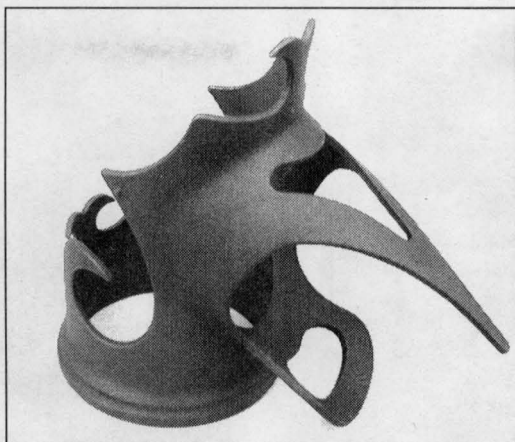
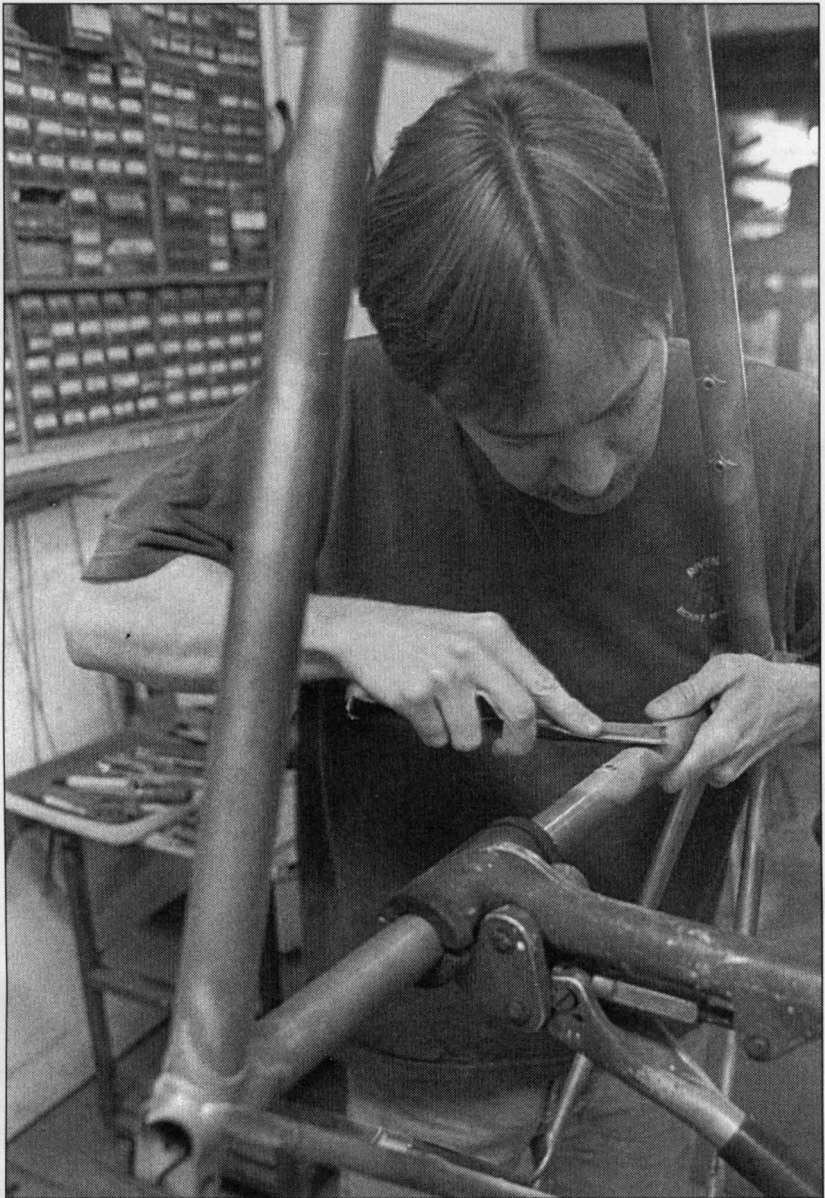


The Rivendell Frame

Only Steel. Always Lugged.



Rivendell Bicycle Works
Box 5289 Walnut Creek, CA 94596
tel: (925) 933-7304 fax: (925) 933-7305
www.rivendellbicycles.com



The bottle bosses are reinforced with thin, diamond-shaped plates which must be brazed on separately. Here, Joe cleans up the diamonds, making them extra thin and nice-looking.

~·SLOW FRAMES·~

A custom Rivendell bicycle frame requires more than 20 hours to build, and we've a strong hunch there are fewer than ten builders in the country good enough to build them. We've got two of them—Joe Starck and Curt Goodrich—and we know of six others. There might be somebody we're overlooking, so *maybe* ten. It's unlikely there's an unknown master out there; the top crafters in any field don't stay invisible for long.

One thing that makes a Rivendell challenging is the bend in the fork. We like the look of a bend that starts low and continues, without straightening, all the way to the dropout. It doesn't make the bike ride any better, and it's harder to make. We had to get custom maple bending blocks, and each blade has to be raked individually, using a simple lever tool that wouldn't raise an eyebrow if it time-traveled back to the 15th century.

And, on frames designed for sidepull brakes, we're particular about the length of the fork blades and location of the rear brake bridge. If the fork is too short or the bridge too low, tire and fender clearance are compromised. If it's too high, the brake pads rub the tire. The best location for the brake pads is at the bottom of the slot, but aiming for that location is risky, and hitting it every time requires extraordinary precision and consistency. Most frames, consequently, aim for a mid-slot placement that reduces tire and fender clearance, making the frame less versatile.

These are two of twenty-five details that define a Rivendell. Some affect function, some affect aesthetics, and some affect strength. We don't cut corners, and every detail is embraced as though it matters.

The finest frames from the past were not made this well. If you remove the romance associated with those names and those times and strip off their paint and decals and head badges, you'll have a shed full of fine frames that still fall short. As time has passed, materials and methods have improved, and the bar has been raised.

Rivendell frame standards are impractically high, but our frames are *not* nostalgic, modern classics. We use traditional materials and methods, no matter how costly or slow, when they work the best. But the best result means using the best of everything. The tubes are cut (coped) by machines rather than by hand with a file, because machine coping is—as a matter of fact—more precise. There is an inordinate amount of hand labor in a Rivendell, but none is gratuitous. We use the best method to build the most precise, the highest integrity, and the most beautiful frame we're capable of making for you.

A Rivendell frame builds up into a bike you will bond with immediately and ride for the rest of your life. It will be a bike you'll love even more whenever a new gimmick or technology grabs the headlines and promises more speed, more victories, more glamour.

~·LUGGED STEEL STILL·~

- For 10 years now lugged steel frames have been getting increasingly scarce, victims of manufacturing economics and a shortage of good brazers. Now lugged steel frames are as rare as arrowheads in a Yosemite campground, and new cyclists don't give them a second thought •

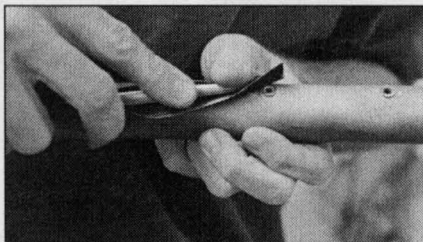
What a change from just 20 years ago! And all the years before. Back then, Reynolds and Columbus steel tubing were the materials of choice, lugs were a given on all but the cheapest frames, and joining one tube directly to another by melting them both (tig-welding) was unacceptable on a high quality frame. Bike shops wouldn't sell them.

The first tig-welded frame to break the bike shop barrier (where better bikes are sold) was the Specialized Stumpjumper, about 1981. The market was so hot for an affordable mountain bike that riders overlooked the welds and bought them anyway. More tig-welded frames followed, and over the past 20 years, tig welding has proven its reliability. As the cycling market is increasingly populated with new riders unfamiliar with traditional methods and styles, the acceptance of tig-welding is complete.

Now it's 2001, and even the most revered names from Europe and many in the United States — makers who built their reputation on lugged steel — are now offering frames that fly in the face of the style that won them that reputation. It used to mean something to say "I have a Colnago" or "My bike's a Tomassini" (or Masi, or DeRosa). These days that doesn't even identify the material. Fork crowns have disappeared, forks are straight, steel frames get molded carbon fiber forks, downtube have morphed into billboards, headsets have sunken into bloated head tubes, and many expensive frames look like they take longer to paint than to build. At the bicycle expo in Milano, you'll see leopard-skin-spotted monocoque carbon frames with "classic" Italian decals. It's a clash of worlds and ideals.

In most of the hallowed frame shops in Europe, the founders have burned out, sold out, or undergone a late-life crisis, and a business that once seemed bubbling over with conviction and passion is now controlled by new blood and ideas that kow-tow to profitability and market trends at the cost of its heritage. As the high end market has changed from educated to impressionable, manufacturers have responded by dropping the traditional materials, methods, opting instead to build cheaper and faster, under the banner of "high tech."

In most non-sports endeavors, professionals choose their equipment or tools not so much to give them an advantage, but to eliminate hassles, risk, and disadvantages. Pro bike racing is no different in that way, but it is in another. Salaries and expenses have increased to the point where only the biggest companies can afford to field teams, and only the biggest bike makers can afford to pay riders enough to ride their bikes. The bikes meet the pro's primary requirements, but beyond that, they're nothing special. They're super light, because pros are super light, don't have to pay for replacements, and won't ride the same bike for 20 years. If you like the aesthetic, and the idea of riding the same bike the pros ride, they're a good deal. But in terms

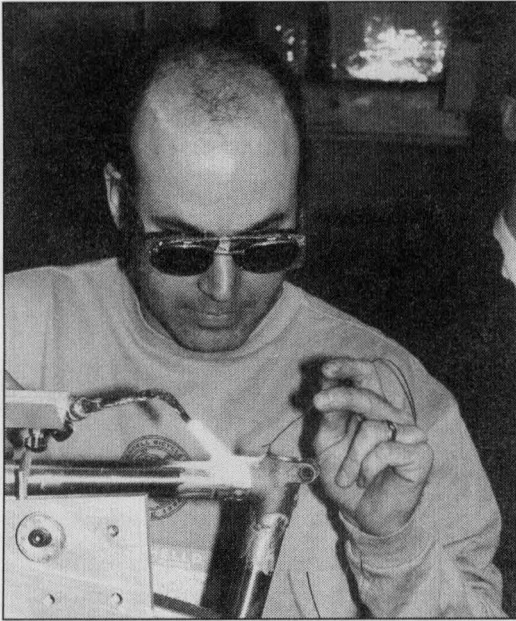


of craftsmanship and the time and skill required to build them, a well-crafted and detailed lugged, steel frame wins by *miles*. Like leather for shoes and wood for furniture, lugged steel is the natural and traditional choice for the most beautiful and enduring bicycle frames.

SOMETIMES A PERSON WILL LOOK AT A RIVENDELL, and see the lugs, headbadge, curved fork with a real crown, and simple graphics on a round-tubed, diamond-style frame, and instantly sum it up as "retro." That's understandable, because those things are easily noticed, but still, few things frustrate us more. "Retro" connotes a functional shortcoming for nostalgia's sake, like cork-topped metal water bottles, wooden rims, and Cinelli M-71 pedals. For a show bike they're fine, but we make bicycles for riders, and the things we're most proud of don't surface during a quick glance. Riding position, tire clearances, joint integrity, straightness, and road manners aren't something you can notice on a bike just sitting there (or a bare frame), but they're what set us apart.

A Rivendell frame and fork and headset, painted and prepped usually takes about 5 months to get, and costs \$2,200 to \$2,300. A frame weighs 4 to 5 1/2 pounds, and the fork, 1 1/4 to 2 pounds. A complete bike usually costs \$3,500 to \$3,700, and weighs 20 to 24 1/4 pounds.

You can go to a bike shop tomorrow and walk out with a bike that weighs less and costs one third as much. That's why those bikes outsell Rivendells 9,000 to 1. But if you like the idea of riding and growing old with the best bicycle it is possible to make, then you might as well pay more, wait longer, and get a Rivendell. There is no finer bicycle frame.



Curt, brazing a seat lug to the top tube.

Brazing a Rivendell (the rudiments)

Brazing, in a nutshell, is turning solid metal molten and getting it to flow into the small, almost touching gap between the frame tube and the lug, where it will harden and secure the joint. You can think of it as gluing with metal, but the metal you start out with isn't liquid, the surfaces to be glued can't be seen, and the brush is a flame. It isn't mysterious art, though. All the materials involved respond predictably and consistently to certain laws. A good brazer understands those laws and knows how to create the right environment for them to kick in. And, through experience

and objective verification (testing) knows when the frame joint is complete and properly brazed.

The Metal (the glue)
Frames can be brazed with brass or silver. Silver costs more and flows at a lower temperature, but "frames brazed with silver" tell you just as little about what matters as does "photographs taken with a Pentax." As a matter of fact, Joe and Curt use silver for the main frame lugs, and the forks, and brass for the dropouts. The particular alloy is 56% silver, and comes in 3/64- or 1/16-inch coils. It costs \$8 per ounce, and a typical frame uses about an ounce and a half.

Preparing the Lugs and Tubes

First, the builder shines up the insides of the lugs and the outsides of the tube ends with sandpaper to remove surface scale and irregularities which will impede the flow of molten metal. Then he brushes them with flux, a mixture which protects the tube from the torch's heat and creates a proper environment for brazing. It brushes on like white, semi-frothy paste, and turns clear and gel-like when it gets hot.

Tacking the Frame

The he assembles the prepared and fluxed frame tubes and lugs in a frame fixture, which holds them in

the correct geometry. At this stage, the "frame" consists of the head tube, top tube, seat tube, and down tube, with no forks or rear stays. With the frame aligned in the fixture, he "tacks" the frame with spots of brazing, so it won't move during the final brazing.

After verifying the alignment on an expensive table, he transfers the frame to a bike repair stand, just something to hold it and rotate it while he works.

More About Brazing

Brazing Basics

The builder uses an oxyacetylene torch, selecting the tip and flow of gas according to his brazing material (silver or brass).

When the lug and tube are properly heated and the flux is ready, the builder feeds the rod into the edge of the lug. The flame melts the rod, and if all's well, capillary action sucks the molten silver into the gap. He has to keep it molten (by keeping the joint heated), and flow it around the joint, even though he can't see beneath the lug.

As he brazes he moves the flame in tight to concentrate the hottest part of the flame on a thick part of metal, or backs it off, and letting the cooler, less concentrated part of the flame envelop the whole joint—sort of like keeping soup warm.

Too much heat (too hot or too long) will burn up the flux, and without flux, the silver won't flow. So the builder pays attention not just to the area being heated and brazed, but the adjacent areas, too.

He gets his temperature cues from the color of the heated metal and

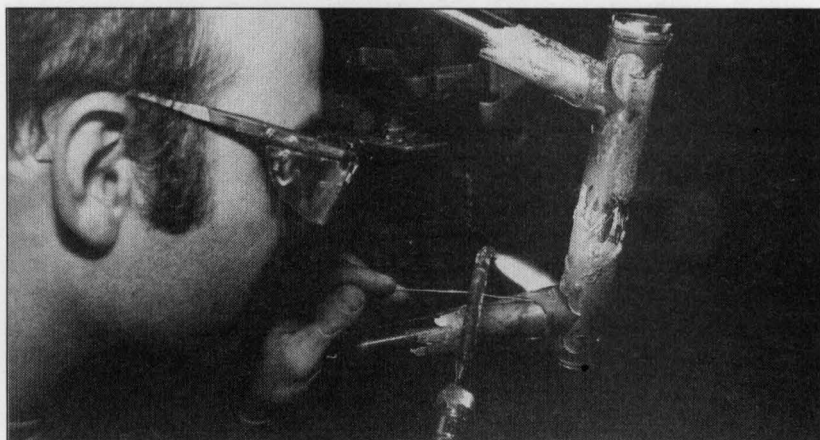
the behavior of the flux. In both cases, the cues are subtle. When brazing with 56 percent silver rod, the metal doesn't change color. When the flux is ready, it's clear and sort of runny.

Brazing is tricky, don't let anybody tell you otherwise. The builder has to keep the silver molten without burning it, and heat varying thicknesses of metal to the same temperature, without burning them. A thin curl on the edge of a lug heats up quickly and burns easily; yet it may be right next to a relatively massive chunk of metal such as the binder bolt area of a seat lug, or a bottom bracket, which takes a long time to heat to brazing temperature.

Pulling It Through With Heat

Once the silver has been sucked into the gap between the lug and tube, he still has to move it through, and he does this by "leading" it with the flame, to the other side of the lug, like a donkey to a carrot. As long as the silver is molten, it will seek out and follow the heat. Silver leaves tracks, like a snail. If he feeds it in at edge A and want to draw it over to edge C, and the only path is route B, he can be sure that if he's successfully lead it to C (as evidenced by its coming out at the edge), that it left a trail that's still there, over B. Like a snail's track.

Not all builders "lead the silver" this way. Many feed the silver (or brass) around the edges, hoping to fill in toward the middle. It's faith-based brazing, and a finished joint brazed this way doesn't reveal any-

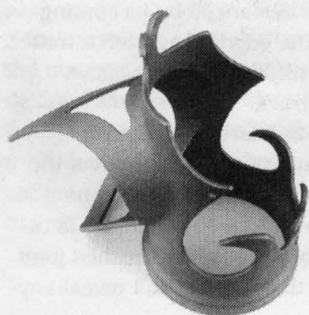


Curt brazing a head lug, making sure the silver "crosses the cope."

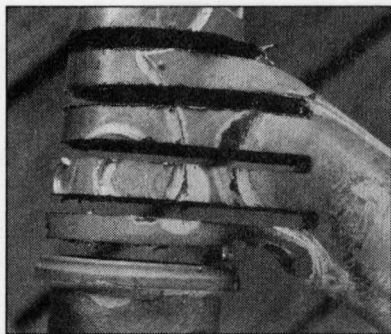
thing fishy. It looks like good brazing. But a fully brazed joint is stronger, and the only way for a builder to make sure the joint is complete is to feed in and lead through to the other edge. It takes a certain aptitude, and hundreds of frames (and thousands of frame joints) to develop the highest level of skill; and constant torchwork to keep the skills sharp. Certainly, good frames can be made by builders without the experience and constant honing-of-skills that Joe and Curt undergo. And one builder's fifth frame be straighter

and have higher integrity joints than another builder's hundredth.

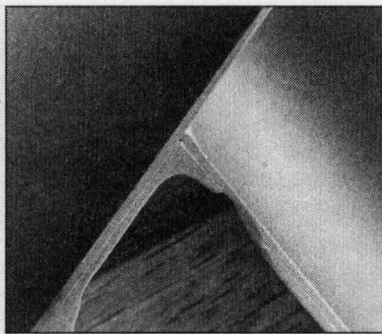
There's *still* no magic involved in the making of a super fine lugged steel frame, but it certainly takes a particular combination of talent, care, aptitude, and experience. It also requires a support group of family, friends, work environment, and customers who know the difference between a bike that's a mere tool, to be replaced every three years, and one that will mean more to you in twenty years than it did the day you bought it.



A Rivendell lug has lots of shoreline, and isn't suited to machine brazing. The swoops and curls look nice, but demand the focused attention of a skilled brazer. And once brazed, they're a challenge to paint the way we (well, Joe Bell) paints them, with the main frame color and a creamy head tube and lug window details. Our lugs are our exclusive designs, found only on Rivendells. They're made for us in Taiwan, by Long Shen, the world leaders in investment cast bicycle lugs.



One way to check penetration.



And another. Both ways work great!

How To Tell Whether It's Good

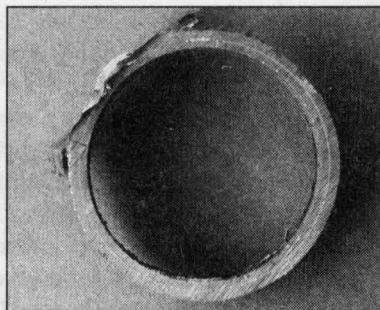
It's impossible to rate brazing quality by looking at a finished frame joint, even an unpainted one. If you look at a bare frame, and you see the bare metal is discolored, or glops of silver or brass on and around the lug, it suggests the builder wasn't fully in control, and that's a bad sign. But files, sand-blasting, and a good paint job can take care of that, and carefully applied Bondo and a good paint job take care of the rest. Yet people all the time look at fancy frames and say, "Nice brazing..." You can't ever tell how completely the joint is brazed. A builder could feed silver all around the edges, but not get any in the middle, or where the tubes come together. Such a joint will look stellar unpainted, but won't last.

The point isn't to make you paranoid, just to stop saying things like, "That's nice brazing," when you see a painted frame.

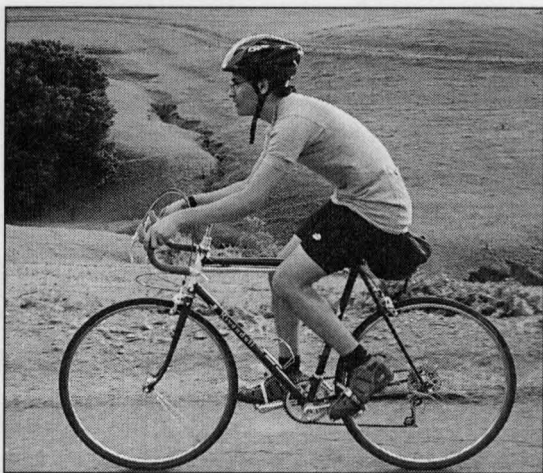
One sure way to test for brazing penetration is by destructive test-

ing, as shown on this page. Anything short of that is just guessing. It is hard or impossible for a customer to know the integrity of a frame joint, so faith becomes part of the decision.

We know our builders. We know how they braze and that they "lead with heat" and make sure the brazing "crosses the cope" (as Joe puts it) and forms a small fillet inside the tube. We've cut open joints, and we trust our frames because of what we've seen, not because of what we can't see.



A section from the bottom head tube joint shown up and left, showing the fine line of silver all around.



~A BETTER WAY TO SIT~

The road bike, for the most part, has devolved into a high tech, uncomfortable machine, and the proof is all around us. Look through any bike magazine or catalogue and you'll see saddles up to 6 inches higher than the handlebars. It is impossible to be comfortable on such a bike. It forces you to lean forward, putting more weight on your genitals, hands, and arms. The lower part of the drops are out of reach. People ride these bikes with straight, locked-out arms and wake up with aching backs. They endure it, get used to it, or buy recumbents.

When we custom design a bike for you, you'll be able to get a position similar to the one in the photograph up there. The rider's back is between 45 and 50 degrees, there's a noticeable bend in the arms, and most importantly, his arms aren't supporting his body weight. He doesn't have to look up to look ahead, because he's not hunched over and low. And see how high the lower portion of the drop bars are, relative to the top tube? That means they're more accessible for riding on the flats, or even for short climbs. You've been told *don't climb on the drops*, but if we fit and size you on one of our bikes, climbing on the drops is a totally different experience. You'll still be on the tops during sustained climbs, but on short rollers, the higher drops on a Rivendell are a reasonable option.

Such a position requires a level or slightly upward slope between the saddle and the handlebars. We consider this when we design and build your custom frame.

~·COMFORT BY DESIGN·~

When comfort is the goal, riding position is just about the only thing that matters. It's more important than frame material, tube dimensions, and frame geometry combined. It's more important than clothing and tires, too. Riding position is King, Pope, Earl, and Viceroy all in one, and if you don't have it, your bike may be tolerable, more comfortable than your last bike, and you may become used to it, but it won't feel like a sofa. For that, you need a good riding position, and that begins with a good design for your body. Following are our beliefs about riding position and comfort.

ARMS, HANDS, AND BACK. With drop bars, when you ride with your hands just behind the brake hoods, your back should be angled about 45 to 50 degrees to horizontal. Your elbows should be noticeably bent, with your lower arm between 10 & 50 degrees to horizontal. Your hands should rest lightly on the bars.

SEAT, FEET AND LEGS. For most riders, a more rearward sitting and pedaling position works well. Despite the longtime wholesale acceptance of setting up your bike so that your knee is directly above the pedal axle, there's no physiological basis for doing so. The fastest sprinters pedal way more forward than that. The fastest climbers pedal way more rearward. "Knee over pedal spindle" holds no water. Sitting back, you carry more weight on your rear end (which is designed to carry weight, after all), and less on your hands. And the rearward position affects pedaling in a couple of ways.

- As you push down on the pedal, you're actually pushing a little forward, too, which helps you maintain your rearward position (and takes weight off your hands).
- You catch the pedal going over the top sooner, so you can start applying power earlier in the stroke. This is particularly good for climbing, and is why even pro racers do it (sit back farther) on mountain stages.

But a rearward position tends to bend you more at the waist. So, to open up that bend, raise the handlebars. High bars also take weight off your hands and improves descending, since it helps keep the rear wheel weighted and your weight centered. High bars make any hill seem less steep. With low bars, you feel like you're going downhill even when the road is flat. Our top head lug's unique 15mm extension is one of many details that help you achieve a good position.

MAKE YOUR BODY SPRING-LIKE

Relaxed arms react to bumps, flexing and absorbing the shock before it gets to your neck/back/body. Picture the springlike movement of a jockey on a racehorse. Ignore the leaned over position, but notice how his relaxed appendages soak up the blows so his body doesn't. The key to a relaxed body is a good position, and that starts with a good frame design for your body.

BE CAREFUL WHO YOU EMULATE

Sizing, fitting, and positioning systems based on the young pro cyclist who has a flexible, tolerant body, is willing to sacrifice comfort for speed, gets a massage frequently, and usually quits riding when he turns 32...are not suitable for a non-competitive cyclist seeking a lifetime of cycling health and pleasure.

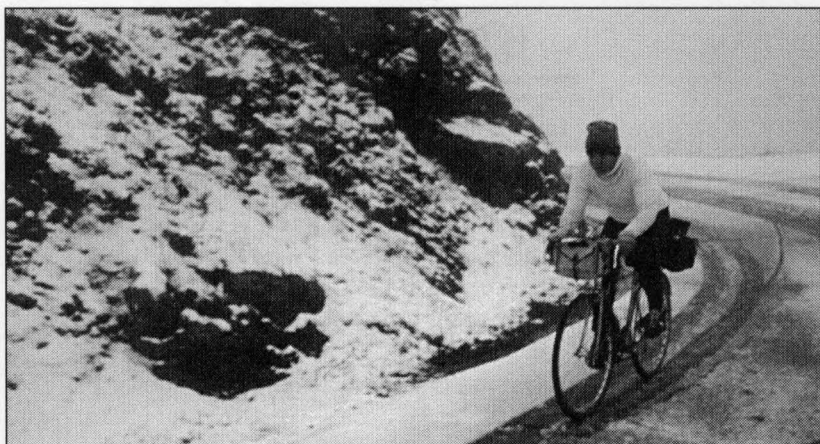
SADDLE HEIGHT RELATIVE TO THE HANDLEBAR HEIGHT

This is the most important relationship on the bike. On most bikes, the handlebars are much lower than the saddle, which leads to stress and pain in your hands, arms, shoulders, neck, and lower back. The too-low handlebars are due to design and fitting issues involving the stem, headset, head tube, steer tube, top tube, and frame size (seat tube length). The bad position is further encouraged by modern approaches to fit that steer you toward the smallest bike possible. Bikes such as these shift your weight forward, where it doesn't belong.

For most riders, maximum comfort is achieved when the handlebars are level with or up to 5cm/2-inches *higher* than the saddle. Few riders have ever experienced this, and few bike shops espouse such a bar-to-saddle relationship. It would serve no useful purpose, because this position is impossible to achieve on most production bikes. But the comfort has to be experienced to be believed. The weight on your hands is reduced. Your back doesn't suffer as much. You can see around without holding your neck up. And steep descents don't feel as steep, because your body is more upright. We design your frame with this in mind.

If a main criterion of comfort is getting the handlebars higher, then an obvious way to do that is to start with a larger frame. But as you might expect, it's not so easy. When you *upsized* with normal production frames, though, you run into problems. They are designed with a *downsize* mentality; which results in a short seat tube and a long top tube. When you go to a bigger frame, the top tube is usually too long.

Our approach to frame design and fitting is unique among all bike makers, and results in a more comfortable riding position. If you can't get comfortable on a Rivendell, it's time to get a recumbent.

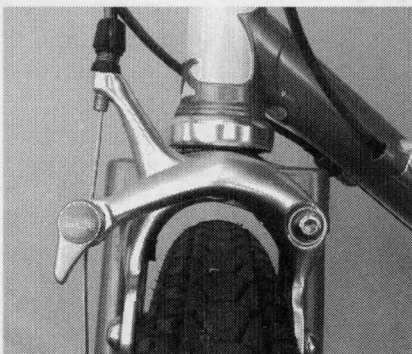


This is a Rivendell road bike, equipped with sidepull brakes, fenders, and 700x35 tires. It is rideable in all year around, and is at home on roads and fire trails.

~·The Most Versatile Bikes·~

Ordinarily, "versatility" means a compromise, but here it means smart design. For instance, on Rivendell road frames designed for short reach sidepulls, we maximize the clearance by making the fork blades longer than most, and placing the brake bridge higher. The brake shoes rest at the bottom of the caliper arm slot, which is key to maximizing fender and tire clearance. We can think of no other currently made short reach sidepull-compatible frame that can accept a 700x35 tire. You may not need that now, but sometime in the next 20 years you might, and your bike will be ready for it.

A custom Rivendell will be ideal for whatever type of riding you plan to do mostly; but it will perform well outside that range, too. Our road bikes, are not road-bound. Our touring and rough-stuff bikes ride great unloaded and on smooth asphalt, too. As your riding expands, your Rivendell goes with it.



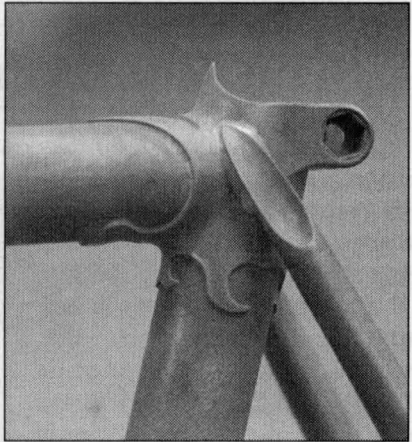
If your frame is designed for standard reach sidepulls, it will accept up to a 700x37.

~·BEAUTY·~

• A Rivendell frame has a balanced, subtle beauty, achieved by round frame tubes and classical proportions and styling. There are no criss-crossed or interrupted tubes, gussets, or revolutionary bracing. The paint is the best quality (Joe Bell), and the paint style and overall graphics are understated, so that from across the street or passing by you on the road, a Rivendell looks plain. But the beauty is there when you look for it •

All Rivendell custom frames come with the lug windows painted cream, to match the cream fill in the decals. We also offer cream head tubes, our most popular option (a "standard" paint job includes this). In our fancy paint jobs, the seat- and chainstay bridges and front dropout edges get creamed, too. It's almost too much, but not quite. It's a *good* look.

The lugs and fork crowns and bottom bracket shells are all nice looking. The tube-to-dropout transitions are smooth, graceful, and natural. The lower curve in the fork blades is continuous. Seat and chainstay bridges and bottle cage bosses are reinforced with ornamental diamond-shaped stampings. In the early '70s when it became popular to drill holes for direct-mounting bottle cages, it was reasonably thought that unreinforced holes in the tube would lead to tube failure; and reinforcements came in a variety of shapes. We've since learned that unrein-



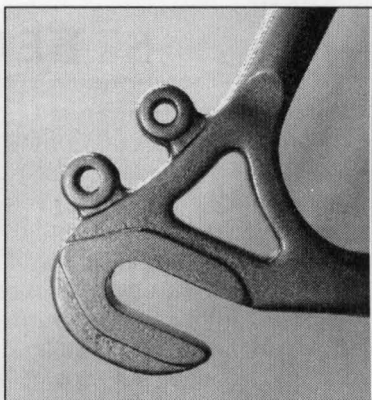
forced holes in unstressed areas of the tube don't threaten the tube, but on Rivendells we continue to reinforce the holes, because we like the look and the original sentiment. You can't opt out and save \$25, because without the bottle boss reinforcements, it wouldn't be a

Strong: It's a lug. **Supportive:** Our seat stay plugs curve, offering lots of brazing area. **Elegant:** Isn't it? **Smart:** If you lose, break, or strip the binder bolt, you can find another at any hardware store. It's an M6 x 20mm bolt, with a hex nut.

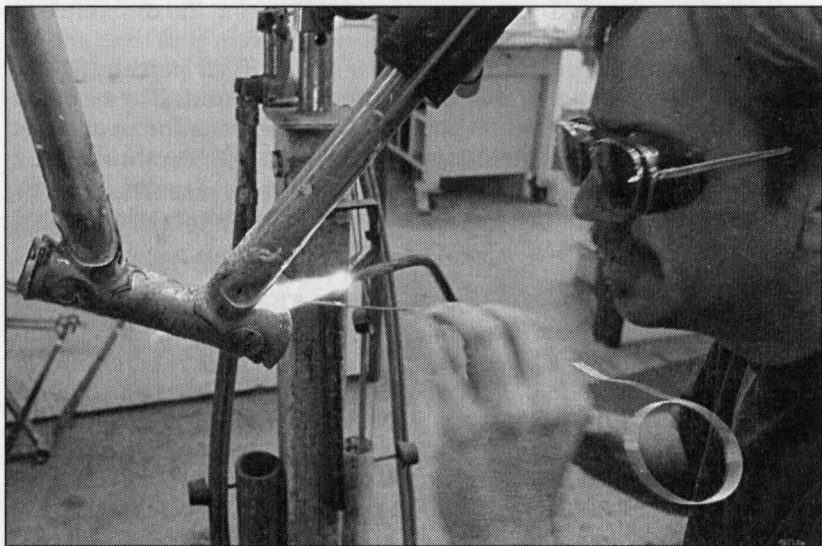
Rivendell.

Most of us have heard the expression, "form follows function," which some folks take to mean that so long as it works, it looks good. That's not always so. Nature can get away with rough beauty in a bristlecone pine or a deep sea flounder, but in a bike frame of the highest quality that you plan to ride for the rest of your life, the extra five to twenty minutes that goes into making a joint look nice, or tapering a lug edge, is time well spent.

If you look closely at the rear dropouts faces, you'll notice a faint roughness that may seem inappropriate for a frame so otherwise finished. It's not unattractive, nor the result of sloppy work or laziness (they could be removed in half a minute, easy). We see them as a signature of the forging process—and like them because of it! If you insist, we'll polish them out. Otherwise we ask Joe and Curt to leave them



Forged steel dropouts, each with its own forging fingerprints. We'll remove them if you ask. But why?



Joe brazing a Rivendell top head lug. Ours have reinforcing flares which make our head tubes more resistant to ovalizing than are oversized head tubes, and they allow familiar, good-looking, classical proportions, as well.

~·STEEL FACTS·~

If you were to list every desirable quality for a bicycle frame material your list would look something like this:

TOUGH, so it resists cracks, and if a crack develops, it grows slowly and give plenty of warning before it becomes dangerous;

STRONG, so it can withstand the abuse of carrying a 260lb. cyclist for years to come, over all kinds of surfaces;

DUCTILE, so it can withstand repeated flexing without fatigue;

BUILDER-FRIENDLY, so you don't just have a pile of textbook tubes that resist fabrication. Steel is also the most easy frame material to repair.

PROVEN, so you can ride it with a certain amount of empirical-based confidence;

GOOD DAMPING, so, when your ride over a bump, the vibration stops quickly;

LIGHT WEIGHT, because heavy bikes are harder to pedal up hills;

CORROSION PROOF, since corrosion does more harm than good; and

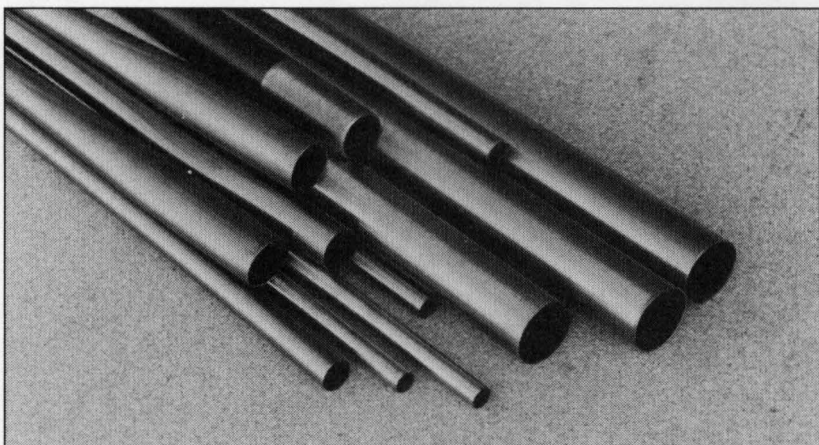
REPAIRABLE, because good things should be able to recover from bad accidents.

It's a 9-item list, and steel comes out on top in 7 of them. The only places it doesn't are weight and corrosion resistance.

The campaign to sell light weight relies heavily on the misleading practice of comparing frame weights and converting the difference to a percentage—this frame is 30 percent lighter than that one, and so on. Consider: A 2.8-pound carbon fiber frame is 35 percent lighter than a 4.25-pound steel frame. That 35 percent sounds like a lot, but you can't ride a frame. Add 17 pounds of parts to each frame to make them bikes, and now the difference (21.25lb vs 19.8lb) shrinks to 7 percent. But what's a bike without a rider? Add a 170 lb rider, and now the difference (191.25lb vs 189.8 pounds) is just three quarters of one percent—and you give up longevity to get it.

As for corrosion resistance—well, steel rusts. That's why you paint it on the outside and spray it on the inside. The occasional chip and scratch that goes down to bare metal is no threat. An old frame without these signs of use is pitiful, it has no stories. Cover minor chips or scratches with touch up paint, nail polish, and don't even be fanatical about the job you do. And for the inside of the tube, just spray it with FrameSaver or Boeshield T-9. Even without the spray, a steel frame made of reasonable tubing and ridden on the saltiest roads on earth will probably last 20 years. With the sprays, you can relax. Spraying is easy.

Consider the whole package—how the frame was made and who made it, aesthetics, and the care and thought that went into it. Pick a frame that matches your artistic values, your sensibilities, and your personality.



We use the best tubing from England, Italy, Japan, Taiwan, and America. About half the tubes are made to our specifications, and we're quite particular.

~·The Tubes We Use·~

Price is of no concern when we buy tubes; we use straight, strong ones always. We aren't decal snobs. We have high standards when it comes to steel, and enough experience to know how to tell a good tube without its decal.

We use only premium quality tubes, and more than half are made to our specifications. We use a lot of Reynolds 725 heat-treated CrMo, but other brands get in there, as well. We have some superb, custom seat and chainstays from Japan and Taiwan, as well. Most of the fork blades are Reynolds 531.

Modern steel tubing is widely available in super-thin wall thicknesses, which makes no sense to us. So we choose these same super alloys with slightly thicker walls. The weight difference is only 3 to 6 ounces in a typical frame, but it is 10 to 15 percent stronger and more fatigue resistant, so the extra few ounces are a tremendous bargain. It won't slow you down, it'll just make the bike better and last longer.

Manufacturers who sell frames on the basis of their weight are appealing to the largest group of potential customers by using a low common denominator. They can't help themselves!

At some point weight does matter, of course. But the difference between a superlight frame and a normal one is inconsequential once you add parts and a rider.



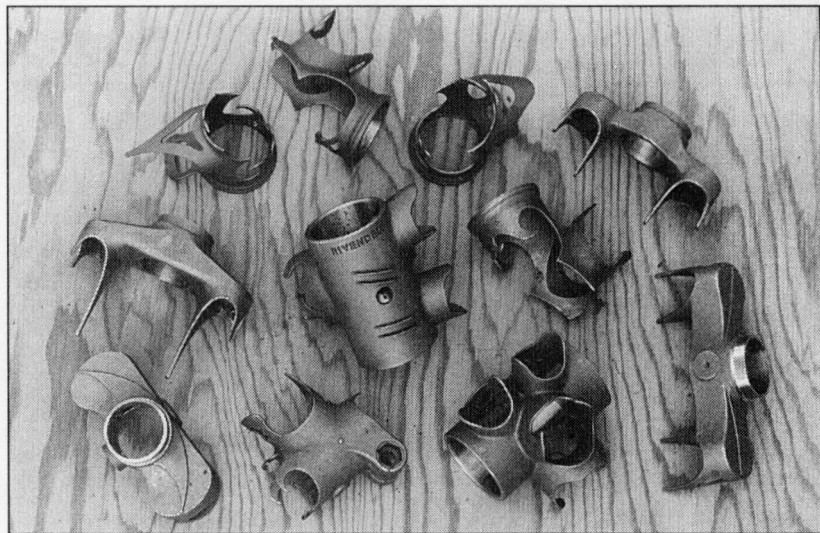
We use only forged steel dropouts, the toughest kind. We have several models with different geometries and details, to accommodate any frame we might be building.

~FORGED STEEL DROPOUTS~

Forging is an old process in which metal is smashed into shape by a bigger piece of metal, usually a hammer or a forging die. There is “cold-forging” and “hot-forging,” the main difference being the amount of heat applied to the piece to be forged during the smashing process. The image you may have in your head of a blacksmith forging horseshoes is an example of hot-forging.

Forging imparts a grain to the metal. Grain in metal, like grain in wood, follows the contour of the piece, so it’s strong in all directions. Whenever forging is an option, it is always the strongest way.

Dropouts live a tough life, but forged steel ones can withstand incredible stresses, and even abuse, as the ones in the bottom photo of the next page show. They were clamped in a vise, pried with a long lever, and pounded hard with a hammer to get them to twist so much out of shape. Dropouts made of any other material or method (other than forged steel) wouldn’t have survived such ridiculous abuse.



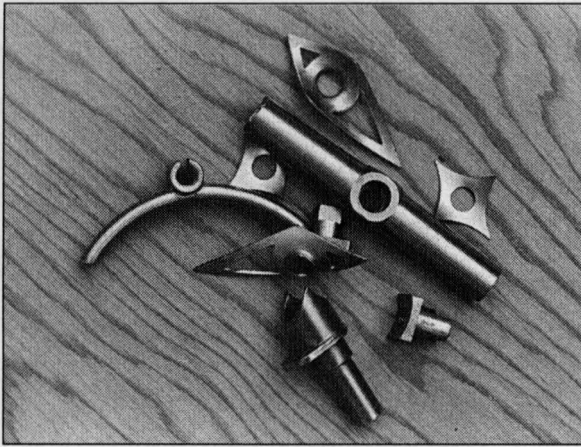
A sampling of mostly proprietary (ours alone) lugs, fork crowns, and bottom bracket shells. The crowns at 2 and 9 o'clock are stock items that made the cut.

~·INVESTMENT CASTINGS·~

Investment casting, also known lost wax casting, is the best way to make consistent, precise, intricate things out of metal. It was invented roughly 10 thousand years ago. Some say it started in China, some say Egypt. If indeed it was the Egyptians, they sure dropped the ball in the ensuing millennia, as evidenced by the fact that you can't even buy Egyptian investment castings today. But Taiwan (Republic of China) is a world leader in the field.

Investment casting is a simple and clever process that starts with a wax mold of the part to be cast. This mold is then dipped into a ceramic batter, the batter is allowed to dry, and the dipping-and-drying is repeated several times, until a thick batter crust encompasses the mold. Then the batter-covered, encased wax mold is heated, and the wax melts out of the mold, leaving a clean, smooth cavity. Molten metal (steel, in the case of our castings) is then poured into the cavity, and allowed to cool and dry. Then the crusty batter is broken off, leaving a fresh lug, fork crown, or bottom bracket shell.

Investment castings vary in quality. Ours are made in Taiwan by a company called Long Shen, whose ability to turn out consistently crisp, detailed, strong investment castings, is legendary in the bike industry.



~·BRAZE-ONS·~

In the '70s the scuttlebutt was that braze-ons, along with the right tubing sticker, were a sign of a quality frame. Bad frames never had braze-ons, while fine frames often did. But braze-ons add convenience, not quality, and we feel that the gratuitous use of them clutters up and detracts from a fine frame. On Rivendells, each braze-on earns its spot. Standard braze-ons include:

- ~ Top tube cable guides. Split for easy maintainance, and located at roughly 7:30 on the clock (left side from rider's view).
- ~ Rear derailleur cable stop, under the chainstay.
- ~ Two eyelets on the rear dropout (one for fender, one for rack). Single eyelet on the front. Other combinations available on request. We have forms you fill out to specify braze-ons.
- ~ All frames get downtube shifter bosses. They're a more solid attachment than standard cable stops here.
- ~ Two water bottle bosses. A third may be added, and we have forms on which you specify this.

There are some braze-ons that, because of style or philosophical issues we don't do (internal cable routing, front derailleur braze-ons), but we offer all the ones we feel are practical and well-suited to the type of frame you're buying. For braze-ons beyond the standard complement, there are slight upcharges.

~·FRAMESET, OR COMPLETE BIKE?~

We can deliver either one. If you already have the parts, or if the parts you want to equip your new Rivendell with aren't the parts we offer in our catalogue, then it makes sense to get the frameset alone. It comes with a headset, so you won't need to buy one. Rivendells take standard parts, nothing odd about them. Some of the dimensions you'll need to know are:

- ~ **Seat post:** 27.2mm. Sometimes 27.0mm (on some customs)
- ~ **Bottom bracket spec:** 68mm, English
- ~ **Headset:** 1-inch threaded (BSC)
- ~ **Rear spacing (for the rear hub):** To order. Typically, road frames are spaced 130mm; Touring and All-Rounder style frames are 135mm.
- ~ **Front derailleur style and size:** Clamp-on, 28.6mm (1 1/8 inch)

Complete bikes are equipped with parts from our catalogue. When you order a frame, we send you a series of mailings which include all the information and guidance you need to select the parts for your complete Rivendell bicycle. You can expect a complete bike to cost between \$3,300 and \$3,700, depending on how you equip it.

If you're interested in a frame ~·GET OUR ORDER PACKET~

It has more information on the process, and tells you what to expect during the wait for your frame. To request it ...

BY PHONE: (925) 933-7304

BY FAX: (925) 933-7305 or toll-free in the U.S. 1 (UPS) COW-LUGS

BY MAIL: RBW Frames, 2040 North Main #19, Walnut Creek, CA 94596

ON LINE: www.rivendellbicycles.com. In the Frames section.

As of January, 2002, the wait for a frame is between 4 and 6 months, but unforeseen circumstances may cause delays, so please be patient. We offer cuts to riders who are 55 years old or older.

~·BUILDER PROFILES; AND THE DESIGNER·~

We are lucky to have two of the best lugged, steel frame builders in the world building exclusively for us. A few notes about them follow, and you can read lengthy interviews with both of them on our website or in back issues of the *Rivendell Reader*.

Curt Goodrich is 34, married, and father to 2-year old Mae. He lives and builds our frames in Minneapolis, and works alone. He has been building frames for 10 years—a relatively short time for one with such skill—but in that time has built more than 1,000 frames. A few years ago, Curt worked for the Match Bicycle Company, where he honed his already sharp skills building a large portion of the 750+ Paramounts Schwinn had contracted Match to build. While he was at Match, he also built more than 50 Rivendells. Then Match folded, Curt and his wife and baby retreated back home to Minneapolis, and he's built for us full-time since. Curt is dedicated to lugged frames, and hopes to build them for the rest of his life.

Joe Starck is 41 and grew up in Wisconsin, home of Trek, and in the early '80s was brazing up to 40 half-frames (main triangle) per day for Trek. The sheer volume and repetition brought his skill to the point where he was offered the head framebuilder position at Masi of California. He held that position, building the nicest Masis ever to wear the label, for five years. When Masi closed, he picked up work from Dave Moulton and Bill Holland. Moulton got out of the frame business, Bill Holland drifted to titanium, and a tip from Richard Sachs sent us to Joe, who has built for us full-time since mid 1997. Joe and Curt share tips and ideas, and their combined efforts continue to make our frames better.

Grant Petersen. I'm 47, have ridden bikes a lot and been involved with bicycles since 1973. From 1986 through 1994, I designed bicycles for Bridgestone Cycle (U.S.A.), Inc. Then I started Rivendell, where I design our frames. I'm lucky enough to have been influenced and taught by many smart bicycle people, and have furthered my bike education by experimenting, riding, and paying attention. Over the years I've come to know what I like aesthetically, practically, and structurally, and I have a good grip on what makes a bike fit and behave correctly. It is a thrill for me to see humble designs turned into real frames and bikes by such talented builders as Joe and Curt, and then painted by Joe Bell. I work with a talented crew of people, and we're all committed to lugged steel frames and forks. We've never made any other kind, and won't.

Notes

We take extreme measures to ensure that your Rivendell frame is as safe, and strong, and straight, and long-lasting as a lightweight bicycle frame can be. Only the best materials and methods are used, and there are no compromises in materials or processes...One characteristic of all Rivendells is a low bottom bracket. We are convinced that a low bottom bracket feels better and offers more control over most terrain. The only place a low bottom bracket is not desirable is in off-road riding when there are boulders and logs to surmount. But on paved roads or fire trails, a low bottom bracket makes a better bike. However, it does not let you lean your bike hard while pedaling around corners. That's not something you should do in any case, but the fact is that some people have bad habits that go unpunished on bikes with high bottom brackets, but will not work on a Rivendell. When you buy a Rivendell, we expect you to ride the bike with a certain amount of skill and judgement. Practice slow-speed cornering to learn when your pedal hits, so you don't scrape it on a fast corner; or simply buy another bike...If your frame gets a nick and needs touching up, we recommend Testors brand model paints or fingernail polish, whichever is the best match—or the best contrast! Both of these paints are formulated to be brushed on (unlike the original paint), and usually a good-enough match can be had. Although we deliver the frame to you with what we consider to be the world's best paint job, it is healthy to keep in mind that your bike is a piece of outdoor equipment, and dings and scrapes are inevitable. The first one is hard, but if you fret about signs of use and inevitable dings, you'll not be able to enjoy the bike...Always make sure the wheel quick-releases are properly closed before your ride your bike. The dropouts do not have "lawyer tabs" on them, because those tabs are a nuisance and are inappropriate for a bike of this quality. If you do not know how to close the quick-release, learn from somebody who does. This can only be learned hands-on...The superfine qualities of a Rivendell cannot be had by mass production techniques, only by the hand of a skilled human craftsman. But when hands are at work, there is an element of risk that doesn't exist with machines. In a woodcarving, it may be a knife blade that cut 3mm too far and had to be backed up; in a bike frame, it may be a visible file mark, or a slight waver where two paint colors merge. Clearly, a deluge of "human evidence" is unacceptable, and our tolerance for it is minimal. But whether you regard such evidence as defects or proof that your frame was created in the real world by a highly skilled yet ultimately imperfect craftsman is something to consider before you order one...We regret that the quality of this catalogue is not commensurate with the quality of the frames. But the information here is correct, and we've tried to be thorough. We're not responsible for errors herein.

For the latest frame information and prices, which of course are subject to change at any time, please check our website: www.rivendellbicycles.com. Or call us direct, at (925) 933-7304. *Thanks.*

Rivendell Bicycle Works
Box 5289
Walnut Creek, CA
94596

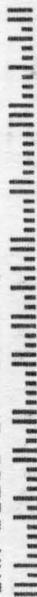
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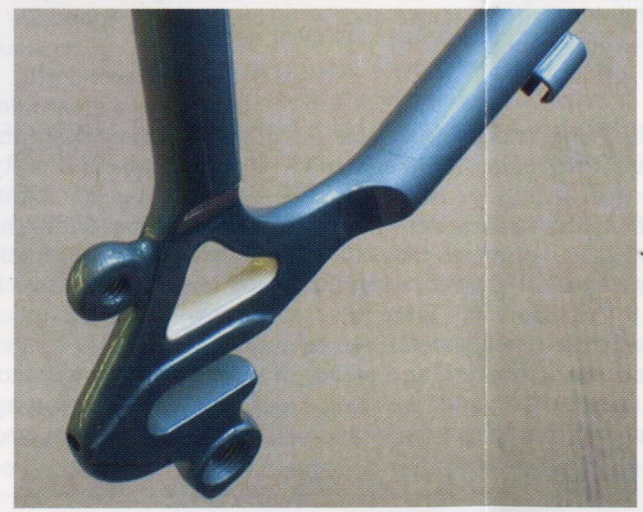
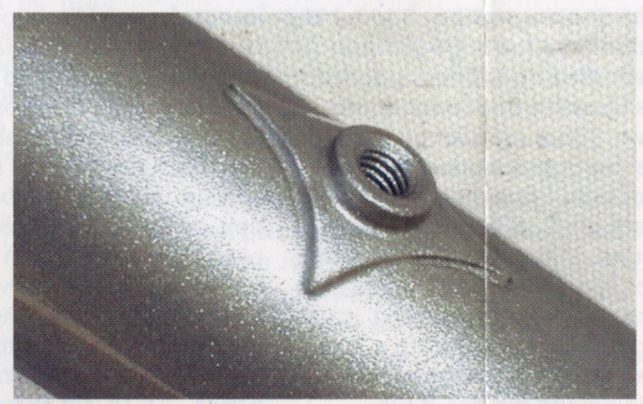
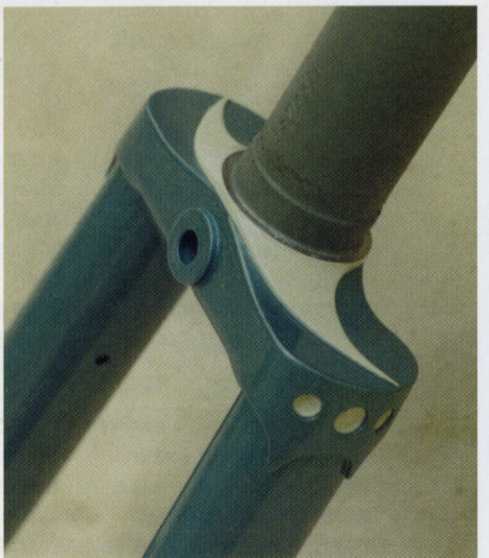
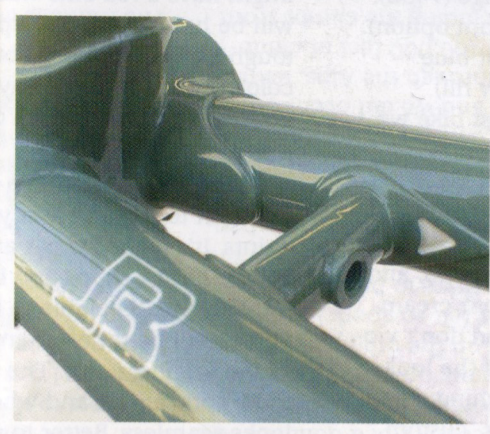
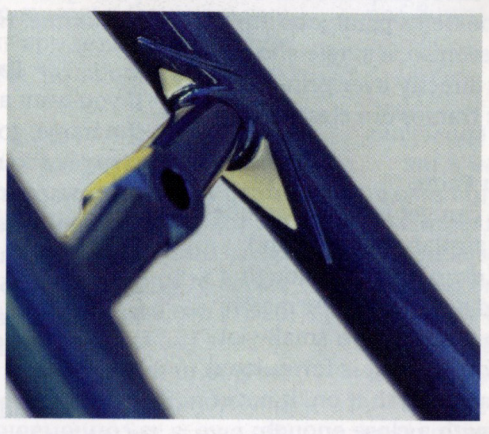
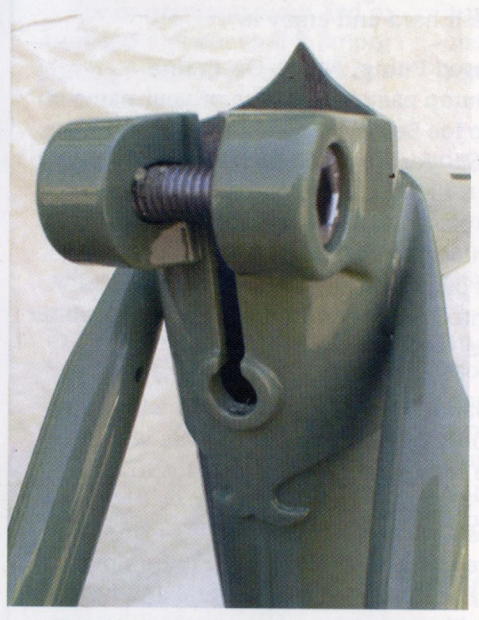
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*****AUTO**MIXED AADC 945
14670 07/25/2002

ROBERT TILLEY
10817 CAMINITO ALTO
SAN DIEGO CA 92131-3506



Rivendell



Color Notes: The colors shown here are as close as we could get to the actual colors, but they aren't perfect. The blue fork crown looks too dark, for instance. Most colors are DuPont Imron, with the Imron code listed in parentheses. Pea Sage, a custom Imron mix, has no Imron code.

Horizontal tube on top: Harvest Gold (44129)

Left column from top: Pea Sage, Red (51078), Light Blue metallic (5056), Yellow (218).

Top row middle: Dark Turquoise (43866), Pea Sage. Right column from top: Red (51078), Orange (7455), Light Blue (5056), Taupe (example of custom option).

Lower middle: Taupe (bottle star) and Light blue dropout (shown with fancy cream window fill).

The Bike is taupe, again. It was the freshest bike we had on picture day. A customer's custom color.

The Frame is Green (1317).

Other examples at: www.rivendellbicycles.com.

Custom colors run anywhere from \$50 to \$150, and we'll paint them so long as they go with our cream details (see the head tubes) and decals, and don't violate our sense of style! We're protective of the look, a point we'd like to emphasize without seeming mean. It's just that sometimes when people hear "custom," they think they can do anything with the bikes, and we put a limit on that, to preserve the style we want to show the world. At any given time we may change the color selection. If you have a frame on order, we'll let you know of any new colors; and we'll update the information on the web. In general, we're trying to decrease, rather than increase, the colors.

Candy Apples, Pearls, and So On

These are do-able, and we've done them many times in the past. However, you should be aware that the toughest paints, as well as the ones easiest to touch up, tend to be "single-shot" colors sprayed directly over primer. In the case of candies or pearls, there's the primer, then a base coat, and then the top coat that's a different color than the base coat. Since the top coat isn't in contact with the primer, it doesn't grab as well. And, if it chips to the base coat, you might have a red bike with a silver chip in it, and it will be harder to touch up. Joe Bell's paint jobs are as tough as wet paint gets, but even so, a single-shot color DuPont Imron sprayed directly over primer gives the best results. All our frames are clear coated over the decals.

Touch-Up Paint

The best touch-up paint you can get is Testors model paints. It's made for car and airplane models, and sold at hobby shops and big drug stores. Although it's unlikely you'll be able to find a perfect color match, you're still better off than you'd be with a small vial of the original paint. The original paint is formulated to be sprayed on, and when you brush it on, it never looks seamless. Better to go with a close enough match (or something totally contrasting) and have it last - and Testors will. Can't find Testors? You aren't trying hard enough! It's been around for more than 50 years and is sold all over the place. But fingernail polish is a next-best choice, and if you to to a place that caters to 13-year old girls, you'll be amazed at the colors you can find. With frames delivered after October 1, we'll include a bottle of the Testors paint

that comes the closest. A small warning: Although we sympathize with you if your bike gets scratched, we honestly don't sympathize that much.

Last word on paints and touching up

A Rivendell's beauty goes down to the bare metal, and it wears its wounds well. Protect the underlying metal from rust, but don't be obsessive about keeping the frame blemish-free, because doing so will make you and everybody around you miserable. At some point you may want to get it repainted, but in the meantime, ride it hard and enjoy it.

Painted Pump, Name-On-Frame

If you want a pump painted to match or your name on the frame, go to Joe Bell directly, at (619) 469-4312. He charges about \$30 for a painted pump if you supply the pump, and \$40-\$45 if he supplies it. We offer chrome-plated plastic Silca pumps, which work fine, weigh less than 6oz, look good with every color, and don't give your bike that "hey, I've got two top tubes!" look. Also, painted pumps tends to make you fret about pump scratches.

Names hand painted on the frame cost a whopping \$100. It's the only overpriced thing on the whole frame, and the reasons it costs so much is that JB doesn't like to do it, and in the past, we've had a few costly mistakes with *steven* versus *stephen*, and so forth. So, we're trying to recover from them now. Doesn't seem fair, does it? But in general and historically, frames-with-names have been problematic, so they make us nervous. We charge for nervousness!

Who buys a Rivendell? Normal people who want a bike they can ride and grow old with. We sell to craftsmen, teachers, professionals, bike messengers, wanderers who live on their bikes all year, teenagers who should be putting the money toward college, and retirees whose spouses have finally agreed to let them get one special thing now that the house is paid for and the kids are through school. e things, and who see the value and economy in buying a bicycle frame that can't be made obsolete next year or next decade. Here are sample comments.

First, I want to say thanks. Sunday I finally got a window and, got to go for a nice long ride. A few miles out it started to rain and any other time I probably would have turned back, fair weather rider that I've become. But I didn't, was enjoying the ride too much. Maybe that's not saying a lot, but it probably says about all

a work of art. But they will not know how nice my bike rides unless they get one. —*M.R., CA*

Rode the Davis Double this weekend. At least two dozen people compliment the bike, I stopped counting after that. Thanks again... —*A.R., CA*

there is to say about why I wanted a new bike. Pure inspiration. On the road it is stable and forgiving but still lively. I found myself cornering more aggressively than I have in years. I love the bike. The workmanship is inspiring, the paint, beautiful, everything I expected. Most importantly, the ride is simply beautiful. Higher bar position means I have rediscovered the lower portions of my drops. —*B.A., WI*

I haven't decided how it rides yet -- whether it anticipates my every move, rides on rails, or disappears underneath -- but I do know that it is beautiful and a lot of fun. I have noticed one characteristic of the bike on my in-bound commutes downhill, off-camber, 130 degree right turn. When I rode my other bike down this turn, I always had to concentrate to keep my line, and was still kinda wobbly -- despite the fact that I have over 25k miles of experience on this bike. But on my first descent with the Riv, with the same wheels, I negotiated the turn tighter than ever before, staying within the inner half of my lane. On the other bike, I would always drift out to the middle of the road, but on the Riv I felt much smoother and more secure. Not a double blind test, for sure, but I tried very hard many times to ride that corner on the other, and never it never felt so good. I didn't expect there to be such an obvious difference between the two bikes, and couldn't be happier. —*D.M., MA*

I went with a cycling tour group, and we did over 900 miles through the Alps, with almost 100,000 feet of climbing, including the climbs from the '97, '98, and '99 Tours. The Rivendell was the perfect bike. It is a great bike to descend on. I had not the smallest mechanical problem; and you would be surprised at how much dinking around people have to do with their bikes when they have skinny tires, tight clearances, and shifters that don't tolerate

continued use without need for adjustment. I clearly had the prettiest and most reliable bike there. —*E.B., Colorado*

It is the most beautiful frame I have ever laid eyes on. The attention to detail in the lug work is better than any frame I have seen in the shop, in a magazine or on the road whizzing by me. The bike shop I work at sees many fine, custom paint jobs, but yours are on another level. I hope you guys are selling Rivendell frames in 2040 but if you go down you could go into the business of professional packing. I unload bikes boxes all the time and I have done various kinds of receiving for 10 years. The way that frame was packed was special. —*S.M., Colorado*

I got out for a 50 mile ride today through the Colorado National Monument...about 2500 feet of climbing, rollers and then 2500 feet of descent. The descent though was so nice; man that low BB really changes the stability. I loved it! I think the lower BB probably increased my cornering speed, as I just felt fine laying it way over. There are just no disadvantages to this new bike and position. I can get into a flat-back position and hammer, or sit up on the flats and relax and see the sights. Also the pea-sage green is very understated. It doesn't look so great in a garage, but up in the sage and pinion and juniper, it fits. Thanks again for above-and-beyond service. —*J.R., OH*

The frame is everything you said it would be. The detail and craftsmanship are truly special. The bike's striking appearance draws compliments from all knowledgeable riders who see it. I had read your comments about the ride characteristics and what to expect, and while it wasn't that I didn't believe you, I just wasn't sure I would

be able to discern such subtle features. I was wrong! But best of all is the fit -- no more stiff necks and shoulders after 3 hours on the bike. This is a bike that will encourage me to ride more. —*A.M., Georgia*

It rides unlike any other bicycle I've owned. It responds so quickly that sometimes I think it's doing the thinking, and I'm merely the rider. I like everything about it. My eleven year-old son enjoys looking at it almost as much as I do, but he did ask my wife who I thought I was spending so much on a bicycle. —*K.K., Illinois*

...a wondrous thing. It's hard to imagine any thing at any price that could be built and finished so well. —*N.A., New Jersey*

Wonderful. Great balance, so smooth. It's just perfect; it glides along as though every road was freshly paved (but dry) —*M.M., CA*

It's beauty is exceeded only by its comfort and function. Perhaps it's inappropriate to compare its comfort to such a sedentary state of repose, but the bike is as comfortable as a barcalounger. There is no body tension in any handlebar position, as I've experienced in the past. I can easily be on the hoods or in the drops without restricting my breathing, tensing my trunk, or putting too much weight forward onto my hands. —*J.H., CA (former trombonist for B, S, and T)*

The bike is wonderful, comfortable, stable, a great ride. It handles the twisty descents of the Appalachians in fine style. I never feel out of control. It smoothed out bumps and doesn't exhaust me, even after riding many consecutive 100 mile days. —*M.C., NY*

Awesome is the word to describe the comfort and stability of the ride. I enjoyed it very

much. I especially like the versatility of the extended head tube and the comfort it affords. In addition, the bike is beautiful, stunning. —*A.L., CA*

Thank you for the bike. The craftsmanship and ride are simply perfect. It blends comfort, performance and beauty in a way I have not experienced

before. During Paris-Brest-Paris, I really appreciated a bike that runs straight unless I want it to turn. Then it turns with precision and ease. The bike was a joy. While people on other bikes had a hard time riding in a straight line. On the other hand, descending on twisty country roads didn't seem to turn and hold the road as well. I have ridden numerous nice bikes in many long-distance events, but never has it felt so easy. I attribute a large part of this to the bike. Raising the bars almost to the level of the seat, a difficult step for a racer, has made a huge difference. I use a longer stem now, so my position is as aerodynamic as before. Yet my shoulders, hands and back hurt much less even after 23 hours in the saddle and 350 miles on the road. —*J.H., WA*

It is the most comfortable, stable, smooth-handling bike I've ever ridden. When people hear "stable," they often think "boring," which is not the case at all--this is an amazingly compliant, responsive bike. There's no twitchiness, no nervous-making flaky feeling no matter what the maneuver made. It requires less thought to control. Riding it puts me in a position to pay more attention to my surroundings, whether those surroundings are a bunch of excitable cyclists or the incredible lush greenery of Greenwood and Abbeville counties. Bumpy roads? Not a problem. Great bike. Not at all as I envisioned it - it works better. Good job. —*R.F., SC*