THE RIDE

WATERFORD FRAMESET OWNER'S MANUAL

Your new Waterford frameset reflects the culmination of nearly a century of refinement in competition as well as enthusiast frameset design. We have selected from the best of evolutionary and revolutionary frame design and thinking to serve the serious riding community with the world's finest bicycles. Every aspect of your new Waterford frame has been carefully considered and reconsidered by designers and engineers who love to ride, and who seek for themselves, and for you, the ultimate bicycle frame.

WATERFORD TECHNOLOGY

Much discussion has gone on between bicycle designers and riders over time concerning tubing. Tubing has been flattened, boxed, butted, tapered, expanded, contracted and created out of about every material imaginable to be made into bicycles. While every configuration and material results in different strength and ride characteristics, the overall goal remains the same -- the greatest strength with the most comfort and efficiency for the rider. Although we experiment constantly with every material we believe holds promise for frame construction, the steels from which we construct our frames adn forks offer the greatest balance of frame stiffness and rider comfort, minimum weight and maximum inherent frame strength.

Around the turn of the century, Reynolds was among the first manufacturers to introduce processes for butting and tapering seamless steel tubing. After many years of refinement these processes now allow precise tuning of each tube for stiffness and comfort, while taking maximum advantage of the tube's inherent strength. In the 1970's, Reynolds pioneered the use of heat treatment to enhance the strength of the tubing. Waterford's leadership in low-temperature silver-brazing meant that it could retain all the strength in this high-performance alloy without compromising its durability.

In the 1980, the Waterford Factory worked with US tube maker True Temper Sports to create the legendary OS tubeset, its unique dimensions and flares, specifically designed to stiffen the bottom bracket, leaving the rest of the frame light and comfortable.

The mid-1990's saw the introduction of the first air-hardening steels. These steels allowed Waterford to TIG-weld as well as lug braze, without compromising the strangth of the tubes.

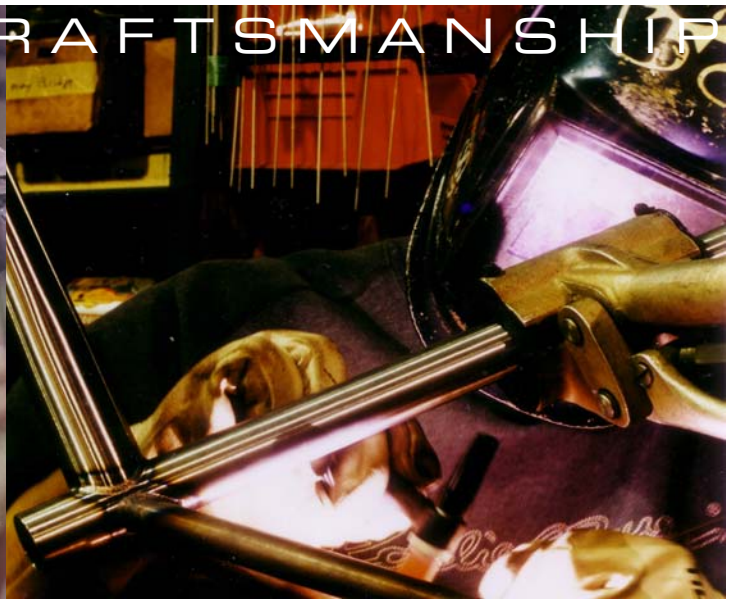
Collaboration with True Temper helped bring about their celebrated S3 Technology tubesets, with special shaping and heat treatment to maximize performance. Both Reynolds and Trust Temper offer air-hardening tubesets, which not only exceed the performance of chromoly, it is weldable as well as brazable, making it the most versatile material available today.

Reynolds has now its 953 series stainless steels. With strength even greater than 853 and True Temper's OX Platinum plus corrosion resistance, this tubeset offers not only excellent performancese today but also extended value for the frame.

Lug-brazed Reynolds 953 offers full stainless steel construction.

We work closely with both Reynolds and True Temper to create tubing that exactly meets our requirements, and allows us to further push the envelop of frame design. Our pioneering use of oversized tubes diameters, with special wall thicknesses and butting specifications produced a frame that revolutionized riding, both road and off-road. This on-going attention to each nuance of our tubeset insures our riders the maximum possible ride comfort, stiffness and durability in an extremely lightweight package.

WATERFORD CRAFTSMANSHIP



Brazing: Brazing creates a molecular bond without melting the tubing as with arc, TIG or MIG welding. Early brazed joints were made with a brass fillet or lugs to hold tubes in place. Brass formed the bond between tube and lug, with the lug providing a higher level of reinforcement than brazing alone.

The introduction of silver as an advanced brazing material solved many brazing problems. Silver provides comparable strength, but melts at a much lower temperature than brass, reducing the weakening of the material which results from high temperatures.

Lugs: When lug frame construction appeared early in this century most lugs were either cast, stamped (and welded) or forged. In the late '70s the advent of investment cast lug construction allowed us to create precision lugs built with the exactness of fine jewelry. This allowed for a minimum of material to be used in our design of intricate, lightweight shapes such as our unique bottom bracket with built-in chainstay bridge and cable-guide. To us the investment cast process is territory full of promise that invites even further exploration.

Waterford has also introduced a growing array of investment cast stainless steel lugs, which are polished to a mirror finish to transform your frame into jewelry.

Waterford Fit: One of the most important ways to improve your performance is to improve your fit. Whether you are an international competitor or an intercontinental tourer, good fit transletes into greater comfort as well as power. Waterford has developed a comprehensive fit program to assure that every rider can get the most out of their Waterford

Geometry: Frame geometry, which defines both rider position and bike handling, reflects the changing race requirements and body shapes as well as advanced componentry. With better roads, we can offer faster and more manueverable steering than

Welding: Welding transforms two tubes into one. Performed at almost twice the temperature of brazing, welding melts the tube and other frame components together. Though Waterford has earned a world-class reputation for its brazing, it has also developed the same level of virtuosity in welding, which it began using to build frames from its founding in 1993.

The advent of air-hardening steels means that Waterford's welded frames have the same durability as their brazed frames, while offering considerably higher design flexibility.

was tolerable in earlier years. Our long top tubes closely fit American riders and riding styles. As designers, engineers, and most importantly as riders ourselves, we've incorporated decades of know-how into our standard geometries. We also incorporate into our designs the advantages of new componentry like clipless pedals, which offer better road clearance. We lowered bottom bracket heights to provide greater stability - while maintaining acceptable road clearance.

Beyond these more obvious design considerations are more subtle but basic issues. Weight distribution has a significant impact on handling and braking which we incorporate into our rear-end geometry. And we never forget the other critical ingredient for a superb ride - a straight frame. Every step in Waterford's manufacturing process, starting right from tube selection and cutting, insures a straight frame - **before** the alignment table. This level of craftsmanship, unmatched in our industry, ensures our riders the finest ride possible.

World-class bicycle frame construction requires know-how, the combination of these and thousands of other details gleaned from a century of riding and frame construction. No other framebuilder puts it together the way Waterford does - into a ride without peer. We hope you enjoy putting our know-how and our passion to work for you.

TIPS FOR A PERFECT SETUP AND PROPER MAINTENANCE OF YOUR WATERFORD

UNPACKING

Our packaging system has proven very reliable against shipping damage. Save your box and packing materials in case you need to ship your Waterford or some other frame.

Use special care in unpacking your Waterford to minimize damage. Wait until you are ready to begin assembly before you fully unpack the frameset. You will need: a box staple remover or flat head screw driver and a pair of pliers. It's a good idea to have your bike stand ready to mount your Waterford for assembly, as well as a seatpost. Do not use a box cutter since you'll want to save the box.

- Remove as many staples as possible - particularly from the top flap of the box. Use the staple remover. If not available, use the flat head screw driver to lift up the staple and the pliers to finish removal.
- Be sure to remove all packing material from the bike - especially the seatmast stabilizer tube. This tube prevents the frame from shifting from side to side during shipping. If the tube slips down into the seatmast and then is set up, it can hold moisture next to the tube which can lead to structural corrosion.
- Be sure you've located anything else enclosed with your frameset:
  - √ Packed with the shipping documents are the tubing decals, chainstay protector, the rider response card and the owners manual.
  - √ Special fork hardware (star nuts).
  - √ Accessory parts, Bottom bracket cable guide (if needed), touchup paint, catalogs and/or clothing.
  - √ Leave protective wrapping around tubes until the last minute during assembly to reduce the possibility of chipping from dropped tools. Paint chips more easily during the 30 day initial curing period.
  - √ Sand paint off the faces of bottom braket shell before installing the crank to prevent damage to paint on the surrounding surfaces. Though the BB shell is machined to very tight tolerances, we paint the faces for those bottom bracket assemblies that leave the faces exposed.
- Grease and install the seatpost at the max height line and tighten to the manufacturer's specifications. Then **clamp the seatpost**, not your frame, to your bike stand.

CLAMPING YOUR WATERFORD FRAMESET DIRECTLY MAY DEFORM THE CLAMPED TUBE!

PREVENTING INTERNAL CORROSION

While every Waterford receives a rust-inhibiting treatment, you can add even more protection through special treatments of the internal tubes such as with Weigel's FrameSaver™ or other frame preservation products.

Do not plug drain holes. Plugging up drain holes prevents the release of moisture which inevitably forms inside the frame. Such moisture may result from condensation when the frame moves from one temperature to another. Moisture trapped in the sealed section of the frame will accelerate corrosion.

Drain holes allow any moisture inside the frame to evaporate. When riding in extremely wet or flooded conditions, hang your bike by the front wheel to let the water drain out. Normal evaporation will take care of any residual moisture.

PROTECTING YOUR FINISH

The finishes on your new Waterford-built frameset contain the most advanced urethane polymers available. Properly cared for, your frame finish will retain its deep luster and gloss through years of hard service. However, even the most advanced finishes can absorb water and sweat and allow corrosion to begin beneath the surface. The following procedures can significantly extend the life of your finish:

Use only breathable waxes during the cure period: During the first 30 days after you receive your frame, use only breathable waxes such as Meguiar's Mirror Glaze #7 that allow continued paint curing. It is better not to wax your frame at all in the first 30 days than to apply a non-breathable wax.

Once the cure period is complete, apply a Carnauba-based wax such as Turtle Wax or Meguiar's Tech Wax. Check the label to make sure that the wax is safe for clearcoat finishes. Be sure to apply wax underneath the cables and on the insides of cable stops.

Use only a soft cloth when buffing. 100% cotton cloth is preferred. Avoid paper towels which contain plastic fibers that can abrade the finish.

Keep your bike clean: Once your frame is properly waxed, regular washing or at least fresh water rinsing prevents sweat, road salt, sports drinks and/or salt air from corroding your finish. Be sure to relubricate your chain and other moving parts after washing.

Keep your bike drained: Water can accumulate inside the frame after a wet ride or a washing. To drain the frame, lift up the front wheel and hold it up above the rear wheel as if you would hang your bike by the front wheel. This lets any water drain out the various drain holes we place around your frame. Once drained, these holes allow residual moisture to evaporate.

Re-wax as necessary: Rule of thumb: when water stops beading up on your frame, it's time to re-wax. Usually once or twice a year for most environments. Commuters and riders in corrosive environments may need to re-wax more often.

Touch-up scratches soon after they appear, either using Waterford touch-up paint or, in a pinch, nail polish. Before applying touchup, rub the affected area with a clean ink eraser to remove light surface rust . If your Waterford touch up paint becomes too thick, add a few drops of laquer thinner until it reaches a proper consistancy (about like motor oil) before applying. Replacement touchup paint is available through your shop or directly from Waterford.

For more information, visit waterfordbikes.com and download our Waterford Bike Care Guide.

PROTECTING YOURSELF

Inspection: While cleaning and waxing your bike, regularly inspect, adjust and replace bearings and other components to insure better overall riding performance and avoid stress on the head tube, bottom bracket and derailleur hanger threads.

Ride Safe: Even though all we provide is the frame, the complete bike and, the rider is always our chief concern. Follow safe riding practices:

> Always wear a helmet.

> Obey traffic laws.

> Wear proper clothing for conditions.

> Stay visible day and night with bright clothing, reflectors and, at night, proper lighting.

If you crash. . . The beauty of steel is that structural failure is typically slow. If you have a crash, a crack might not be visible. Continue to inspect the frame during the period after the crash to see if small cracks have appeared. Another beauty of Waterford's silver-brazed construction is that your frame is completely repairable. Our repair services can return your frame to like-new condition.

REGULAR MECHANICAL MAINTENANCE

Proper and regular mechanical maintenance will extend your frameset's life for many years.

- **Follow your component manufacturer's recommendations** for proper maintenance. External moving parts should be oiled regularly, especially the chain as well as pivot points on the derailleur, shifters, brake levers and calipers.
- **Perform a full annual tuneup:** This includes disassembly, inspection and possible component replacement as well as relubrication of internal surfaces such as bearings, bottom bracket threads and derailleur mounts.
- **Don't forget the seatpost:** At least annually, remove, relube and reassemble the seatpost. For alloy posts, apply a light coating of a heavy lubricant such as chain grease. For carbon seatposts, use a non-grease material such as wax or friction paste to prevent seizing of the post in the frame. **WARNING: Do not turn the seatpost clamp around in the seat tube.** The threaded part must cover the seat tube slot or you can damage your frame.
- **Perform more frequent maintenance** in corrosive conditions such as areas with high humidity and/or salt air.

Good maintenance not only improves general safety, it also improves your race results and/or enjoyment of long rides. A clean and tuned bike is a fast bike!

THE WATERFORD RIDER REGISTRY

Your Waterford represents the highest level of workmanship and technology available today. A number of Waterfords have already become collector's items and appear in museums. Help us maintain your bike's pedigree by providing us information about yourself.

- **If you sell your Waterford**, please invite your buyer to register their name with us, as well.
- **Register at Waterfordbikes.com.**

Assure your place in history.

WATERFORDBIKES.COM

This internet resource is available 24 hours a day and includes:

- **Rider Registration**,
- **Technical support and advice** from our FAQ section.
- **Supplemental care information** like our Bike Care Guide.
- **Waterford Forums**, where you can get and stay in touch with other Waterford riders.
- **Waterford News**, includes our summer Factory Ride series.

Maintainance Log - Name			Serial #	Model	.
Date	Action	By	Date	Action	By

THE WATERFORD FOREVER™ WARRANTY

Waterford Precision Cycles, Inc. ("Waterford") warrants to the original retail owner against all defects in material or workmanship for Waterford Framesets sold by Waterford or through its authorized dealers without a time limit. This warranty does not cover normal wear and tear, normal maintenance items or any damage, failure or loss caused by:

1. Accident, misuse, neglect, abuse or improper maintenance.
2. Use of the product for stunt riding, ramp jumping, acrobatics, competition or similar activities.
3. Structural modifications made by anyone other than Waterford Precision Cycles.
4. Failure to follow instructions or warnings in the owner's manual.

- This Warranty does not cover separately sold products.
- Waterford will, at its option, repair or replace a defective product. Dealer labor charges are not covered by this warranty.
- Waterford is not liable for incidental or consequential damages. Repair or replacement of defective products is the sole remedy under this warranty.
- If you elect to repair a damaged or defective Waterford product through a source other than Waterford then Waterford will not be liable for the defect(s) or damage caused by such repairs.

We hope you find this owner's manual informative, convenient, complete and accurate. Should you have any questions, comments, suggestions or corrections we urge you to contact us by phone, fax, e-mail or post. Thank you very much.

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