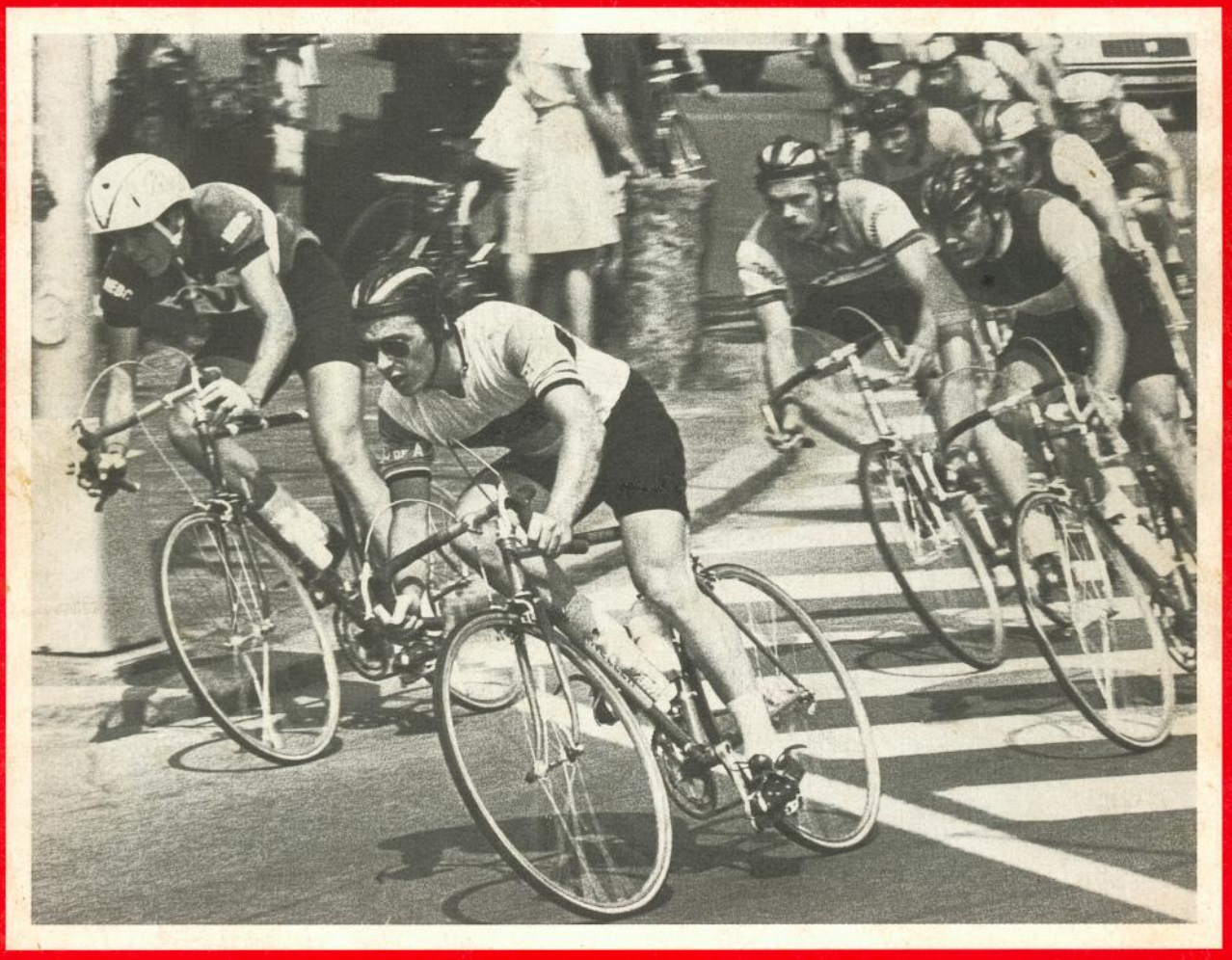
MITCH KNELLER

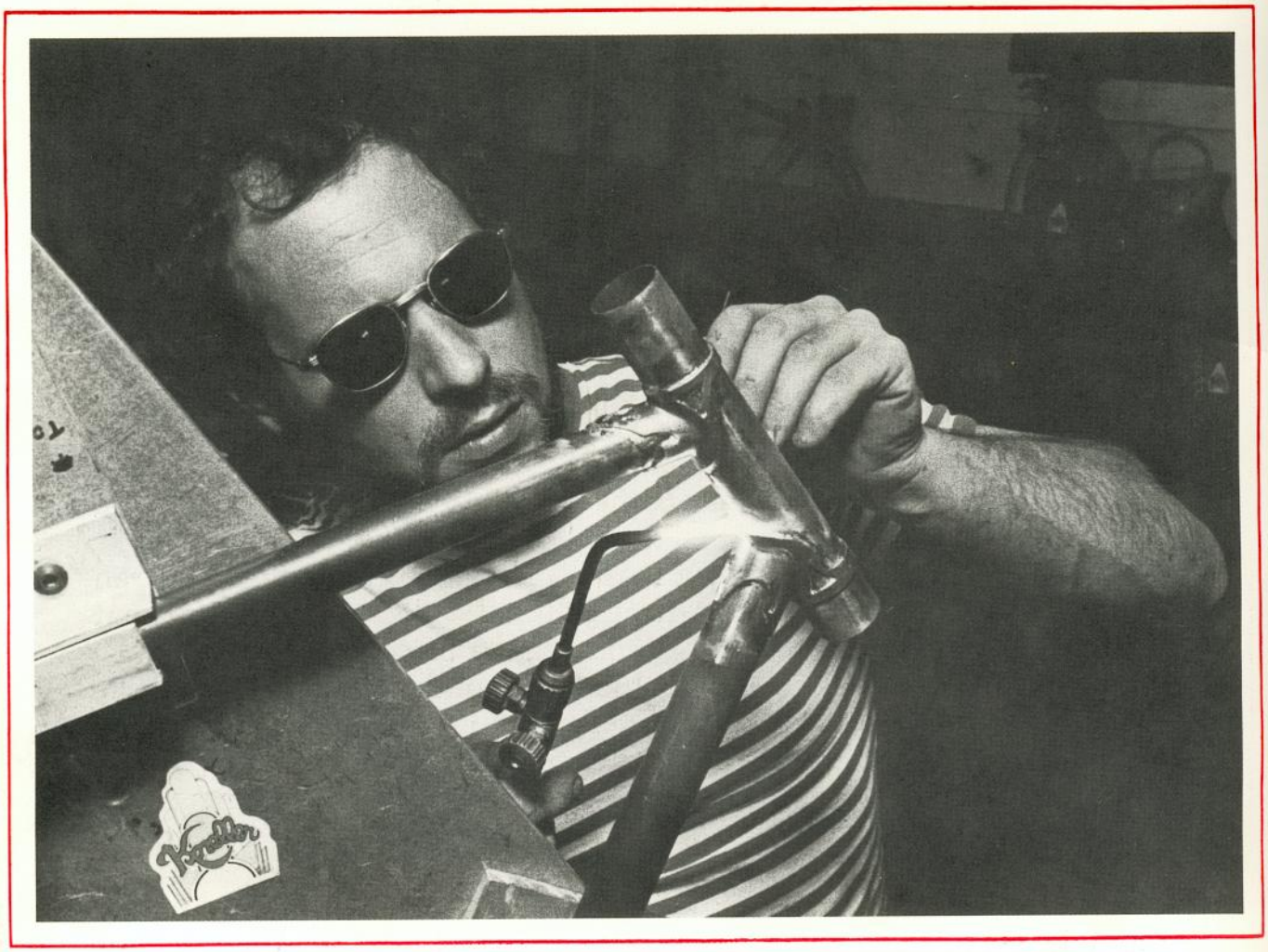
PRECISION BICYCLES
HANDMADE FRAMES



ADVANCED BICYCLE ENGINEERING

281–283 Brookline St.
Cambridge, Mass. 02139

(617)492-8618
354-8780



I firmly believe that we produce the finest bicycles and frames available today at any price. Each one carries my name as a personal guarantee of quality.

Mitch Kneller

Cover Photo: Richard Currey (Century Road Club of America) clinched a team victory in the 1976 Tour of Massachusetts, winning the final stage at Cambridge.

Rear Cover: On the track, Currey rode his Kneller Cycle to first place in the 4000 meter pursuit and 10 mile scratch events at the 1976 Mass./R.I. District Championships.

INTRODUCTION

We at Advanced Bicycle Engineering are proud to present the complete line of KNELLER bicycles and framesets.

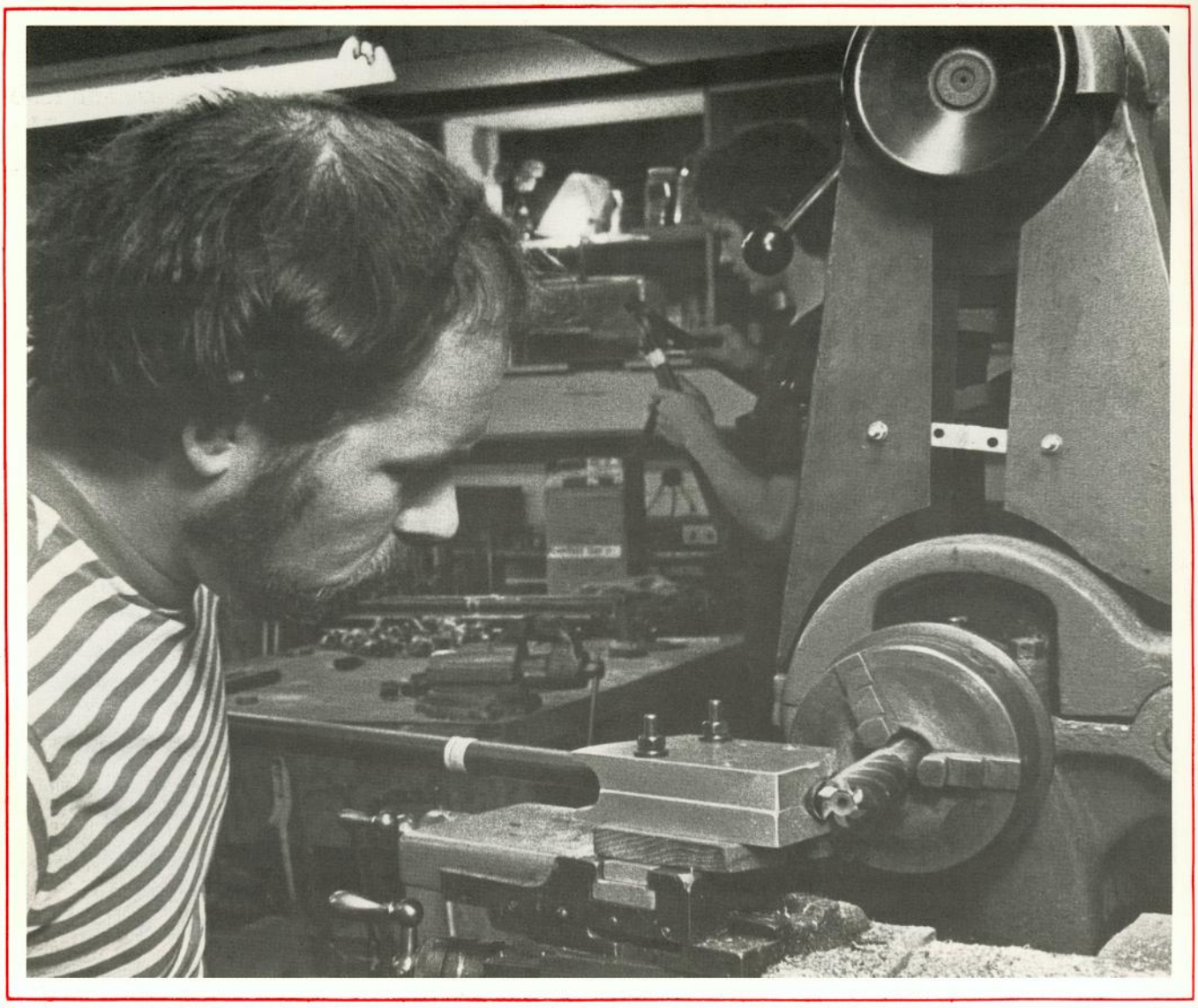
Since 1973, Mitch Kneller has been recognized as a master craftsman serving the varied needs of discriminating New England cyclists. This reputation of excellence has grown among successful racers, intrepid cyclotourists, and fellow builders—in short, wherever his handmade custom machines have faced the test of ultimate performance and maximum reliability.

In 1975, several aspiring frame builders were invited into an apprenticeship program emphasizing manual skills and the intelligent application of design principles, rather than a piece-work approach to mass production. Aiming for a thorough understanding of bicycle theory and construction, all were subjected to rigid standards of precision and quality workmanship. The survivors of this demanding course combined their individual talents in pursuit of new goals, increasing productivity without sacrificing an established "zero-defects" attitude.

Computer-aided design techniques have simplified the processing of custom orders, while expanded facilities and dedicated staff provide rapid delivery of any standard model not in stock. A large inventory of commonly-requested sizes allows immediate shipments to retailers for in-store display, and preferential handling of dealer orders encourages personalized fitting and a choice of options for the enthusiast.

Our current objective is to further the state of the art of bicycle science while continuing to meet the requirements of our clientele. Space-age technology has contributed many of the exotic materials and innovative concepts integral to the development of superior equipment for a new generation of American pioneers. The bicycle revolution has arrived; we'd like to bring it home to you. American builders can and should provide the best possible services available to the American cycling public. In addition to our fine products, we offer expert frame repair and refinishing, and a selection of framebuilding supplies.

We welcome inquiries concerning jigs and fixtures from our experimental machine shop, our custom painting and graphic services from our in-house art department.



KNELLER FRAMESETS

Four models for competition, sport use, light & heavy touring
Fifteen sizes from 50–64 cm. (19¾"–25¼")
Mixte frames 48–52 cm. (19"–20½")

All KNELLER frames are handbuilt from the finest quality butted tubing, lugs and fittings. Low temperature silver brazing and precision jigs guarantee maximum strength and accurate alignment. Our oven-baked polyurethane enamel finish offers unsurpassed resistance to wear, stress, temperature extremes and chemical attack.

FRAME SPECIFICATIONS

Design parameters such as frame angles and fork rake vary according to frame size and load considerations in order to achieve balanced characteristics within each performance category. The resulting geometrical configurations are too numerous to include in a brief discussion; we welcome your specific inquiries.

Road Racing frames

Minimum clearances for tubular tires and side pull brakes.

Sport/Road frames

Suitable for stage races and general use.

Sport/Tour frames

More shock-absorbing than road models; handles responsively under moderate loads.

Touring frames

This model will accept high performance 27″ or 700C clincher tires with mudguards for superior comfort and all-weather cycling.



CUSTOM FRAME OPTIONS

Each order built to customer specifications

Frame sized to individual order
Special configurations available for:

criterium	track pursuit
cyclo-cross	track sprint
time trial	track time trial

Choice of seat stay arrangement
5-speed or 6-speed rear spacing
Choice of dropouts
Choice of standard colors
Clearances for short-reach brakes on request
Derailleur hanger can be modified to increase freewheel capacity

Brazed-on fittings and reinforcements

Derailleur cable guides and stops
Bosses for Campagnolo shift levers
Brake cable housing guides
Reinforced fittings for water bottle holder and/or luggage carriers
(includes recessed allen-key bolts)
Bosses for cantilever brakes, generator set, etc.

Fork blade stiffening tangs on crown
Chain stay and rear brake bridge reinforcements
Seat lug reinforced at binder bolt

Finishing options and accessories

Pump painted to match frame
Premium quality chrome plating
Personalized identification stamped into frame
Customer name lettered on frame
Custom clear top coat over entire finish

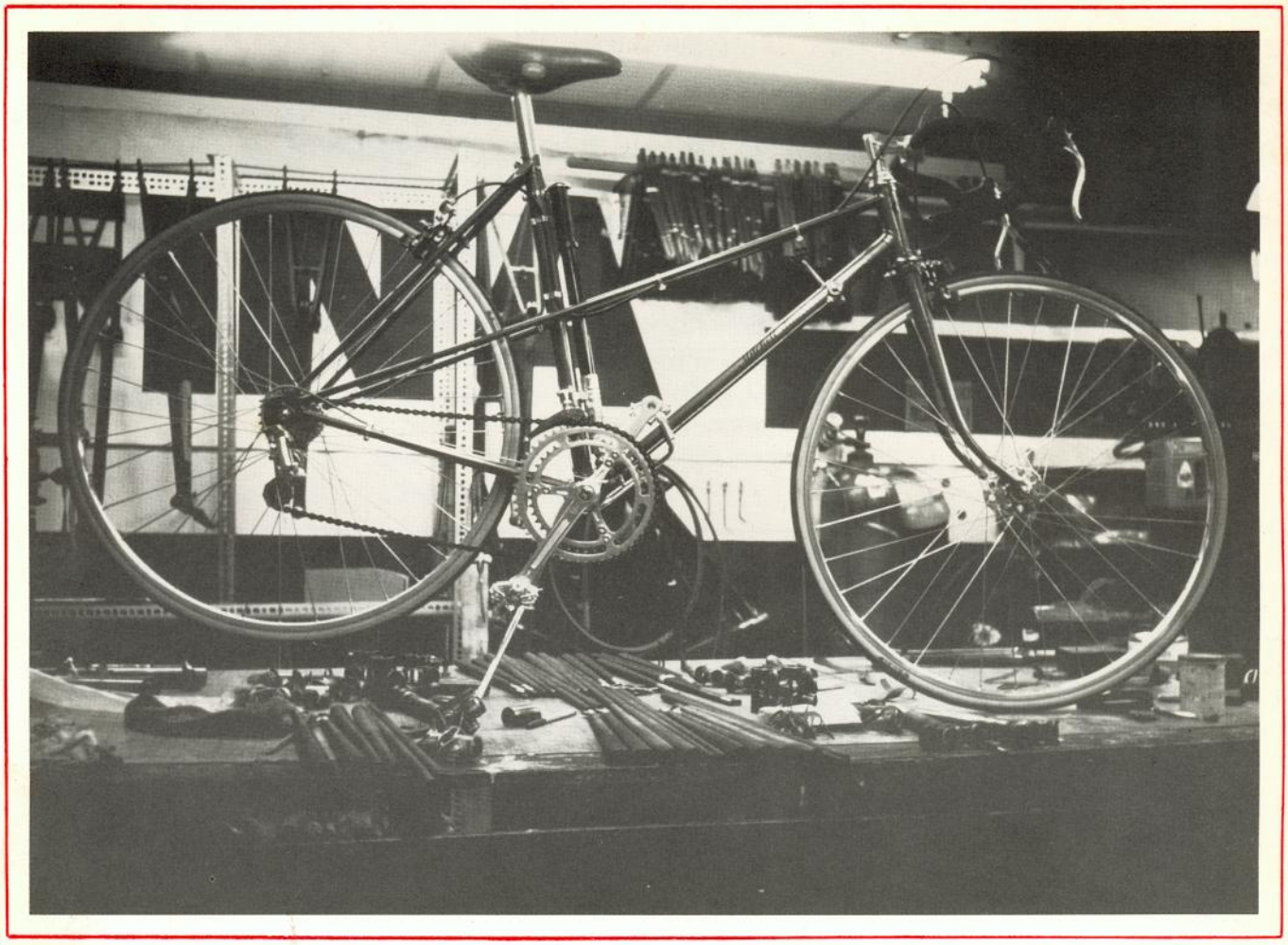
Frame-fit Silca pump
T.A. water bottle holder
Luggage carriers
Campagnolo headset, bottom bracket and seat post (installed)

DELUXE FRAME ORDERS

The individually tailored MITCH KNELLER deluxe frame represents the master craftsman's approach to optimal design based on the needs of a particular cyclist. Whether intended to accommodate an unusual physique or a racer's requirements for a specific set of conditions, all the interrelated factors of frame geometry, tubing diameter and wall thickness are balanced against subjective considerations of steering response, shock absorption and personal riding style.

The preferences of each customer are also applied to the aesthetic details of construction and finishing. The options listed in our custom frame description are extended to include choices of frame lugs and almost any color combination imaginable. For the ultimate personalized statement of form and function, tube sockets may be built up, cut away and cut out to create a unique artistic impression.





KNELLER BICYCLES

Any standard, custom or deluxe frame completely equipped. Campagnolo component groups in three price ranges.

Factory-assembled KNELLER bicycles exhibit the same characteristics of superior quality and purposeful design evident in our full selection of frames. Campagnolo products need no introduction. The SUPER RECORD, NUOVO RECORD, and NUOVO GRAN SPORT groups have established standards of accuracy and reliability for cycling components, regardless of price range.

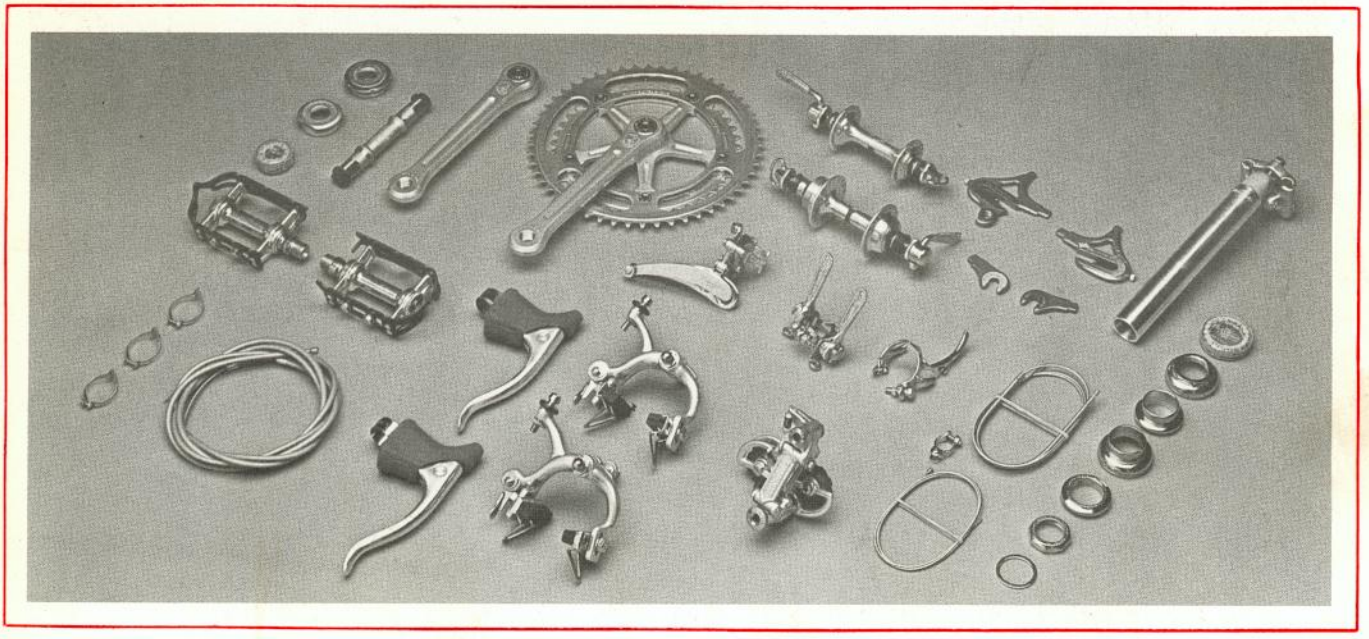
Our expertly-built wheels are chosen for compatibility with each application, from ultra-light tubulars for competitive performance to the low-profile, narrow-section clinchers we prefer for city riding and training.

Several unique concepts in American-made components are currently undergoing extensive road tests. This continuing process reflects our commitment to the advancement of all aspects of bicycle engineering.

TYPICAL SPECIFICATIONS

The individual items listed below are representative of many possible alternatives. All depend on product availability, and are subject to change without notice.

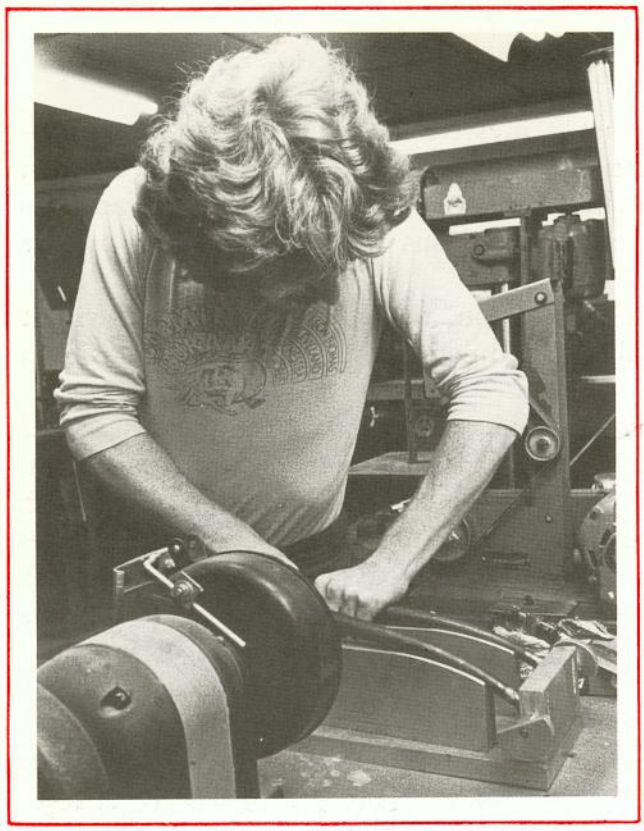
WHEELS: Fiamme, Martano, Nisi or AVA rims with Pirelli, Wolber or Clement tubular tires; Mavic Module tubular section clincher rims with IRC Featherflite or Michelin Elan tires and tubes. High-tensile stainless steel butted spokes, prestressed and accurately trued.
HANDLEBAR & STEM: Cinelli or 3TTT.
SADDLE: Cinelli, Brooks Professional or Ideale.
FREEWHEEL & CHAIN: Regina Super Corsa "ORO".
TOE CLIPS & STRAPS: Binda or Christophe.
ACCESSORIES: TA bottle holder, Silca "Impero" pump.

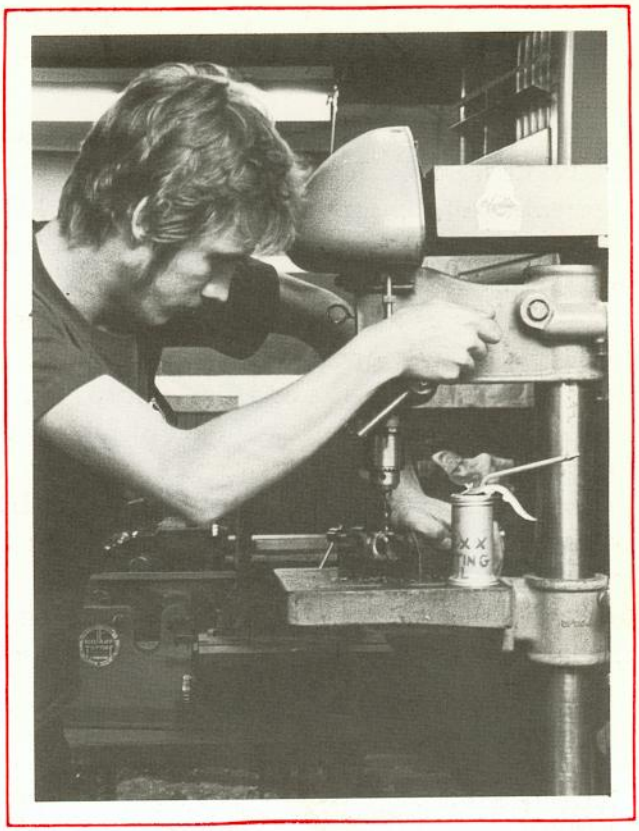


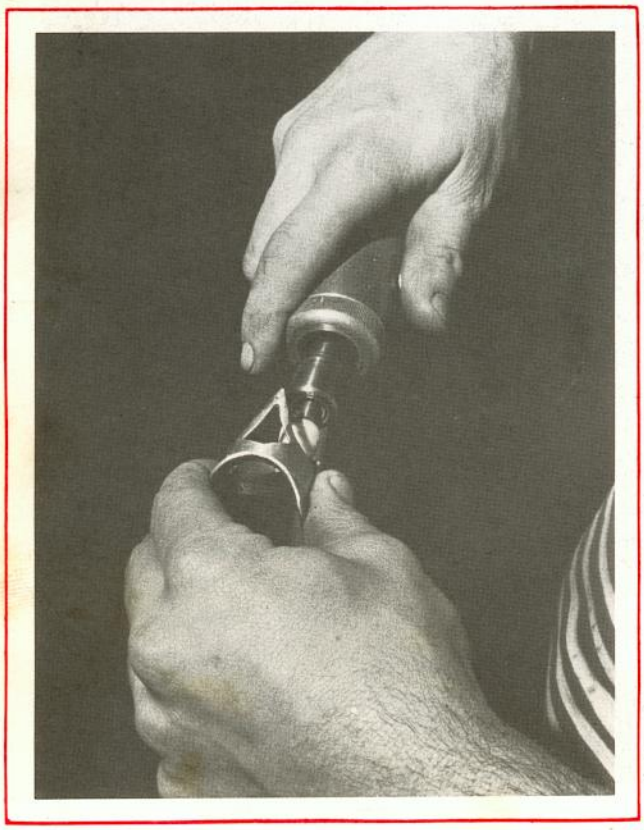
Campagnolo offers several choices of equipment specification, including; chainwheel size, double or triple chainwheel, crank arm length, small or large flange hubs, 5 or 6 speed rear hub, 52 mm or 47 mm brake reach, downtube or handlebar control levers, and their Rally wide range touring derailleur which may be substituted into any group.

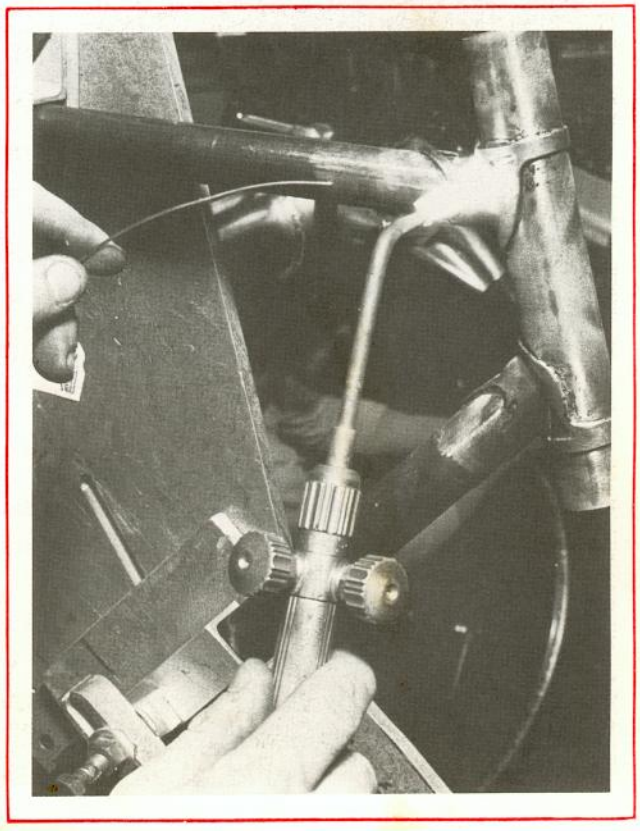
Special equipment considerations include complete packages for cyclo-cross riders and long-distance tourists, as well as custom high-performance braking systems and an expanded line of titanium alloy components such as axles, chains, freewheels, spokes, fork tips and dropouts.

Prices and availability of the more exotic parts fluctuate continuously, especially the imported limited-production items.







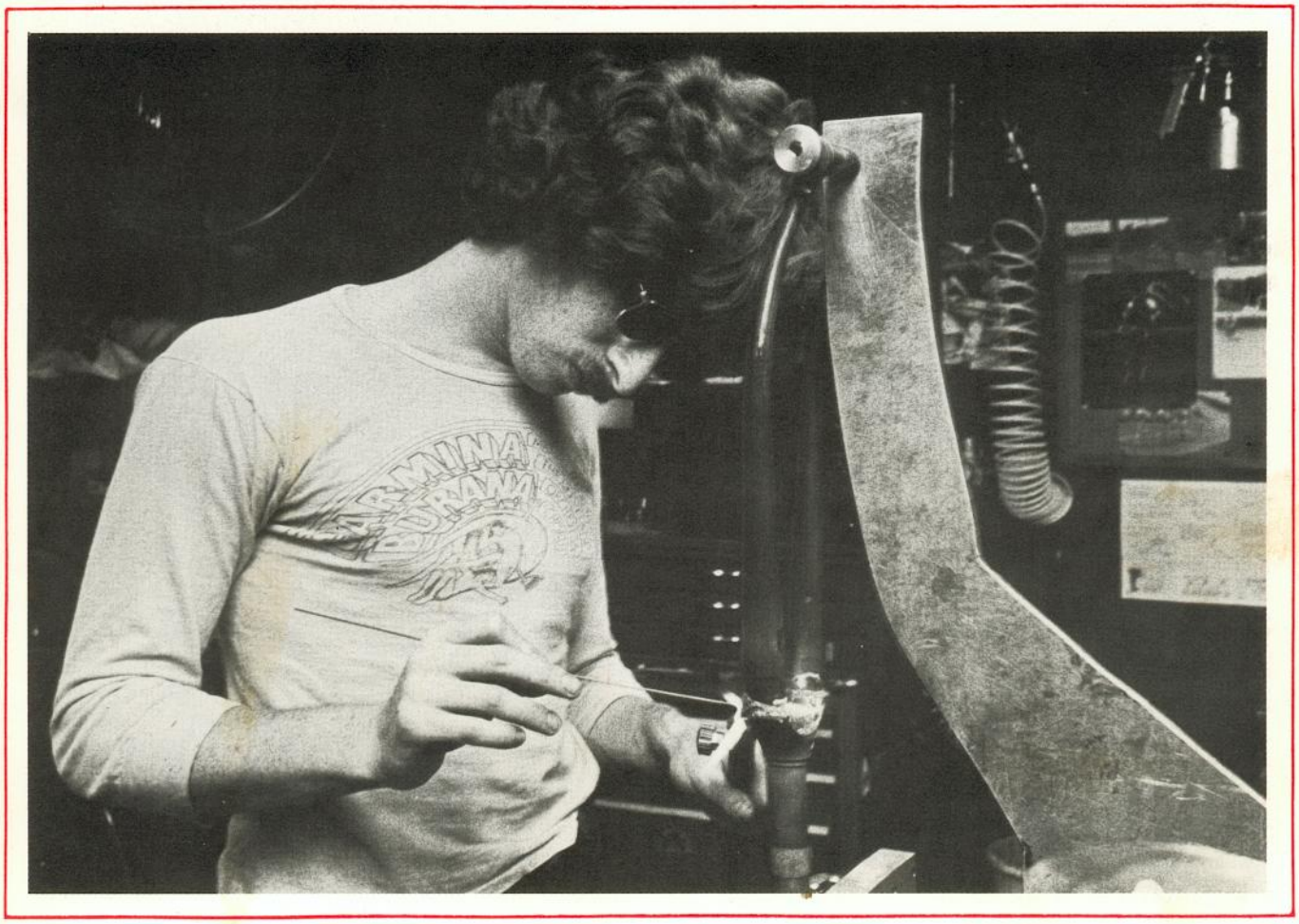


FRAME ASSEMBLY

Many cyclists view framebuilding as a sorcerer's art, a mysterious behind-closed-doors process impossible for the uninitiated to comprehend. Actually, there are very few secrets involved in the creation of top-grade bicycle skeletons. Differences between massive high-production factories and smaller custom-oriented facilities account for most variations in quality visible on the showroom floor.

For all of us at A.B.E., bicycling is a lifestyle, not a 9-to-5 job. The quality control evident at every step of our operation is a continuous personal committment, rather than the occasional result of sporadic checks on an assembly line.

Raw tubes are accurately machine mitered to insure full contact at the exact angles designated for each frame joint. Precision jigs maintain accurate alignment throughout the brazing process, to avoid the cold-setting often mandated by other construction methods. Hand-brazing with expensive silver alloys and a small-flame torch requires expert technique, but practically eliminates the reduction in strength caused by higher temperatures or automated setups. The craftsman's touch, shown by smooth lug edges and the blending of lines at fork tips and dropouts, is the crucial ingredient and the one most apparent in the final product.







FRAME FINISHING

The production of an excellent finish is one of the least-understood factors important to the longevity of a frame. Many top-name builders, both at home and abroad, use lacquer for an easily applied, inexpensive and good-looking paint job. Unfortunately, lacquer will not stand up to the high stresses, temperature extremes and surface abuse that constitute normal bicycle use.

The harsh conditions encountered in aircraft and marine applications have resulted in the formulation of modern aliphatic polyurethane enamels. Unlike conventional enamels, which dry by solvent evaporation, the DuPont Imron finish used on all Kneller frames is produced by a chemical reaction between the paint and a special activator. After the preheated frame has been spray coated, several hours' baking in a temperature-controlled oven accelerate this reaction, curing the paint film to maximum hardness. Immediate assembly of the bicycle will not damage its tough skin. The flexibility and superior adhesion of Imron have established an unsurpassed standard of durability for bicycle finishes. Corlar epoxy primer, fine-sanded between coats, provides a smooth base and a strong bond between the Imron and the bare metal underneath.

Special decals from our in-house art department allow for personalization of custom finish orders. Coated with clear Imron, these decals become part of the paint job and will not fade, scratch or peel-off—another exclusive service from A.B.E.

HUMAN ENGINEERING

For many cyclists, choosing the "right" bicycle can be a confusing process. Several misconceptions center especially on the subjects of frame geometry and tubing characteristics.

Frame angles are calculated to provide a suitable weight distribution between the front and rear wheels, while placing the rider in an appropriate position for steering control and efficient pedaling. These angles, often parallel in medium-size frames, can deviate by as much as 3° as they tip forward and back to accommodate variations in the frame size and function, or to fit individuals of unusual build. Chainstay length and fork rake have an important effect on comfort and handling, but must be considered in conjunction with seat and head angles in order to realize the objectives of a particular design.

The stiffness of a bicycle frame depends more on the wall thickness of the tubes used than on commonly-held beliefs regarding the relative strengths of Reynolds, Columbus, Vitus or other high-quality tube sets. Since each manufacturer produces several gauges of tubing, and fork blades and stays in differing cross sections, the well-stocked frame builder might assemble a hybrid set of tubes in order to achieve a specific result.

Guidelines can be offered for purposes of equipment selection, but the serious cyclist should arrive at a personal understanding of how his or her machine responds to different combinations of gears, wheels, etc. when applied to variations in terrain, weather and other riding conditions. Superlight silk tires and a close-ratio freewheel will not convert a touring frame into a criterium racer, but many choices are available which allow the individual much room for experimentation.

The enthusiasts on our staff don't hang up their riding shoes at the end of each racing season. New England winter cycling is a demanding and rewarding pastime, as well as a dependable means of transportation when roads are ice-covered and auto traffic snarls to a standstill. Our varied experiences and strong technical background allow us to offer capable assistance to the discriminating cyclist in choosing an appropriate mount, both for general riding and specialized applications.

RESEARCH & DEVELOPMENT

A technological wave is sweeping the bicycle industry. Lightweight alloys and composite matrices developed for aerospace applications have provided the ingredients for many experiments, while advancements in heat-treating and joining techniques have added new capabilities to traditional materials.

The most radical designs seldom find instant acceptance. Market resistance to previously untried concepts has sunk many ventures, and each failure creates prejudice against attempts to redesign a similar product. This skepticism is more than mere superstition—much of it reflects a well-placed emphasis on reliability and safety. For example, certain ultralight frame materials tend to fracture when overly stressed. Since a severe enough crash will ruin any frame, the ability of steel tubing to absorb overloads by bending and crumpling is a significant advantage when compared to more brittle alternatives.

Bicycle racing provides the ultimate proving ground for variations in frame and equipment designs. Superbly-conditioned athletes, straining for maximum output, push their finely tuned machines to levels of performance rarely seen outside the competitive arena. Kneller bicycles have been ridden to major victories in road and track events, demonstrating the importance of a close relationship between builder and user. Races won on accident-salvaged rebuilt frames have shown the integrity of our professional repairs.

Newly-introduced components are subjected to the same rigorous product evaluation. These experiments allow us to offer knowledgable recommendations to the quality-conscious consumer.

Other ongoing projects include prototype development of recumbent cycle designs, and feasibility studies of a fixed-rail vehicle concept for the physical therapy of handicapped children. Many unusual applications of bicycle technology are waiting to be discovered. At Advanced Bicycle Engineering, we're ready to meet the challenges of the future.

WARRANTY

All KNELLER frames are protected
by a lifetime guarantee to the original owner
against defects in materials
and workmanship.


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