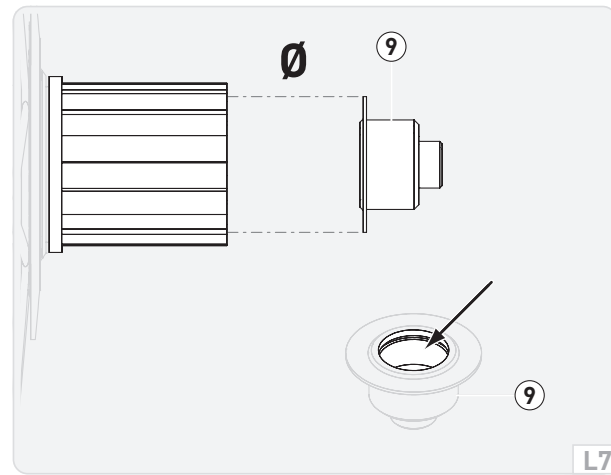
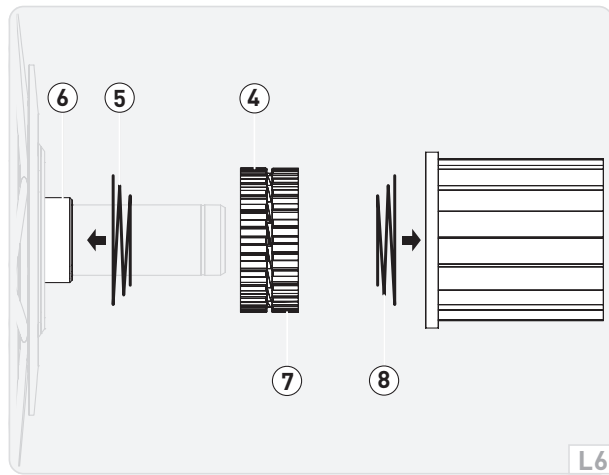


AUTOBAHN & FERNWEG









PREFACE

Congratulations and thank you – you have selected the best wheels in the world.

Handmade – made in Germany.

This manual is an integral component of your Lightweight product and it provides you with important information regarding the safe operation of your Lightweight wheels.

You can find the illustrations referred to in this manual in the graphics section in the fold-out.

The safety of our customers is very important to us. Please read this manual carefully before installing your wheels or riding on them for the first time.

⚠ WARNING Non-observance of the information contained in this manual could result in a fatal or serious accident.

Our information is there for a reason – our interest in your personal safety!

Read and observe all assembly, maintenance and usage instructions and please remember that even the best product can fail if it is improperly treated.

This applies for components from other manufacturers whose products are used on your bicycle (tyres, quick release skewers, brakes etc.).

Read and observe all user instructions.

Keep this manual for other users of your wheels. Make sure that all users read, understand and observe this manual.

If you ever sell or give away your wheels, this manual should be transferred to the new owner.

We hope you get a lot of enjoyment from your Lightweight wheels.

Your Lightweight Team

Explanation of symbols

You will encounter the following symbols and references in this manual:

☞ The index finger instructs you to perform a particular action.

→ The arrow indicates the consequences of your action or important prerequisites.

① This shows additional information or tips.

[3] ... refers to an item number in an illustration.

[A2] ... refers to an illustration in the graphics section.

Ⓒ This content refers only to Lightweight clincher wheels (Clincher).

Ⓓ This content refers only to Lightweight tubular tyre wheels (Tubular).

Ⓔ **OBERMAYER** This content refers only to the corresponding series or its derivatives.

⚠ WARNING The **WARNING** message indicates a hazardous situation which, if not avoided, could result in a fatal or serious injury.

⚠ CAUTION The **CAUTION** message indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

ⓘ NOTICE The **NOTICE** message warns of a risk of material damage.

- The dot indicates how to avoid a hazardous situation or a risk of material damage.

Lightweight online

Visit www.lightweight.info for information that you will find interesting.

Accessories, spare parts and clothing in the **SHOP**, frequently asked questions in the **FAQs**, interesting facts in **PRESS** and much more.

We look forward to meeting you there!

YOUR WHEEL

The illustrations in this manual may be different from your Lightweight wheel, but the required steps are the same for all wheel types, unless otherwise specified.

① The model name of your wheel is on the hub cover. **[A1]**

Registration

Every Lightweight wheel is provided with an integrated chip with a 10-digit code – the chip number. This allows every single wheel to be individually registered.

① Only Lightweight products registered by the original owner or reregistered by subsequent owners enjoy our service provisions!

① To register your Lightweight wheels or change the registration, you can find the required chip numbers either on the external packaging, in the rim well or on the sticker fixed to one of the protective covers of the wheel; alternatively, your specialist shop may have already attached it to the appropriate place on the first page of this manual. **[A2]**

☞ Register or transfer the registration of your Lightweight wheels at www.lightweight.info >>> **SERVICE**.

→ Our service provisions are available to you.

You will also find information on our extended service offers here.

TECHNICAL DATA

WHEELS		Spokes	Approved use	Approved total weight max. [kg/lb]**	Approved tyres	Hub		
SERIES	DERIVATIVE							
MEILENSTEIN	FW	16	Street	100/220	Tubular tyres (Tubular)	Lightweight		
		20	Allround	120/265		DT Swiss® 190s		
	RW	20				Street	90/198	Lightweight
	OBERMAYER	FW	16	100/220			DT Swiss® 190s	
RW		20	110/243	Lightweight				
GIPFELSTURM	FW	20		Track			120/265	DT Swiss® 190s
	RW	24	Lightweight track					
RUNDKURS	FW	20	Track			120/265		Lightweight track
		RW						
	DISC	FW						
		RW			-			
AUTOBAHN	FW	8	Street		90/198	Lightweight		
	RW	-			120/265	DT Swiss® 190s		
FERNWEG	FW	16			110/243	Lightweight		
	RW	20				DT Swiss® 190s		
MEILENSTEIN C	FW	16		100/220	Clincher tyres (Clincher)	Lightweight		
	20	20				DT Swiss® 190s		
FERNWEG C	FW			16		100/220	Lightweight	
	RW	20		DT Swiss® 190s				

* Street = paved or asphalted surface · Allround = street and cross-country · Track = velodrome

** Approved total weight = rider + bicycle + luggage

HUBS		Dimension (mm)	Rotor	Threaded sprocket	Fixing wheel
LIGHTWEIGHT	FW	100	-	-	Quick release skewer
	TRACK	FW	-	-	M5
		RW (130 optional)		1.37"×24 tpi (FG 34.8); 1.29"×24 tpi (FG 32.8)	M10×1
DT SWISS® 190s	RW	130	Shimano® 11s or SRAM® XDR 12s or Campagnolo® C9/C10/C11/C12	-	Quick release skewer
DT SWISS® 240s	RW				

① All Lightweight products are the result of manual labour. Deviations in colour and surface finish are characteristic features resulting from this high quality manufacturing procedure.
For more details and information on the manufacture of your Lightweight wheels please consult www.lightweight.info

INTENDED USE

⚠ WARNING Any use other than that intended can lead to accidents resulting in fatal or serious injury.

Your Lightweight wheels are designed solely:

- for installation on standard race and time trial bikes which are designed to have rim brakes fitted.
- for use with rim brakes.
- **T** for installation (adhesion) of tubular tyres.
- **C** for the installation of clincher or foldable clincher tyres that comply with the ETRTO* standards.
(* European Tyre and Rim Technical Organisation)
- in accordance with the applicable approvals – see **Technical data**, page 14.

IN YOUR OWN INTEREST

Always remember that riding a bicycle involves potential danger for the rider and other road users, as well as for the bicycle and its components.

Even if protective equipment and safety devices are used, accidents resulting in death or serious injury can still occur.

Furthermore, improperly performed assembly and maintenance work could also result in a loss of your rights with regard to product liability and service!

Always ensure your bicycle is maintained in a flawless condition. Care and maintenance will prolong the service life of your bicycle and its components and improve your personal safety!

You should also rely on your common sense and avoid any unreasonable behaviour!

FUNDAMENTAL SAFETY PRECAUTIONS

Assembly & maintenance

⚠ WARNING Risk of accident due to damage wheels resulting from unprofessionally performed assembly and maintenance work.

- Do not overestimate your technical ability. All assembly and maintenance work should be performed by a specialist workshop for bicycles. This is the only way to ensure that work is conducted in a professional manner.
- Always maintain all specified min./max. values – see **Technical data**, page 14.
- When conducting assembly steps that require a specific tightening torque, always use an appropriate torque wrench that is designed for the tightening torque specified.
- Only use original Lightweight brake pads, They are available from your specialist shop or directly from Carbovation.
- **C** Never use tubeless tyres – the rim well surface is not hermetically sealed and will suffer damage as a result of the immediate effect caused by the tyre inflation pressure.

⚠ WARNING **T** Risk of accident due to tyre failure.

- Only ever use high quality and undamaged tubular tyres and suitable adhesive.
- Your tubular tyres should only be installed (adhesion) by an expert bicycle mechanic.
- Observe the min./max. inflation pressure values specified by the manufacturer.

⚠ WARNING **C** Risk of accident due to a bursting tyre.

- Never use latex inner tubes.
- Never exceed the tyre inflation pressure approved by us, because the tyre inflation pressure will increase considerably as a result of the temperature created by rolling resistance and possibly high ambient temperature – see **Installing clincher tyres**, page 21.

NOTICE Corrosion and material damage due to penetration of water.

- Never use a pressure washer or steam cleaner to clean your bicycle, as the seals of your bicycle components are unable to withstand the pressure.
Even if you use a hose, be careful – never aim the hose directly at the bearing components. [K1]

NOTICE Corrosion on surface of your Lightweight components due to incorrect cleaning.

- Never use aggressive solvents (e.g. paint thinner, nitro etc.).
 - It is best to use water and standard paintwork cleaning products.
 - Isopropanol, spirits or petrol may be used carefully; however, avoid excessive wiping and long exposure times and also any contact with the rim decor.
- ① We recommend our specially developed Lightweight **CLEANER FOR BRAKE TRACK AREAS** for cleaning, available from your specialist shop or directly from Carbovation – but avoid all contact with the rim decor!

On the road**▲ WARNING** Risk of accident through damaged wheels.

- Never exceed the maximum approved total weight – see **Technical data**, page 14.
- Avoid riding through potholes or over edges and steps.
- Always check your wheels before every ride, after a violent shock and after a blow-out (dents, scratches, cracks, large areas of abrasion etc.). Send us your wheels for inspection before using them again if there is visible damage or if you have any doubts about their condition.

☑ In particular, always check the sensitive rim flange (1) for damage before every ride, after every hard impact and after every blow-out (dents, cracks etc.). [E1]

- Never ride with damaged wheels.
- Never continue using your bicycle after a serious crash.
If such a case occurs, send your wheels to us for inspection even

if no external damage is visible. In your own interest you should deal in the same way with all components on your bicycle that are produced by other manufacturers.

- Do not use your wheels below -10°C (14°F) or above 45°C (113°F) ambient temperature.

▲ WARNING Risk of accident caused by an insufficient braking effect or erratic braking as a result of worn brake track areas.


- Juddering of the brake while riding is an indication of worn or damaged brake track areas. Do not continue riding in this case. If such a case occurs, send your wheels to us for inspection.

▲ WARNING Risk of accident caused by erratic riding or improper equipment.

- Observe the advice on correct braking – see **How to brake correctly**, page 26.
- Pay particular attention when riding in high winds.
Front wheels are more sensitive to side winds from a rim height of 30 mm – the higher the rim the greater the sensitivity.
Unwanted steering movements may result.
- Always observe the traffic regulations of the country where you are riding your bicycle.
- When riding your bicycle always wear a high quality cycling helmet (e.g. ANSI certified), that is in excellent condition and close-fitting but not restrictive clothing.
- Only ride your bicycle if you are in good physical condition and your bicycle and all its components are working perfectly.

Transport & storage


▲ WARNING Risk of accident through damaged wheels.

- Protect your wheels from lateral pressure. This applies particularly during transport and particularly to disc wheels (**RUNDKURS DISC, AUTOBAHN**) and also for the **FERNWEG** series.
- Do not store your wheels below -15 °C (5 °F) or above 55 °C (131 °F) ambient temperature.
-  Do not expose the wheels or the rim surface to extreme heat or direct sunlight over 55° degrees Celsius (131 °F), such as in the boot or on the back shelf of a car. Extreme heat can cause irreparable damage to the wheel, which may fail. If you use a bicycle carrier on a car, the wheels must be at least half a metre away from the hot exhaust pipe.

NOTICE **AUTOBAHN & FERNWEG** The covers of the Lightweight Aero wheels consist of 1 layer of carbon with reduced wall thickness and they can be easily damaged.

- Do not hang your bicycle on a hook by the Aero front or rear wheel.
- When transporting your bicycle on a car rack, make sure that the straps, hooks etc. cannot damage the covers – use suitable padding where necessary to ensure that any pressure is evenly distributed over a wide area. **[B1]**

SAFETY LABEL

 A safety label is placed on both sides of the rim on every Lightweight clincher wheel. **[M1]**

Replace the safety labels if they become illegible or damaged.



Remove the stickers without using heat or chemicals.

Send us a postage-paid return envelope with your address. You will then receive the desired safety labels at no extra charge.

DISPOSAL

If defective or no longer in use, you can dispose of your wheels with your non-recyclable waste or domestic refuse or ask a local waste disposal company for other ways of disposal (e.g. recycling).

You can also send your wheels to us. They will then be disposed of in a way that is harmless to the environment – see **Crash replacement**, page 31.

BEFORE EVERY RIDE

⚠️ **WARNING** Risk of accident through damaged wheels.

- Read and observe all assembly and maintenance instructions, including those specified in the user instructions provided by other manufacturers whose products are used on your bicycle (tyres, quick release skewers, cassettes, brakes etc.).
- Do not overestimate your technical ability. All assembly and maintenance work should be performed by a specialist workshop for bicycles. This is the only way to ensure that work is conducted in a professional manner.
- Check the rims and spokes of your wheels for damage (dents, scratches, abrasion extending over a large area etc.).
- Never ride with damaged wheels.

⚠️ **WARNING** Risk of accident caused by an insufficient braking effect or erratic braking as a result of dirty brake track areas.

- Make sure that the brake track areas on your wheels are free of brake pad residues and soiling.
 - Make sure that the brake track areas on your Lightweight wheels are free of tubular tyre cement residues.
- ① We recommend our specially developed Lightweight **CLEANER FOR BRAKE TRACK AREAS** for cleaning, available from your specialist shop or directly from Carbovation – but avoid all contact with the rim decor!

⚠️ **WARNING** Risk of accident caused by an insufficient braking effect or erratic braking as a result of inappropriate brake pads.

- Install a complete kit of new brake pads on your brakes – see **Installing the brake pads**, page 23.
- Only use original Lightweight brake pads, They are available from your specialist shop or directly from Carbovation. **[H5]**

Lightweight & THM "Scapula F"

- ① **GIPFELSTURM** The combination of these Lightweight wheels with the THM-Carbones "Scapula F" fork requires the special milled and red-marked Lightweight brake pads, because the integrated Scapula F front-wheel brake does not allow adjustment of the brake pads to the brake track area.
The normal Lightweight brake pad will irreparably damage the Lightweight rim below the brake track area.

⚠️ **WARNING** Risk of accident caused by damaged wheels due to unsuitable brake pads.

- Use exclusively the special milled and marked with red Lightweight brake pad, available directly from Carbovation, with the combination of Lightweight **GIPFELSTURM** with the THM-Carbones "Scapula F" race bike fork. **[C1]**

Fitting the valve extension

- ☞ Screw the valve insert **(1)** using the supplied tool **(2)** out of the valve shaft, which may be too short **(3)**. **[D1]**
- ☞ Screw the Lightweight valve extension **(4)** into the valve shaft **(3)**.
- ☞ Screw the valve insert **(1)** into the valve extension **(4)**.

T Adhesion of tubular tyres

Rim width, outer (mm)	Approved tyre sizes min.-max.
19.5 – 20.0	19 – 27*
24.0	24 – 34
* Select tyres with a width of 22–25 mm and an inflation pressure of 8 bar (116 psi)!	
Rim height (mm)	Required valve length (mm)
DISC	20
-27	30
-48	60
-63	80
-85	100

⚠ **WARNING** Risk of accident due to tyre failure.

- Only ever use high quality and undamaged tubular tyres, such as the Lightweight tubular tyres from Continental®, and suitable adhesives.
 - Use puncture protection sealant. We recommend the product from "ZERO FLATS".
 - Your tubular tyres should only be installed (adhesion) by an expert bicycle mechanic.
 - Follow all the processing instructions provided by the adhesive and tubular tyre manufacturer.
 - Observe the min./max. inflation pressure values specified by the manufacturer.
- ① The lower the inflation pressure or tyre width the higher the risk of a pinch flat.

⚠ **CAUTION** Risk of damage to health caused by improper handling of solvents and adhesives.

- Follow all the manufacturer's safety instructions.

NOTICE Only use suitable plastic tyre levers when removing your tyres – do not use metal tyre levers under any circumstances. Avoid excessive levering.

- ☞ Before adhering your tubular tyre, install the valve extension if required, because this will not be possible later – see **Fitting the valve extension**, page 19.
- ☞ Prior to adhesive bonding, fill your tubular tyre with puncture protection sealant.
- ☞ Use suitable adhesive. We recommend the tubular tyre cement produced by Continental® (orange for aluminium rims).
- ☞ Only roughen the rim well of brand new wheels carefully by using fine sandpaper (240 grit or finer).
- ☞ Clean the rim well thoroughly.
- ☞ Adhere the tubular tyre in accordance with the instructions provided by the adhesive and tubular tyre manufacturer.

⚠ **WARNING** Risk of accident caused by an insufficient braking effect or erratic braking as a result of dirty brake track areas.

- Make sure that the brake track areas on your Lightweight wheels are free of tubular tyre cement residues.

NOTICE **DISC** Irreparable damage to the cover of the disc wheel by improper installation of the tubular tyre.

- Never pull the tubular tyre sideways from the rim well.
- ☞ When installing the tubular tyre, leave an area of about 20 mm opposite the valve hole when applying the tubular tyre cement. **[D2]**
- ☞ **Carefully** cut through the defective or punctured tubular tyre at the centre of the clear area with a sharp knife. Do not damage the carbon fibres! **[D3]**
- ☞ **Carefully** pull off the tubular tyre vertically to the rim well. **[D4]**

☐ Installing clincher tyres

Rim width, outer (mm)	Approved tyre sizes min.-max.	Approved tyre inflation pressure max. (bar/psi)
24.0	25-622	8/116
	26-622 – 28-622	7/102
	29-622 – 32-622	6/87
Rim height (mm)	Required valve length (mm)	
-48	60	
-63	80	
-85	100	

⚠ WARNING Risk of accident through damaged wheels.

- Never use tubeless tires – the rim well surface is not hermetically sealed and will suffer damage as a result of the immediate effect caused by the tyre inflation pressure.

⚠ WARNING Risk of accident through a bursting tyre.

- Never use latex rubber inner tubes – they are unable to withstand the temperature created by braking and rolling resistance.
- Never exceed the tyre inflation pressure approved by us, because the tyre inflation pressure will increase considerably as a result of the temperature created by brakes, rolling resistance and possibly high ambient temperature - see table.

NOTICE Never use tools to get the tyre onto the rim. We recommend using talcum powder to ease the installation procedure. Only use suitable plastic tyre levers when removing your tyres – do not use metal tyre levers under any circumstances.

☞ Only use high quality and undamaged clincher or foldable clincher tyres with suitable inner tubes – there is no need to install rim tape.

☞ Observe the min./max. inflation pressure values specified by the manufacturer.

① The lower the inflation pressure or tyre width the higher the risk of pinch flat. In most cases it will be the rim flange **(1)** to suffer from damage. **[E1]**

Installing the cassette

⚠ WARNING Campagnolo 12-speed cassettes whose largest sprocket has 29 teeth or less cannot be used with the rear wheel of the Obermayer EVO. This sprocket/wheel combination can cause the sprocket and wheel to collide. Campagnolo cassettes whose biggest sprocket has more than 29 teeth (e.g. 11/32 or larger) are not affected by this restriction.

① The rotor of the Lightweight rear wheels can be replaced in the event of a system change (Campagnolo® <-> SRAM® XDR <-> Shimano®) – see **Rotor replacement**, page 28.

① If necessary, you can get a suitable spoke protector from your specialist dealer.

☞ Ensure that your cassette complies with the rotor type of your rear wheel.

① A Shimano® 11-speed road rotor **(1)** can have a Shimano®/SRAM® 10s cassette **(2)** installed. In this case use a spacer **(3)** (t=1.9 mm). **[F1]**

① A Campagnolo® C9, C10, C11 or C12 cassette can be installed on the Campagnolo® rotor without a spacer.

① A SRAM® 12s XDR cassette can be installed on the SRAM® XDR rotor without a spacer.

PREPARATORY WORK & ASSEMBLY

- ☞ Follow the instructions of the manufacturer when installing your cassette.
- ☞ Tighten the lock ring (4) with tightening torque specified by the manufacturer – max. 40 N·m (354 lbf·in). [F1]

Installing the wheels

▲ WARNING Risk of accident through malfunction of the quick release skewer caused by improper assembly.

- Observe all the instructions and information provided in the user instructions from the manufacturer of your quick release skewer.
- ☞ Make sure that your quick release skewer complies with the dimensions specified – see **Technical data**, page 14.
- ☞ Follow the instructions provided by the manufacturer when installing your quick release skewer.
- ☞ Mount your wheels in your race bike's dropouts.
- ☞ Make sure that, after closing, the levers (1) are in a position that prevents accidental opening while riding – e.g. due to trapping. [G1]

▲ CAUTION Risk of accident by blockage of the rear wheel caused by incorrectly positioned rear derailleur. [G2]

- Make sure that the derailleur hanger (2) of your bike frame is exactly parallel to the sprocket set (3).
- Make sure that the chain cannot move beyond the large sprocket and that there is a minimum clearance of 1–2 mm between the pulley cage (4) and the rear wheel spokes (5).
- ☞ Shift the chain to the small chain ring.
- ☞ Carefully shift the chain to the large sprocket.
- ☞ Re-adjust the inner limit stop of your rear derailleur if the pulley cage (4) is closer than 1–2 mm to the rear wheel spokes (5). [G2]

▲ WARNING Risk of accident due to wheels locking as a result of insufficient clearance.

- Make sure that the clearance between the tyres and rear stays/ seat tube and/or fork blades/fork head is at least 5 mm. [G3]
Use narrower tyres if necessary.

NOTICE **DISC** Damage to the wheel and frame due to friction on the seat or chain stay.

- Make sure there is a minimum clearance of 5 mm between the Lightweight DISC and all rear stays. [G4]
Otherwise we recommend not installing the Lightweight DISC in that frame!
- ① **DISC** The number of narrow rear frames on aerodynamic race bike frames is increasing, which can cause problems, particularly with an asymmetric design.
If you are planning to purchase a new race bike frame with which you wish to use the Lightweight DISC, check with the frame manufacturer to make sure that your proposed frame is suitable.
- ☞ **DISC** Check all measuring points (60 mm ... 300 mm) to make sure that there are the required clearances between the rear stays – be particularly careful with asymmetrical rear triangle!
- ➔ The specified dimensions include the required clearance between Lightweight DISC and rear stays (5 mm). [G5]

Installing the brake pads

⚠ WARNING Risk of accident caused by an insufficient braking effect or erratic braking as a result of inappropriate brake pads.

- Only use original Lightweight brake pads, They are available from your specialist shop or directly from Carbovation. [H5]

⚠ WARNING Risk of accident caused by insufficient braking effect caused by new brake pads.

- New brake pads and brake track areas (6) only reach their full braking effect during the bedding-in period. [H2/H3]
Select your speed to reflect this during your first rides.

NOTICE Replacing Lightweight brake pads with brake pads from another manufacturer could cause serious damage to the brake track areas of your Lightweight wheels.

- ☞ Make sure that all brake pads are correctly installed as follows:
 - ➔ The arrow (FORWARD) should be facing the direction of travel (to the front).
 - ➔ The brake pad with LEFT labelling must be installed in the left-hand brake shoe (1), RIGHT in the right-hand brake shoe (2). [H1]
- ☞ Slide the Lightweight brake pads into their brake shoes.
- ☞ Shimano®/SRAM®: Tighten the securing bolts (3) with a tightening torque of 1.0–1.5 N·m (9–13 lbf·in). [H1]
- ☞ Carefully adjust the brake shoes. [H2]
- ☞ Tighten the bolts (4) on the brake shoes (5) with the correct tightening torque. [H2/H3]
Shimano®/SRAM®: 5–7 N·m (44–62 lbf·in)
Campagnolo®: 8 N·m (71 lbf·in)

NOTICE **AUTOBAHN & FERNWEG** Race bike brake shoes are generally fitted with a "wing", which acts as a guide for the wheel during installation. Because of the aerodynamic rim profile, the wing may come into contact with the surface of the rims when the brake pad is 50% worn. It consists of one layer of carbon and is easily damaged. [H4]

- Use brake shoes without wings.
- Check the distance between wing and rim surface at regular intervals with the brake lever blade set.
- Replace the brake pads regularly – at the latest when the distance between wing and surface of the rim is less than 1 mm with the brake lever blade set.

Computer magnet

① All Lightweight front and rear wheels have an integrated computer magnet. The magnet symbol identifies the location of the incorporated magnet. [J1]

GIPFELSTURM The computer magnets – without magnet symbol – are attached to a spoke.

- ☞ Fit the wheel to the front fork or the rear triangle of your race bike.
- ☞ Install the sensor of your computer.
- ☞ Align the computer sensor with the magnet symbol.
- ① If correct alignment of the front wheel sensor and Lightweight magnet is impossible due to the fork design, ask your specialist shop for an appropriate spoke magnet!

⚠ WARNING Risk of accident due to spoke breakage.

- Never use spoke magnets fitted by adjusting screws – the adjusting screw will cause severe damage to the fibres of the carbon spokes.

BEFORE EVERY RIDE

⚠ WARNING Risk of accident caused by material damage or improper assembly.

- Never use damaged wheels or defective tyres.
- Check your quick release skewer and wheels for tight and correct seat.
- Never exceed the max. approved total weight – see **Technical data**, page 14.
- Observe the min./max. inflation pressure values specified by the manufacturer.

⚠ WARNING **🚫** Risk of accident due to a bursting tyre.

- Never exceed the tyre inflation pressure approved by us, because the tyre inflation pressure will increase considerably as a result of the temperature created by brakes, rolling resistance and possibly high ambient temperature – see **Installing clincher tyres**, page 21.

⚠ WARNING Risk of accident caused by an insufficient braking effect or erratic braking as a result of dirty brake track areas.

- Make sure that the brake track areas on your wheels are free of adhesive residues, brake pad residues and soiling.
- Make sure that the brake track areas of your wheels are free from lubricants (grease, oil, silicone, Teflon, wax or other such substances).
- Make sure that your cycle chain is only lightly oiled – excess chain oil can work its way onto the brake track area while riding.

⚠ WARNING Risk of accident due to wheels locking as a result of insufficient clearance.

- Make sure that the clearance between the tyres and rear stays/ seat tube and/or fork blades/fork head is **at least 5 mm**. **[G3]**
Use narrower tyres if necessary.

🔧 Check the rims and spokes of your wheels for damage (dents, scratches, abrasion extending over a large area etc.).

🔧 Check the brake track area on your wheels for foreign bodies – remove any such objects.

🔧 Check the brake pads for damage (cracks, breakage etc.) and foreign objects (stones, shards of glass etc.).
Replace defective brake pads with new ones and/or remove the foreign objects before riding your bicycle.

🔧 Check tyres for damaged areas (cracks, abrasion dents etc.).

🔧 Check tyres for correct air pressure.

🔧 Check the gear mechanism for correct adjustment – pay particular attention to the limit stops – see **Installing the wheels**, page 22.

ⓘ Please note that if your bicycle falls it can easily cause the derailleur hanger of the frame to be bent inwards. In this case the chain is liable to move beyond the large sprocket and into the area of the rear wheel spokes!

⚠ CAUTION Risk of accident by blockage of the rear wheel caused by incorrectly positioned rear derailleur. **[G2]**

- Make sure that the derailleur hanger **(2)** of your bike frame is exactly parallel to the sprocket set **(3)**.
 - Make sure that the chain cannot move beyond the large sprocket and that there is a minimum clearance of 1–2 mm between the pulley cage **(4)** and the rear wheel spokes **(5)**. **[G2]**
- 🔧 Make sure that your repair kit (at least 1 tubular tyre or 1 spare tube (clincher), tyre levers, pump) is suitable, complete and intact.

ON THE ROAD

⚠ WARNING Risk of accident through damaged rims.

- Stop as quickly as possible when a blow-out occurs. Never continue riding with a flat tyre.
- Always check your wheels for damage after a violent shock and after a blow-out.
- **🔍** In particular, always check the sensitive rim flange **(1)** for damage before every ride, after every hard impact and after every blow-out (dents, cracks etc.). **[E1]**
- Never ride with damaged wheels.
- Send us your wheels for inspection before use if damage is visible or if you are worried about your wheels not being in perfect condition.

⚠ WARNING Risk of accident caused by an insufficient braking effect or erratic braking as a result of worn brake track areas.

- Juddering of the brake while riding is an indication of worn or damaged brake track areas. Do not continue riding in this case. If such a case occurs, send your wheels to us for inspection.

⚠ WARNING Risk of accident through hidden damage caused by a serious crash.

- Never continue using your bicycle after a serious crash. If such a case occurs, send your wheels to us for inspection even if no external damage is visible. In your own interest you should deal in the same way with all components on your bicycle that are produced by other manufacturers.

NOTICE **🔍** Risk of damage to the sensitive rim flange.

- Stop as quickly as possible when a blow-out occurs. Never continue riding with a flat tyre.

HOW TO BRAKE CORRECTLY

Braking with carbon rims is quite different from braking with aluminium rims.

- ☞ It is therefore essential to become familiar with the different braking behaviour and an especially cautious and circumspect riding method is recommended during the initial period!
- ☞ Do not keep the brake pads in constant contact with the rims. This can quickly cause severe heat build up on the brake track areas and cause delamination of the carbon fibres. After this happens, the braking effect is very hard to control and the wheel is permanently damaged.
- ☞ Operate the brakes at intervals (intermittent braking).
 - **The shorter and harder the braking intervals the better!**
 - **The longer the brake is released between braking intervals the better!**
- ☞ Please note that new brake pads and brake track areas only reach their full braking effect during the bedding-in phase. Select your speed to reflect this during your first rides!

Braking on a long descent:

⚠ WARNING Risk of accident through a reduced braking effect and material damage due to overheating of the brake track area.

- Do not keep the brake pads in constant contact with the rims.
- Operate the brakes at intervals (intermittent braking).
- Adopt a circumspect riding method.
- ① During long, fast downhill stretches where you need to brake frequently, regular short (1 second) releasing of the brake will considerably extend the lifetime of the brake track areas. Lightweight wheels dissipate heat very quickly – approx. 50 °C (122 °F) per revolution of the wheel!
If you need to apply the brakes for longer periods to ride safely, use the front and rear wheel brakes alternately.

⚠ CAUTION Risk of burning on hot brake track areas.

- Allow the brake track area to cool before touching it.
- ☞ You should check the brake track area for thermal deformation especially after a long descent and at high ambient temperature.
- ☞ Never ride with damaged wheels.

Braking in wet conditions:

⚠ WARNING Risk of accident through a reduced braking effect and incalculable braking behaviour due to water film on the brake track area.

- Adopt a circumspect riding method.
- Keep the brake pads in slight contact with the rims before braking.
 - This will eliminate the water film on the brake track area.
 - Braking effect and behaviour are considerably improved.

REGULAR MAINTENANCE

Frequency of maintenance work on your bicycle depends on how often and in which weather conditions you are using it. The following maintenance measures should be conducted more frequently if the bicycle is used in extreme conditions (rain, dirt, long distances etc.). Regular care and maintenance ensures that your bicycle is always clean and well protected by lubricants and preservatives. Ask your specialist shop about appropriate lubricants and preservatives as well as information relating to their correct application.

Cleaning

⚠ WARNING Risk of accident caused by an insufficient braking effect or erratic braking as a result of a soiled brake track area.

- Make sure that the brake track areas on your wheels are free of adhesive residues, brake pad residues and soiling.
 - After conducting any cleaning, maintenance or repair work make sure the brake track areas of your wheels are free from lubricants (grease, oil, silicone, Teflon, wax etc.).
 - Make sure that your cycle chain is only lightly oiled – excess chain oil can work its way onto the brake track area while riding.
- ① Brake pad residues and lubricants can severely impair the effectiveness of your brakes and lead to unpleasant judder during braking.

NOTICE Brake judder can quickly cause severe heat build up on the brake track areas and even delamination of the carbon fibres. After this happens, the braking effect is very hard to control and the wheel is permanently damaged.

NOTICE Soiling and sand act like a file during braking – this destroys the brake track area.

NOTICE Corrosion and material damage due to penetration of water.

- Never use a pressure washer or steam cleaner to clean your bicycle, as the seals of your bicycle components are unable to withstand the pressure. Even if you use a hose, be careful – never aim the hose directly at the bearing components. **[K1]**
- ☞ Clean your wheels and brake pads at regular intervals – and always after riding in the rain – with water and a non-aggressive, environmentally-friendly cleansing agent.
- ☞ Clean the brake pad residues from the brake track areas of your wheels at regular intervals with Lightweight **CLEANER FOR BRAKE TRACK AREAS**.
- ☞ When cleaning your wheels check rims and spokes for damage (dents, scratches, cracks, abrasion extending over a large area, worn areas etc.) and foreign objects (stones, glass shards etc.) which may have penetrated the brake track areas – remove any foreign objects.
- ☞ Check tyres for damaged areas (cracks, abrasion dents etc.).
- ☞ Periodically preserve the surface of your wheels using a high quality protecting wax or similar. Never apply wax to the brake track areas!
- ☞ Periodically clean all drive elements (sprockets, chain rings, chain, rear derailleur, front derailleur) of your bicycle.
- ☞ Lightly lubricate the chain on your bicycle at regular intervals.
- ☞ Periodically check derailleur and brake cables for smoothness of operation.
- ☞ Periodically check all bolts to ensure that they are firmly seated; when doing so observe the respective tightening torques.

Hubs

All hubs in our range of Lightweight wheels are fitted with high quality bearings that require no maintenance. However, their smooth-running attributes can be reduced over time due to wear or they can exhibit increased bearing play.

In this case, please return the affected wheel to us.

① Work on the Lightweight front wheel hub should be conducted by us!

Work on the Lightweight rear wheel hub can also be conducted by a DT Swiss Service Centre or a specialist workshop for bicycles.

- ☞ Always keep the hubs on your Lightweight wheels clean.
- ☞ Periodically preserve the surface of the wheel hubs using a high quality protecting wax or similar. .

⚠ WARNING If not correctly performed, assembly and maintenance work can cause accidents resulting in serious or fatal injury.

- Do not overestimate your technical ability – assembly and maintenance of Lightweight rear wheel hubs should be conducted by a DT Swiss Service Centre or a specialist workshop for bicycles.

This is the only way to ensure that work is conducted in a professional manner.

Furthermore, improperly performed assembly and maintenance work could also result in the loss of your rights with regard to product liability and warranty!

For more information please visit www.dtswiss.com

ROTOR REPLACEMENT

⚠ WARNING Risk of accident due to rotor failure.

- Never use a rotor that exhibits cracks or other evidence of serious damage (dents and burs caused by the cassette have no influence on the function of the rotor and can be ignored).
- Only replace damaged components with original DT Swiss parts.
- Only use original DT Swiss special freewheel grease to lubricate the components. It is available from your specialist shop or directly from Carbovation.

NOTICE Changing the dimension and non-centring of the rear wheel.

- Shimano®/SRAM®: only use the labelled "Shimano® – 11 speed road" rotor and the correspondingly labelled wheel adapter for a 11s rear wheel.
SRAM® XDR: only use the labelled SRAM® XDR type rotor and the correspondingly labelled wheel adapter for an 11s rear wheel.
Campagnolo®: only use the "Campagnolo®" rotor and the correspondingly labelled rear wheel adapter for a 11s rear wheel. [L1]

☞ Release the lock ring (1) of the cassette (2) using an appropriate tool. [L2]

☞ Remove the cassette from the rotor (3).

① Carefully loosen the cassette counterclockwise with a plastic hammer if it is difficult to remove from the rotor.

☞ Clean the rotor.

☞ Check the rotor for cracks.

☞ Inspect the rotor grooves for notches and burs and, if necessary, eliminate them using a suitable smooth file.

☞ Clamp the rear wheel adapter of the rotor side in a vice using an appropriate axle retainer. [L3]

NOTICE Risk of material damage.

- Do not hold the rear wheel by the rim when removing it.
 - When removing the wheel grasp it from below with both hands to the left and right-hand side of the rotor.
 - Apply an equal pressure to the top at either side.
 - Have the rotor removed by a specialist workshop for bicycles if it is not possible to remove the hub with moderate force.
- ☞ Remove the hub from the rear wheel adapter. [L3]
 - ☞ Remove the rotor [3], toothed lock washer [4], spring [5] and spacer [6] from the axle. [L4]
 - ☞ Remove the toothed lock washer [7] and spring [8] from the rotor.
 - ☞ Use a dry cloth or brush to thoroughly clean all components of old grease (including the inside toothed portions of the rotor and hub).
 - ☞ Check all components for damage.
 - ☞ Apply a light coat of grease to the inner teeth of the hub and rotor. [L5]
 - ☞ Push the spacer [6] and spring [5] up to the mechanical stop on the axle bearings. [L6]
 - ➔ The spring side with the larger diameter must lie flush against the bearing!
 - ☞ Check the bearings of the rotor for smooth and free operation. Have any defective bearings replaced by a specialist workshop.
 - ☞ Insert the spring [8] into the rotor. [L6]
 - ➔ The spring side with the larger diameter must lie against the shim of the rotor!

- ☞ Lightly lubricate the toothed lock washers [4] [7]. [L6]
- ☞ Place the toothed lock washers – with the toothed portions against each other – onto the axle.
- ☞ Slide the rotor over the axle.
 - Be careful when installing the rotor. Avoid tilting the components!

- ☞ Lightly lubricate the wheel adapter [9] – particularly inside. [L7]

NOTICE Loss of function – rotor jams.

- Do not replace the different wheel adapters of the Campagnolo®, SRAM® XDR and Shimano® rotors.
- Make sure that the outer diameter (Ø) of the wheel adapter accurately matches the inner diameter of the rotor used. [L7]
- ☞ Insert the rear wheel adapter onto the axle and press it by hand until it noticeably locks in place.
 - ➔ This completes installation of the rotor.
- Ⓢ Check the function of the freewheel mechanism by turning the rotor [3] jerkily and alternately in both directions. [L8]
 - If the toothed lock washers fail to engage properly, it means that either an excessive amount/unsuitable type of grease has been applied or the freewheel is not correctly installed. In this case dismantle the rotor and proceed as described above.
- ☞ Assemble your cassette – see **Installing the cassette**, page 21.

RULES

- ① Please contact our repair department before returning a defective Lightweight product to us!
If products are returned without our previous agreement, the shipping costs incurred will be charged to your account!
- ① When returning a defective Lightweight product please prepay the cost of postage. Any shipment that is not prepaid will be rejected and returned to the sender!
Please send us the defective wheel without any accessories (such as tyres, cassettes, quick release skewers, wheel bags etc.), as we will not assume any liability for possible damage and loss of the aforementioned parts.
We expressly reserve the right to return wheels in an unrepaired state if this requirement is not complied with.
- ① Before returning parts from countries outside Germany, please contact the importer. The importer will handle communications with our repair department on your behalf.
To locate your importer, please go to:
www.lightweight.info >>> DEALER >>> IMPORTERS

LIABILITY

We provide a legal liability (warranty) for all Lightweight products which covers material and processing defects. During this period all products accepted as being defective are replaced at no cost.

The liability period starts at the time the Lightweight product was originally purchased.

Liability does not extend to any kind of damage caused by normal wear and tear, accidents, unauthorised modifications, negligence or improper handling and use.

Repair work or any other work conducted on the Lightweight product by unauthorised persons will also void your warranty.

This also applies to any indirect or direct damage resulting from an action as described in the preceding sentence.

- ① Only Lightweight products registered by the original owner or reregistered by subsequent owners enjoy our service provisions!
– see **Registration**, page 13!

SERVICE

Crash replacement

In the event of irreparable damage (e.g. caused by an accident) we offer a discount off the German list price if you purchase a new Lightweight product as a replacement.

You can find information about this at:

www.lightweight.info >>> SERVICE

Fair deal promise

Minor damage to your Lightweight products will be repaired by our workshop free of charge even after expiration of the statutory warranty period, provided that the work required does not exceed 0.5 hrs.

The decision whether or not a repair is to be carried out free of charge rest solely with us – **if you caused the damage yourself, you are not entitled to free repair work!**

If you caused the damage yourself, please send us the product concerned for inspection.

We will then assess the level of work and either perform the repair free of charge or send you a quotation. It is then up to you to decide whether or not to go ahead with the repair work.

Carbovation GmbH has a policy to improve products as technical developments continue. We therefore reserve the right to make design alterations in relation to the illustrations and descriptions contained in this owner's manual, without incurring obligation to alter products previously delivered.

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Lightweight

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