CRONO Wheel Instructions

Introduction and Description
The Cane Creek Crono wheels are a thoroughly engineered wheel system designed for maximum cycling efficiency without sacrificing strength or reliability. Although the Crono wheels are somewhat similar to conventional spoked bicycle wheels, please read these instructions completely so that you can safely maximize the performance benefits of these wheels for many years. The primary feature of the Crono wheel is a straight pull spoke with the spoke nipple at the hub. Straight spokes can be assembled to a higher tension than J-bend spokes, resulting in a strong, stiff wheel with reduced spoke count. The wheel will remain true since there is no distortion over time at the spoke bend or spoke hole in the hub. Relocating the spoke nipples to the hub reduces the rotating mass at the rim (reduced polar moment of inertia), so less energy is required to accelerate the wheel. Another benefit of spoke nipple relocation is that the spoke holes in the rim are a much smaller diameter, resulting in higher rim strength and stiffness. Unlike composite wheels, Crono wheels can be re-trued (if necessary) by conventional means. They can also be repaired if damaged or worn out. Crono wheels can be maintained and serviced at any bicycle shop with common tools, no special equipment is required. All Cane Creek Crono wheels are hand built in the U.S., and inspected before shipment. Each wheel carries a serial number for manufacturing traceability. Over 70 years of wheel building experience goes into every Crono wheel. Additional features of the Crono hubs include: a preload adjuster on the front hub which will allow for increased adjustability and service. Crono front and rear hubs have removable covers for ease of access to the spoke nipples.

Use
Cane Creek Crono wheels are intended for single-rider 2-wheel road or mountain bicycles, with conventional rim brakes. Use on tandems, or with hub-mounted braking systems is not recommended. Always observe safe cycling practices.

Installation of cassette
The Cane Creek Crono mountain and road rear wheels will accept all Shimano® HG or compatible cassettes, including 9-speed Shimano® cassettes. Please refer to the cassette manufacturer for installation instructions. Torque the cassette locking ring to 40 N-m. Crono wheels are not compatible with Campagnolo® cassettes.

Installation of rim strips
It is necessary to install rim protective strips before mounting tires and tubes. Use a high-quality rim strip that is wide enough to cover the spoke access holes completely. For adhesive-backed rim strips, we recommend a minimum width of 15 mm for road wheels, and a minimum width of 17 mm for mountain wheels. For nonadhesive "stretch-on" poly rim strips, widths of 17 mm (road) and 19 mm (mountain) are recommended. Rim strips are not required for tubular wheels.

Installation of tubes and tires
There are no special requirements for mounting tires on Crono wheels. All road and mountain rims are drilled for Presta valves. As always with clinchers, don't use any sharp metal tools that can damage the tire, tube or rim. Check to be sure the tire and tube are properly seated before inflating to maximum pressure. For tubular wheels, please consult with a professional bicycle shop for proper gluing and tire mounting procedures.

Valve extenders for Deep-V/Carbon rims
After the tires are installed, unscrew the knurled Presta valve locknut all the way. The locknut remains unscrewed while the extender is in use. A layer of Teflon® plumbers tape on the valve threads will assure a good seal. Screw the extender down finger-tight over the valve threads. To release air push a small wire such as a paper clip into the extender to open the valve.

Quick-release skewers
Use a high quality, strong and reliable quick release with Crono wheels. This is not the place to sacrifice functional integrity just to save a few grams. Install and tighten the quick-release skewer according to the manufacturer's instructions. Please contact your local bicycle shop if you have any questions, concerns or confusion about the operation of the quick-release. And always check that the quick-release skewer is firmly attached before every ride. Cane Creek quick release (skewers) are shipped with all "Team Issue" wheel sets. Cane Creek quick release (skewers) can be purchased from your local bike shop.

Wheel truing
Crono wheels are designed to stay straight, due to the unique configuration and high spoke tension. Should the wheels ever require truing, a 3/16" open-end wrench is provided for turning the spoke nipples. The truing procedure is basically the same as for a conventional spoked wheel, except that the nipples are at the hub. The cassette cogs will have to be removed to provide access to the drive-side spoke nipples (road or mtn. wheel). If significant truing or spoke replacement is required, it is necessary to maintain the target spoke tensions as closely as possible. Please use the following spoke tensions as a guide *(listed below)*. We recommend that any truing of Cane Creek Crono wheels be performed by an experienced bicycle shop mechanic/wheel builder.

Spoke information
Crono wheels the use 2.0 (14 ga) straight-pull spokes include: Deep V, Cross, Twenty and Cruiser (BMX wheels). Wheels that use 2.0/1.7 (14/15 ga) spokes included: Aerohead (clincher and tubular), Cross, RC/RT, Aeroheat, WAM, WAM Disc and Disc V. Ti bladed spokes (2.0) are used on the Carbon (700 & 650 c) wheels. This is a "standard" spoke configuration, but may not be readily available. Replacement spokes and nipples are available from Cane Creek, or proper spokes can be cut to length at a suitably-equipped bicycle shop. Never use a J-bend spoke in a Crono wheel. Never try to straighten a J-bend spoke as a substitute for a straight-pull spoke. We recommend that you have spokes replaced at your local bicycle shop.

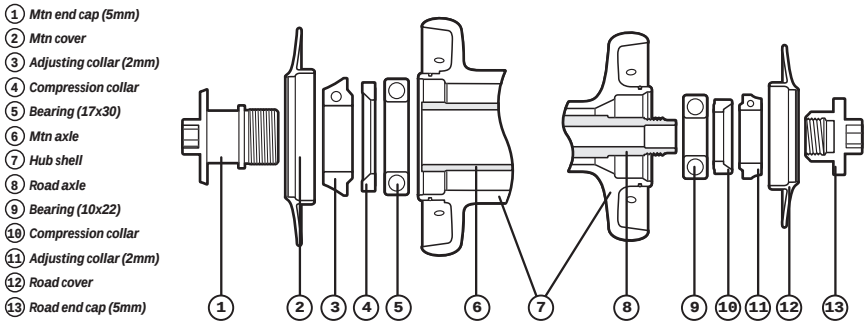
Safety and maintenance
Although a Cane Creek Crono wheel is engineered for strength and durability, it is in fact a high- performance lightweight bicycle component and not designed to withstand constant abuse. A little care and attention will extend the life of your wheels and your safety. Periodically inspect the rims for dings, cracks or excessive wear. Inspect the hub shells for cracks near the spoke holes, or on the flanges. If any cracks are present, do not ride the wheels, take them to a bicycle shop for service. Be sure all of the spoke nipples are secure. Check your quick release for proper function. Check the performance of the axle bearings, and the rear freehub. Clean the wheels with water and a household, automotive or bicycle detergent. Do not use solvents or abrasives for cleaning.

Crono Wheel Spoke Length/Tension Guide

Rim	Road *(700c)* Front	Road *(700c)* Rear Non/Drive	Road *(650c)* Front	Road *(650c)* Rear Non/Drive	Mtn *(26")* Front Non/Rotor	Mtn *(26")* Rear Non/Drive	Specialty Front	Specialty Rear Non/Drive
Aerohead	283	280/284	261	257/261				
Aerohead Team	284	281/286	261	257/261				
Aerohead Tubular	285	282/286						
Carbon	251	247/251	227	224/227				
Cross	275	272/275						
Deep-V	275	272/275	250	246/250				
Race Clincher	275	272/275	252	248/252				
Race Tubular	276	272/276	252	248/252				
Aeroheat					248	248/253		
Deep-V					246	246/250		
WAM					251	251/256		
WAM Team					251	251/256		
WAM Disc					250/256	255/257		
Disc-V					246/251	250/253		
Twenty (20")							170	169/177
Cruiser (24")							219	219/226
Spoke Tension	***Front Wheel (all) 120kg***		***Rear (Drive Side) 120-130kg***		***Rear (Non-Drive) 85-100kg***			

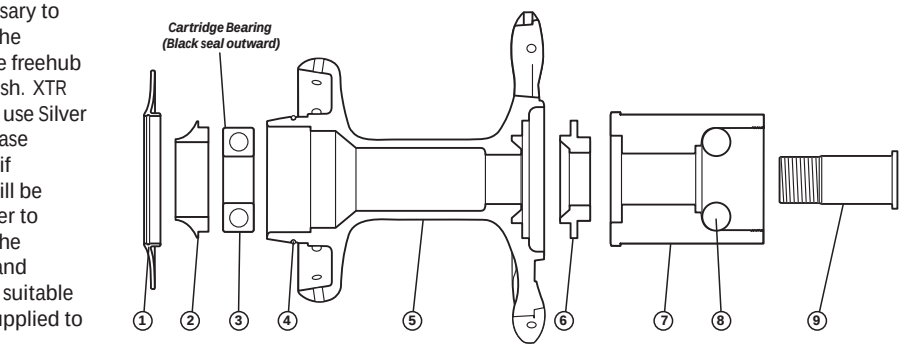
Front hub adjustment/ bearing replacement

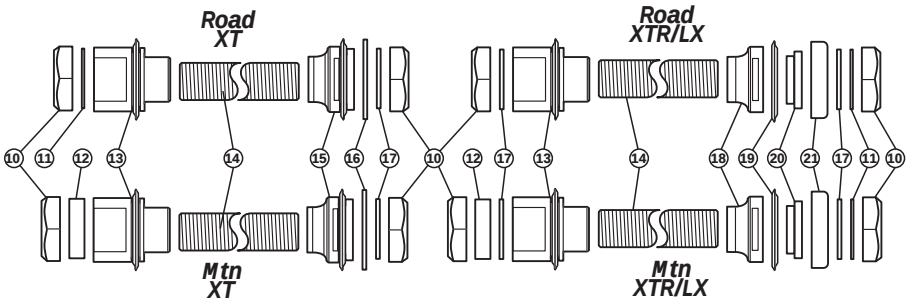
The Cane Creek Crono front wheels use a patented preload mechanism. Also sealed cartridge bearings are used, which should provide long, maintenance-free life. Eventually, the bearings may need replacing due to wear or contamination. We recommend using replacement bearings from Cane Creek, which have an optimum seal configuration, grease type and grease quantity. If these are not available, standard replacement cartridge bearings can be substituted. Type 6900-2RS (10 x 22) bearings are used on the road hub, and type 6903-2RS (17 x 30) bearings are used in the mountain hub. Please familiarize yourself with the illustration of the front mtn. and road hubs. The mtn. hubs axle end caps thread to the internal portion of the axle. To replace the bearings, first remove the quick release skewer and hub end caps. Using (2) 5 mm hex keys (one on each end), loosen one end cap (turn each counterclockwise as facing). Note: make sure not to interface the 5 mm hex key fitting in the road axle. After removing the end cap, slide the axle out of the hub (the road hub axle/bearing will have to be removed together). Using a punch or drift, tap the each bearing out of the hub. Press each new bearing in place, using an old bearing as a drift (be careful not to press both bearings into the hub shell). Always apply pressure to the outside race of the bearing while pressing it in, never press on the inner race alone. Once the bearings are positioned, slide the axle with end cap in place. Thread the remaining end cap to the axle and torque to 25 in/lb. The preload mechanism consist of an axle end cap, an adjusting ring and an adjusting collar. Using a 1.5 mm hex key, tighten the adjusting collar set screw (clockwise) until all free play is removed from the front hub (do not overtighten). Reinstall the hubcaps and quick release. We recommend having the bearing replacement procedure carried out by a professional bicycle mechanic.



Rear hub adjustment and servicing

The Cane Creek Crono road (silver) and mountain (black) rear hubs are similar in design and construction. A standard Shimano® LX, XT or XTR freehub body is used, along with loose ball "cup & cone" bearings on the drive side. A cartridge bearing is used on the left side. Bearing adjustment is similar to a standard Shimano® rear hub; the non-drive side locknut should be loosened and the left side cone turned for bearing adjustment. Then tighten the non-drive locknut against the cone and spacer(s). Note: Due to the combination of cartridge and "cup & cone" bearings on the same axle, correct bearing preload adjustment is critical for long bearing life. The rear hub uses an angular contact cup and cone bearing, which can generally withstand greater axial preload than a radial contact cartridge ball bearing. Do not overtighten the adjusting cone when adjusting the rear hub bearings. The optimum adjustment is to have just a trace of side-to-side play at the rim of an unmounted wheel. This side-to-side play should be eliminated when the wheel is mounted and the quick release is properly tightened. Excessive bearing preload will shorten the functional life of the cartridge bearing. Should the bearings or freehub body require servicing or replacement, first remove the wheel, quick release and cassette. Remove the hub axle by removing the locknut, spacer(s) and adjusting cone from the left (non-drive) side. Then withdraw the axle and ball bearings from the right side. Freehub body removal is the same as a Shimano® hub, using a 10 mm hex key. It is possible to use an XTR freehub body (if not installed already). It will be necessary to install a new hub spline (separate piece that the freehub body rests against) that will space the freehub body inward and keep the wheel in correct dish. XTR freehubs use a Gold spline, while XT freehubs use Silver and LX freehubs use Blue colored splines. Please contact Cane Creek to purchase a new spline if rebuilding with a different freehub body. It will be necessary to remove the freehub body in order to remove the left side cartridge bearing. With the freehub body removed, the left side bearing and sealing ring can be lightly tapped out using a suitable drift (make sure to install the retaining ring supplied to increase area for drift). Again, a replacement bearing from Cane Creek is recommended. If this is not available, then a cartridge bearing type 6902-2RS may be substituted. Press the new bearing into the hub shell ***(black seal out ard),*** using the old bearing as a drift. Always apply pressure to the outside race of the bearing while pressing it in, never press on the inner race alone. Press in the sealing ring. Reassemble the freehub body (include the washer) and axle, and set the bearing preload as described above. We recommend having the rear hub serviced at your local bicycle shop.





1 Spoke Nipple Cover
2 Bearing Cover
3 Bearing 7001-2RS (12x28)
4 O-ring (Spoke Nipple Cover)
5 Hub Shell
6 Freehub Spline
7 Freehub Body
8 1/4" Ball Bearing (9)
9 Freehub Bolt (10mm)
10 17mm Axle Nut
11 0.5mm Flat Washer
12 4mm Spacer
13 Sealed Bearing Cone w/ Seal
14 Axle
15 Cassette Cone w/ Seal
16 20x1mm Washer
17 1.0mm Flat Washer
18 Cassette Cone
19 Cone Seal
20 2.3mm Axle Spacer
21 XT Dust Cap

WARRANTY

Cane Creek Cycling Components warrants its bicycle products for a period of 1 year from the original date of purchase. Any product that is found to be defective in materials or workmanship will be repaired or replaced at the discretion of Cane Creek. This warranty applies to the original owner only. This warranty does not cover damage or failure resulting from misuse, abuse, alteration, neglect, wear and tear, crash or impact, lack of maintenance or other conditions judged by Cane Creek to be abnormal, excessive, or improper. It is mandatory that a Return Authorization Number (RA#) be obtained by calling Cane Creek before any product is returned. Additionally, a dated Proof of Purchase must accompany the product when returned. (Revised 7.15.2003)

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