

"Workshop - All about Loaded Touring Bikes" in Bicycling, June 1983 (Includes a review of the Trek 720).

WORKSHOP

Sakae, Shimano, Sugino, SunTour, and Takagi all displayed new lines of components developed primarily for off-road bicycles. Even Huret showed a handlebar-mounted ratchet shift lever to go with their very competent Duopar derailleur.

Don't assume, however, that these new components are only for klunkers. They are also ideal for touring bikes. The level of reliability in wide-range gearing components has benefitted from klunker bike demands.

Indeed, one reason off-road bikes are likely to do extremely well is that they aren't just for mountain descents by the kamikaze set. Sales have grown rapidly, partly because klunker bikes are filling a major unforeseen market inside the city limits.

Thanks to reduced public works budgets, many city streets have become obstacle courses of failed pavement, potholes, and broken glass. The bomber bike, with its stable frame dimensions, soft ride, nearly puncture-proof tires, and reliable components fits into this jungle much better than the traditional three-speed.

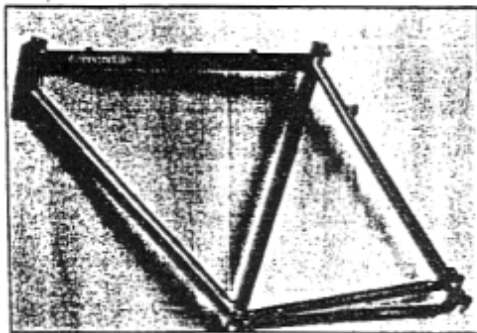
The lowest priced klunker bikes, like the \$140 Murray Baja, seem particularly suited for city service. Fuji, Raleigh, and Ross all showed low-end models with less exotic gearing that fit the needs of the urban jungle.

Genuine Loaded Touring Bicycles

If you read all of our road tests, you've noticed that *Bicycling* has been conducting a low key campaign against the platypus. Before you rush out to call the SPCA, our platypus is an upright, short-wheel-base racing frame, factory-equipped with touring racks and a triple crankset.

In order to draw the line somewhere,

Cannondale's oversized-tube aluminum touring frame was one of the show's biggest attractions.



we say a bike for loaded touring should have a 41-inch minimum wheelbase, 17 1/2-inch minimum chainstay, and 72-degree maximum head tube angle. This is the dividing line between a day-tripping frame and a loaded touring frame. I also suspect that at least some day-trippers will prefer the soft stable ride of a real touring frame.

Why is chainstay length important? It's part of the wheelbase, and a long chain-

stay not only makes for easier gear shifting but also allows a greater portion of the panniers to be mounted farther forward of the rear axle while still clearing your heels.

Our campaign is succeeding. There were five real touring bicycles at the show. They were easy to spot because the gap between the seat tube and the rear tire is three inches or so. The key dimensions for the 23-inch frame models are shown

Please send orders to:
1601 4th St., San Rafael Ca. 94901
or for no wait ordering call:
415-456-6707 collect and use
your VISA or Mastercard. No COD's
Calif. Residents add 6% sales tax
\$15.00 Minimum order Freight Charges:
We pay Freight on orders over \$50
Orders \$15-25....\$2.95
\$25-50....\$3.95

SUPERBIKES!
OFF-ROAD BICYCLE SUPPLY
A division of MIKE'S Bicycle Center
1601 4th San Rafael Ca. 94901

SEND FOR OUR 1983 CATALOG-IT'S FREE!

Introducing the SUPERBIKES! Mountainbike Frameset.
All Chrome-Moly lugged construction with braze-ons for Cantilever brakes,
two water bottles, rear rack, and cable guides. **Only \$169.00 ea.**
In Silver. Sizes available: 19 1/2 or 21 1/2

STUMPJUMPER \$749.00
New Handmade Lugged Frame
All Bearings are Sealed!
New Sizes: 16 1/2, 17 1/2, 19 1/2, 21 1/2, 23, 24 1/2
STUMPJUMPER SPORT
New colors: Ice Blue or Silver
New Components!
New Sizes: 16 1/2, 17 1/2, 21 1/2, 23 **\$495.00**

RAM by Cycle Pro \$439.00
D.B. Chrome-Moly Tubing
Superbe Tech Components!
Sizes: 18 1/2 or 20 1/2 Blue or Silver
NEW! RIDGE RUNNER
by Diamond Back
Chrome-Moly Tubing with **\$475.00**
Superbe Tech components!
Sizes: 19 1/2, 21 1/2, Black or Silver

NEW! ALPINA SPORT by Univega with 18 speeds
Fully Lugged Frame with Chrome-Moly Tubing. **\$379.00**
Available in Blue or Brown, Sizes: 19 1/2, 21, or 23

We can customize any of these bikes to fit your needs.
WE pay shipping on ALL BIKES and orders over \$50.00.
When sizing for an Off-Road bike, allow 2" smaller frame size than your
road bike or give your inseam length when ordering.

SHIMANO DEORE XT
Brake Cantilevers--set of 4...21.95
Brake Levers--set of 2...23.95
Thumb Shifters--set of 2...24.95
Front Derailleur...10.95
Rear Derailleurs...20.95
Total...102.75
SPECIAL GROUP PRICE...89.95

SUNTOUR
NEW! Power Thumb Shifters...17.95
NEW! Mount Tech Rear Derailleur...17.95
NEW! Superbe Tech-Sealed
Rear G.T. Derailleur...28.95
NEW! Tech Front Derailleur...9.95
NEW! XC-1 Beartrap Pedals...29.95

DIA-COMPE
Cantilever Brakeset+Levers...39.95
Jim Blackburn
NEW! Off-Road Rear Racks
Silver...27.95 Black...29.95

Kangaroo Bags
NEW! Mountain H-Bar Bag...15.95
NEW! Mountain Stuff Bag...17.95
NEW! Mountain Panniers...69.95
THESE ARE THE BEST!

SPECIALIZED
NEW! Sealed Bearing Hubs with
an UNCONDITIONAL GUARANTEE!
Solid Axle--pair...44.95
Wheels by WheelSmith with
Specialized Hubs, Araya 7X Rims
and D.T. Spokes--pair...116.00
NEW! 6.2 Gauge Beefy Alloy Bottle Cages
Silver, Black, Gold, Red or Blue...6.89
NEW! Slingshot Stem-alloy...39.95
NEW! 4-x Bars-med. or high reach...19.95

A. C. S.
Bolt-on Cantilever Brake
Set. Fits Schwinn Cruisers
and Sidewinders. **\$49.95**

Bicycling

head tubes stood up straighter (75 degrees), and tires slimmed down (as narrow as 27 x 1). Many 1976 touring bicycles looked for all the world like 1968 criterium racers.

In 1976, Bicentennial celebrated the nation's 200th birthday and launched thousands of riders on their first long-distance bicycle

1976 "touring" bicycles.

With one important difference, this new breed was little more than a rediscovery of the custom-built French touring bikes from builders such as Alex Singer and Rene Herse that experienced tourists had been buying for 30 years. The difference was that it was no longer

There are lots of intangibles that road-testers struggle with, but my engineering background forces me to look for hard data. I've found that four key features characterize the loaded touring bike:

- Heavy-duty wheels and tires

Continued on page 132

FRAME DETAILS, TEST BICYCLES

	Seat Tube in.	Wheelbase in.	Chainstay in.	Top Tube in.	B.B. Height in.	Fork Rake in.	Stem Length in.	Crank Length in.	Head Angle (degrees)	Seat Angle (degrees)	Frame Material
Cannondale	24.0	42.7	17.8	23.3	10.4	2.1	4.0	6.7	72.0	73.5	Aluminum; Cr Mo Fork
SBI Expedition	24.4	42.3	17.7	23.3	11.1	2.0	4.0	6.9	73.5	73.5	Chrome Moly DB
Trek 720	25.5	42.5	18.5	23.1	10.6	2.0	4.0	6.7	72.5	73.0	Reynolds 531 DB

WORKSHOP

in the Touring Bike Specifications table.

All five bikes have triple chainwheels. All except the Cannondale have cantilever brakes. All except the Fuji have a complete selection of braze-ons for water bottles and racks.

Three of these bikes were real show-stoppers. The Cannondale ST-300 is TIG-welded from large-diameter aluminum tubing, à la Klein. Everything was right on target except the gearing, so I asked

about it. Half an hour later, we had worked out a half-step plus granny with a lower low, and that's what you'll see on the production versions.

The SBI Expedition is also equipped very much to my taste with three brazed-on water bottle mounts and braze-ons for Blackburn racks, including the Low Rider in front. There's even internal wiring for a Sanyo bottom bracket-mount generator.

The Trek 720 was introduced last year

as a frame and components kit for dealer-assembly, and they sold so well that Trek couldn't keep them in stock. The 1983 model is factory-assembled and comes with a Blackburn rear rack and full braze-ons, including a pair for a Low Rider front rack.

Fuji, which has offered short-wheel-base "touring" bikes in its most expensive models, joined the trend toward long wheelbases for genuine touring bikes. The Fuji Series IV is a new model for 1983. Fuji's middle line bicycles have traditionally been long of wheelbase and soft riding. The Series IV extends this tradition a bit and adds cantilever brakes.

The 1983 Schwinn Voyageur and Voyageur SP are entirely different from the 1982 models in both frame dimensions and components. The 1983 models are made in Japan and they are much closer to loaded touring dimensions. The 1982's were platypus.

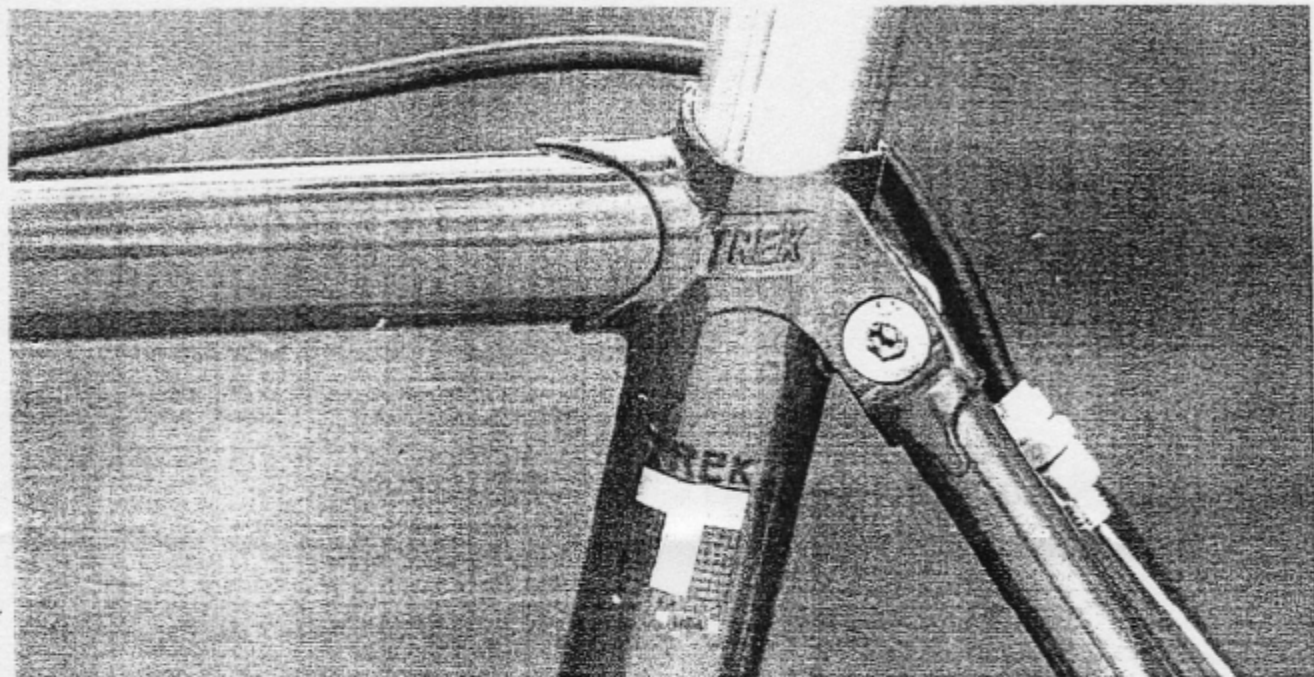
Raleigh of America

In April of last year Raleigh licensed their U.S. operation to Huff Corporation. It's now possible to report on how this is

Continued on page 132

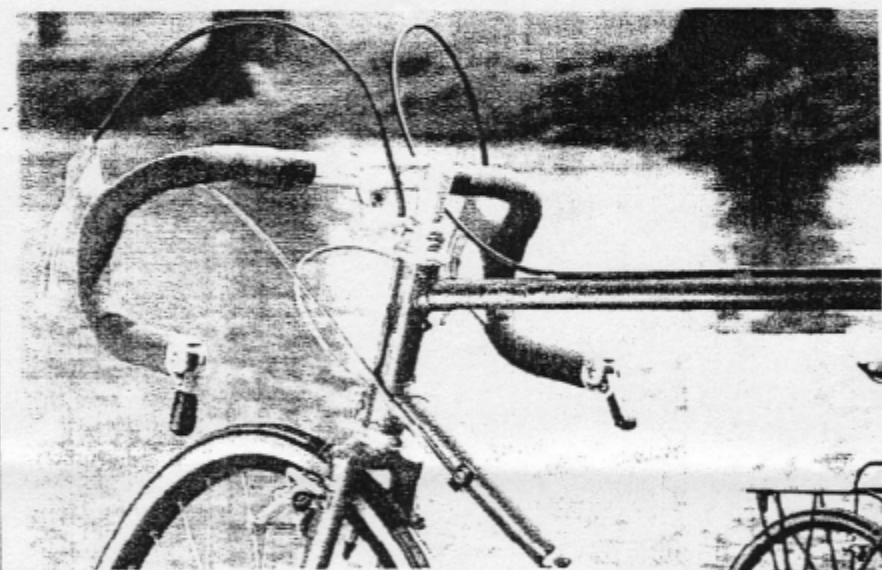
Touring Bike Specifications

Name	Price	Wheelbase (inches)	Chainstay (inches)	Head Tube Angles	Tires	Lowest Gear (inches)	Derailleur
Trek 720	\$775	42 1/4	18 1/2	72°	27 x 1 1/4	27	Huret Duopar
SBI Expedition	\$600	41 3/4	17 3/4	72°	700 x 35C (= 1 3/8)	25	SunTour MounTech
Cannondale ST-300	\$600	41.6	18	72°	27 x 1 1/4	31	SunTour Superbe Tech
Fuji Series IV	\$465	41 1/2	17 1/4	72°	27 x 1 1/4	32	SunTour Cyclone GT
Schwinn Voyageur	\$600	40 3/4	17 1/4	72°	27 x 1 1/4	29	SunTour MounTech

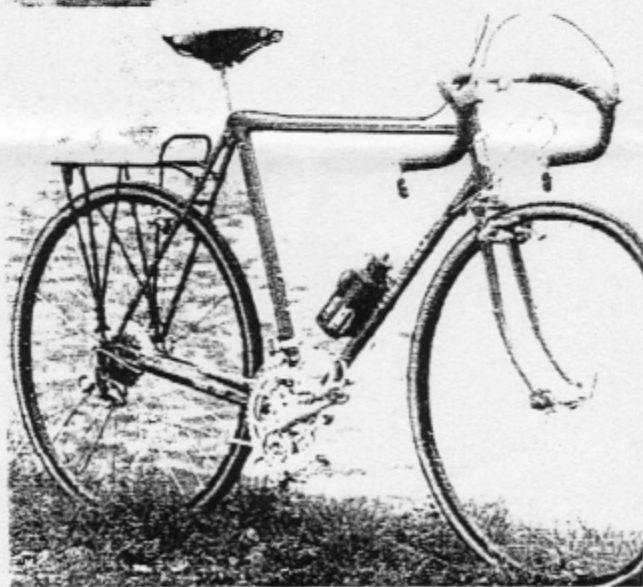


Elegant investment-cast seat lug simplifies assembly, ensures alignment, looks beautiful.

Trek 720



BarCon shifters are reassuringly handy on low-speed hill climbs. Head tube sports pump peg; headset is a Stronglight/Speidel tapered roller bearing design.



All About Loaded Touring Bikes

The biggest difference between the Cannondale and the other bikes was its frame and fork rigidity. When you push the front wheel up against a wall, the fork doesn't give at all.

The Cannondale is so stiff that its ride stays much the same whether empty or loaded. I distributed the 50-pound load as 20 front and 30 rear. The front handling suffered with that much weight in high-mounted panniers; the bike didn't track as well as it did when unladen. I would recommend clamp-on low-mounted panniers for a heavy load.

I distributed the 30-pound load as 10 front and 20 rear. The downhill handling was rock-solid, but the ride wasn't noticeably less harsh.

Cannondale supplies perfect Half-Step-plus-Granny gearing. The SunTour/Sedisport gear train was the smoothest shifting of the three test bikes. I feel that the down tube-mounted shift levers are brazed on about two inches too far down for a convenient reach.

The ST-500 has an elegant paint job, but paint can't hide the slightly curved tubes. The bike is properly aligned, but every tube is bowed because of the intricacies involved in the heat treatment of aluminum. The down tube on the bike I received, for example, is 1/8-inch out at one point, and other tubes bend 1/8-inch or so. Also, the head tube on my sample wasn't properly faced. There was a 1/8-inch gap on one side of the cup. (Our informal research indicates that this is a common problem with Cannondales. David Graham, the bike's designer, says that the company is aware of both this facing defect and the bowed tubes phenomenon and is working to correct both. —Editor)

Generally speaking, Cannondale has selected its components wisely, especially considering the bike's low price. I didn't care much for the Belleri handlebars, however. They are much too flexible for hard riding. I commented on the brakes earlier.

In sum, Cannondale set out to build a multi-purpose bicycle with touring frame dimensions and racing bike stiffness. They succeeded. Some riders appreciate this combination; they want all their energy to go directly to the wheels rather than lose any of it with frame flex. In David Graham's words, "I see no reason why a touring frame should have an energy-inefficient drivetrain." But Gary, Paul, and I thought the bike was too stiff for touring.

Specialized Expedition

The Expedition is a pleasant bike to ride unloaded, and it's a superlative load carrier. The fat 700 x 35C tires set the tone. Gary Fisher tried the bike out on his MountainBike test course, and he was impressed. Expedition de-

signer Jim Merz has carefully balanced the Expedition tires against a quick-handling front end.

The Expedition's beefy frame yields a pretty stiff ride, closer in character to that of the Cannondale than the Trek. Whether loaded or empty, this bike goes downhill as if it were on rails. I felt quite secure with its cornering, and the tires hang on like grim death. I pressed this bike harder than the other two, and was never disappointed in its handling.

After some experimentation, I found the best arrangement for the 50-pound load was 30 pounds up front in the low-mounted Tailwind panniers and 20 pounds in Cannondale panniers at the rear. The bike felt stable and secure with this load. It would be the best bike for very heavy touring loads. In fact, I'd be willing to try 60 pounds on the Expedition; I'd be wary of riding the other two bikes that way.

My 1983 Expedition had a Sugino TAT triple crankset and an HKK Z chain. This was the worst shifting combination of the three bicycles. The narrow chain shifts imprecisely at the rear, and it doesn't catch the middle chain-wheel on each shift up from the granny ring. Perhaps in response to this, note that the 1984 specifications show a Specialized crankset and a Sedisport chain.

My comments on the crankset and chain aside, the Expedition is a balanced package; everything works together.

Trek 720

The Trek got the top rating from all three of us by virtue of its incredibly comfortable ride and great finish. The Reynolds 531 ST tubeset soaks up every road bump. The major difference between the Trek and the other two bikes lies in the Trek's lighter gauge forks and stays. The bike has the comfort of a featherbed, even with a brand new Brooks leather saddle. It's also the easiest bicycle to ride no hands, a tribute to its stability.

It's also the most expensive bicycle here, and it looks it. Tim Isaac's seat crown and bottom bracket details would grace anyone's custom bicycle.

Trek's component selection shows care and attention. No one but a dedicated gear freak would go to the trouble of mixing so many brands of drivetrain gear: SunTour BarCon shifters, a Simplex front derailleur, and a Huret Duopar rear derailleur. But the Maillard Helicomat rear sprockets didn't shift as positively as the SunTour sprockets on the Cannondale. The Spindel roller bearing headset and the Shimano 600 EX crankset were other neat selections.

I tried the Trek with 30 pounds in the rear Tailwind pannier and 20 pounds up front. The

rear Tailwind had to be mounted much too far back to clear the cantilever brakes. This was a poor handling combination. Handling was much improved with more weight in front and with rear panniers that could mount farther forward.

But you can't get the comfort of the Trek's ride without a tradeoff. The stays and forks are just a little too flexible to be confidence-inspiring at high speeds. I'd recommend limiting the amount of weight you intend to carry with this bike, and indeed, the Trek was a delight to ride with a 30-pound load.

Final Advice

Last month's article on light touring bicycles used a 36-pound test load. It seemed that loaded touring bicycles ought to carry a heavier load, so I performed my first tests with 50 pounds.

My advice to anyone contemplating a long cross-country trip with 50 or more pounds of gear is, "Don't." Think it through again, and take only what you absolutely can't do without. Bicycling is twice as much fun with only 30 pounds.

I have a 26-mile exercise route which includes 3 1/2 miles of hills. On a good day I make it in 1 1/4 hours. With 50 pounds, it took me 2 1/4 hours. With 30 pounds it took me 2 1/4 hours.

On my first 50-pound test ride I used the stock 27-inch low. As I sweated up the ten-percent grade at 40 rpm, standing up and swaying back and forth, I recalled that in the eighteenth century, treadmills were a common form of corporal punishment. The felon got an hour's rest after each hour on the treadmill. In hilly terrain, the cross-country tourist receives less humane treatment.

For all of the subsequent tests, I installed 24-tooth granny chainwheels, 34-tooth large cogs, and 175 mm cranks. Don't sneer. I often found myself looking back at the freewheel to be sure I was really in the 19-inch Low.

I installed a digital stop watch on the handlebars. On long hills, I would shift down a gear every time my cadence fell below 60 rpm. I'm convinced that's the secret of loaded hill climbing for non-masochists.

Finally, about the time you read this, I'll be touring in the United Kingdom, from Land's End to John o'Groats, with two friends. They'll be on SBI Expeditions, and I'll be on a brand new Columbine which will incorporate everything I learned from this test. See you on the open road.○

See "Gearing Up for Loaded Touring" on page 146 for an in-depth gearing study.