

TRAILMASTER



\$2.00



The balloon tire has been rediscovered. Virtually indestructable these bicycles can be ridden into rugged areas on anything even remotely resembling a trail.

Wide ratio gearing and light weight combine to provide a means of access to your favorite backcountry hideaway in a fraction of the time it would take on foot. The wide footprint of the tire provides excellent traction on most any surface.

TRAILMASTER

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Prices and Specifications
Subject to Change

Thanks to Mark, Robert, Mush, the Koski Family and a special thanks to Gerald and Sandra Pisani of Advantage Type & Design, Tiburon, California

TRAILMASTER • 1 BLACKFIELD DRIVE • TIBURON CA 94920 • (415) 388-0800



BREEZER on Bolinas Ridge (23 1/4" frame shown)

The BREEZER has evolved from years of development. The 4130 Chromemoly frame is built by the hand-brazed lugless joint construction method, used in fine road frames. The tubing is mitered on a lathe for precise fit, all joints are filed to a smooth fillet after brazing. The fork uses Reynolds 531 manganese-molybdenum tapered tubing and a special Breeze fork crown milled from solid bar stock. Proper geometry and a high bottom bracket provide low speed maneuverability and high speed stability along with adequate trail clearance. Nickel plating provides a beautiful and tough finish. Brazed on cable, water bottle, pump and brake fittings provide a clean, functional design. Component selection results from continuous testing on the trail. All components are chosen for their inherent balance between strength and weight.

T.A. Cyclotourist Cranks provide a wide gear selection and many available arm lengths. The Suntour New-Winner 6-Speed Freewheel has proven strongest. Phil Wood Sealed Bearing Hubs and Crank Bearing Assembly are known for their strength, even under the roughest off road conditions. The Mafac Tandem Cantilever Brakes and the Magura Brake Levers provide a light, efficient stopping system.

No. JB-12N-19	19" FRAME SIZE
No. JB-12N-21	21 1/4" FRAME SIZE
No. JB-12N-23	23 1/4" FRAME SIZE
No. JB-12N-24	24" FRAME SIZE

PARTS LIST

HANDLEBARS: Tubular Aluminum
STEM: Cinelli 1-A
HEADSET: Campagnolo Nuovo Record
BRAKE LEVERS: Magura (Short, power lever)
DERAILLEUR CONTROLS: Suntour Thumbshifter
SADDLE: Brooks B-72 or Avocet Touring II
SEATPOST: Campagnolo Nuovo Record
SEATPOST QUICK-RELEASE: Suntour
CRANKBEARING ASSEMBLY: Phil Wood No. 4
Sealed Bearing (Special, Spindle Centered)
CRANKS: T.A. Cyclotourist 32 x 46T, 170-185 mm

PEDALS: KKT Lightning, Gold
REAR DERAILLEUR: Suntour Cyclone GT
FRONT DERAILLEUR: Suntour Vx
FREEWHEEL: Suntour New-Winner 6-Speed 13 x 28T
CHAIN: Regina "Oro"
HUBS: Phil Wood, Sealed Bearing/Bolt-On
SPOKES: D.T. 14 Ga./Straight Ga. Stainless Steel
RIMS: Ukal or Araya 26" x 1.75"
"Box" Aluminum, Gold
TIRES: Carlisle or Uniroyal 26" x 2.125" Knobby
FORK: Breeze
FRAME: 4130 Chromemoly Tubing, Hand Brazed

See Breezer frame page for proper frame size



PRO-CRUISER Bolinas Ridge-Looking South

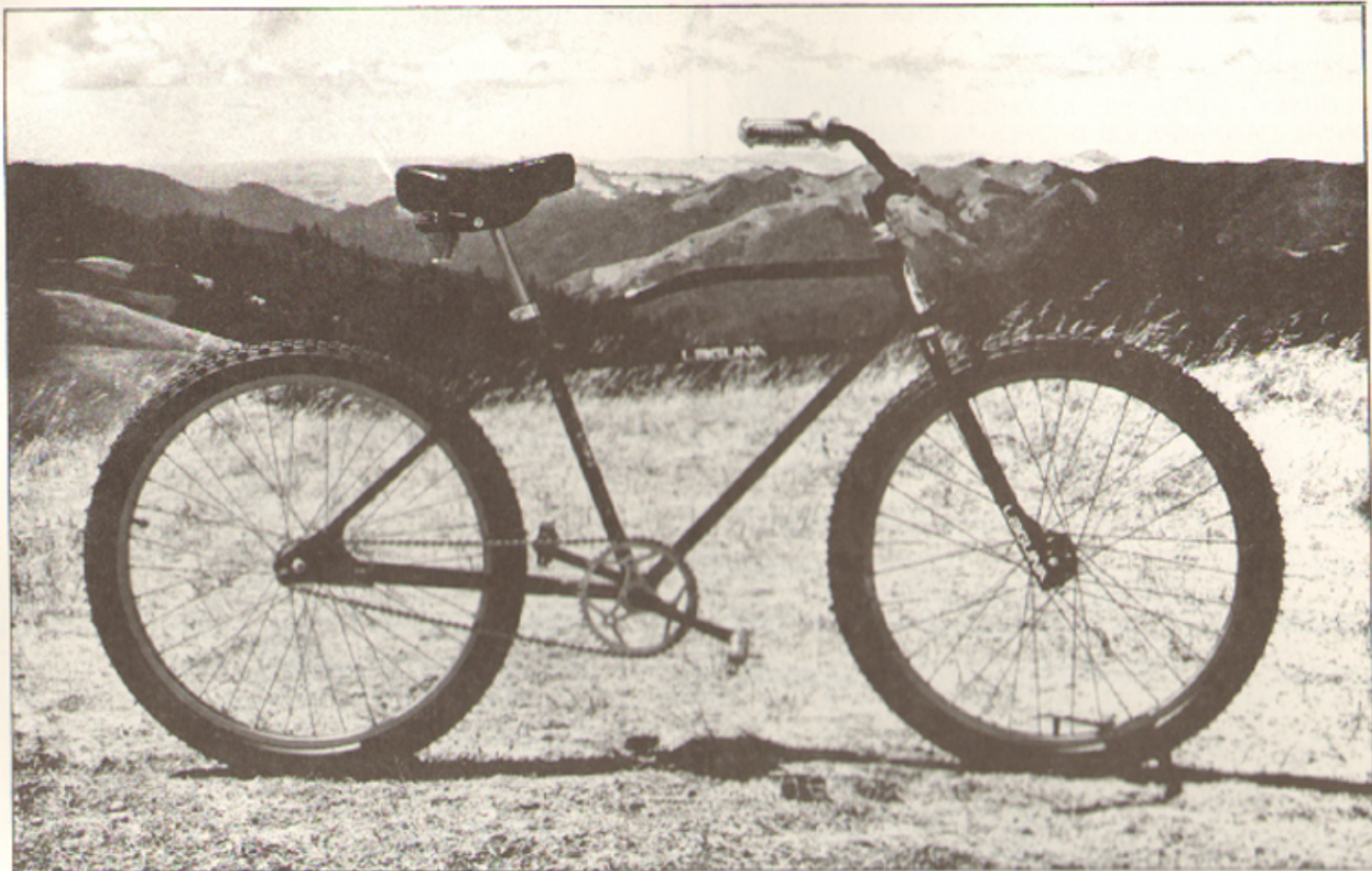
The PRO-CRUISER with drum brakes, 5-Speeds, and chromemoly frame, has been developed by TRAILMASTER & LAWWILL-KNIGHT LTD. to provide the necessary strength, lightness and reliability required for off road use. The Sturmey-Archer drum brakes supply braking power wet or dry, the Shimano 14 x 34T Uni-glide freewheel and "600" long arm derailleur provide a wide gear range. The T.I.G. welded chromemoly frame that ties it all together is built by Terry Knight and has been proven as solid as a rock yet weights only 5 1/2 lbs. Frame is finished in either electrostatic candy red epoxy paint or nickel plated. A quick-release seatpost allows instant changes in seat height to suit the terrain. Quality and price hard to surpass.

No. PC-5R CANDY RED ELECTROSTATIC EPOXY
No. PC-5N NICKEL PLATED

PARTS LIST

HANDLEBARS: 4130 Chromemoly
STEM: Redline or Pro-Neck
HEADSET: Tange
BRAKE LEVERS: K & L "Power Lever"
DERAILLEUR CONTROL: Shimano or Suntour
Thumbshifter
SADDLE: Brooks B-72
SEATPOST: 4130 Chromemoly
SEATPOST QUICK-RELEASE: KKT
CRANK BEARING: Takagi/Shimano
CRANKS: Shimano "600", 44T
PEDALS: KKT, Chromemoly Axle

REAR DERAILLEUR: Shimano "600" Long Arm
Or Suntour V-GT Long Arm
FREEWHEEL: Shimano Uni-Glide 14 x 34T
CHAIN: Shimano Uni-Glide
HUBS: Sturmey-Archer Drum Brake
SPOKES: D.T. Stainless Steel 14 Ga./Straight Ga.
RIMS: Ukai 26" x 1.75"
"Box" Aluminum, Gold
TIRES: Carlisle or Uniroyal 26" x 2.125" Knobby
FORK: Tange/Mid Steel Blades,
With Chromemoly Steerer Tube
Optional Chromemoly Fork Available
FRAME: (Size: 16 1/2") T.I.G. Welded
4130 Chromemoly
Minimum frame size (saddle to floor) 32"



LAGUNA Bolinas Ridge-Looking North

The LAGUNA cruiser with its curved top tube frame is styled after the vintage bicycles of the 1930's-50's. The T.I.G. welded frame is made of mild steel. A color coordinated Laguna tubular 4130 chromemoly fork compliments the frame. Finish on frame and fork is tough electrostatic epoxy. "Long Horn" handlebars, a large cushion saddle and reliable coaster brake maintain the vintage style.

No. L-1B	CANDY BLUE
No. L-1R	CANDY RED
No. L-1BLK	BLACK
No. L-1W	WHITE

PARTS LIST

HANDLEBARS: Mild Steel
 STEM: Ashtabula Heat Treated
 HEADSET: Tange
 SADDLE: Messinger HDD-10
 SEATPOST: Solid 2024 Aluminum
 CRANK BEARING: Takagi
 CRANKS: Takagi or Ashtabula, 44T
 PEDALS: KKT
 CHAIN: 1/2" x 1/8"
 HUBS: Front-Aluminum High Flange
 Rear-Bendix or Shimano Coaster Brake, 19T
 SPOKES: 14 Ga./Straigh Ga.
 RIMS: Ural or Araya 26" x 1.75"
 "Box" Aluminum, (Colors-See Note)
 TIRES: Carlisle or Uniroyal
 26" x 2.125" Knobby

FORK: Laguna 4130 Chromemoly
 FRAME: (Size: 18 1/2") T.I.G. Welded Mild Steel
 Minimum inseam size (crotch to floor) 32"

RIM COLORS: Red, Blue, Silver,
 Gold and Black

*Please Specify—Otherwise the
 Following Combinations are Supplied.*

FRAME COLOR	RIM COLOR
Red	Gold
Blue	Silver
Black	Gold
White	Blue

FRAMES

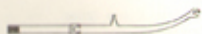
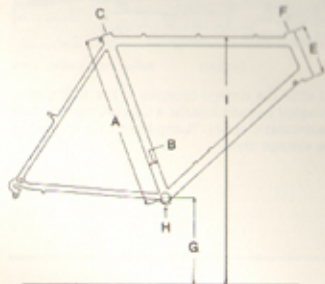
BREEZER:

4130 CHROMEMOLY TUBING, HAND BRAZED JOINTS METICULOUSLY FILED TO A SMOOTH FILLET, WITH HORIZONTAL CAMPAGNOLO DROP-OUTS, COMPLETE WITH BRAZED ON CANTILEVER BRAKE MOUNTS, CABLE GUIDES, WATER BOTTLE MOUNTS, ETC.: SEE SPECIFICATION DRAWING BELOW. (Fits Shimano, Suntour and Huret Duo-Par rear derailleurs) NICKEL PLATED.

COMPLETE WITH FORK (Reynolds manganese-moly tubing, hand brazed with special Breeze fork crown, Campagnolo dropouts, nickel plated)

DESIGNED AND BUILT BY JOE BREEZE, ONE OF THE ORIGINAL "MOUNTAIN TYPE" BIKE DESIGNERS, AFTER YEARS OF RESEARCH AND DEVELOPMENT, WITH THE SAME QUALITY AS THE FINEST ROAD RACING FRAMES.

No. 800-JB-19N	19" FRAME SIZE
No. 800-JB-21N	21 1/2" FRAME SIZE
No. 800-JB-23N	23 1/4" FRAME SIZE
No. 800-JB-24N	24" FRAME SIZE



SPECIFICATIONS:

A. SEAT TUBE LENGTH /FRAME SIZE (Bottom bracket center to top of seat tube)		
No. 800-JB-19N	—	19"
No. 800-JB-21N	—	21 1/2"
No. 800-JB-23N	—	23 1/4"
No. 800-JB-24N	—	24"
B. SEAT TUBE OUTSIDE DIAMETER (Front derailleur fit)		
		1-1/8"
C. REQUIRED SEAT POST SIZE (O.D.)		
		26.8 mm
D. SEAT POST CLAMP SIZE REQUIRED		
		BUILT IN
E. HEAD TUBE LENGTH:		
	19" —	3 1/4"
	21 1/2" —	6 1/4"
	23 1/4" —	8"
	24" —	8 1/4"
F. REQUIRED HEADSET TYPE		
		CAT. No. 710-GA-0
G. BOTTOM BRACKET HEIGHT (To center of bottom bracket)		
		12"
H. BOTTOM BRACKET TYPE: THREADED (English) 1.370" x 24 T.P.I. x 70mm		
I. TOP TUBE HEIGHT:		
	19" —	29 1/4"
	21 1/2" —	32-1/8"
	23 1/4" —	33 1/4"
	24" —	34 1/4"
J. INSIDE REAR DROPOUT WIDTH		
		125 mm (4-29/32")
K. RECOMMENDED FORK — FORK INCLUDED (Inside dropout dimension)		
		100 mm (3-15/16")
L. WEIGHT:		
	FRAME	FORK
19"	5 lbs	36 1/2 oz
21 1/2"	5 1/4 lbs	38 1/2 oz
23 1/4"	6-1/8 lbs	39 1/2 oz
24"	6 1/4 lbs	40oz

NOTE:
REAR HUB SHOULD BE SPACED PLUS OR MINUS 1/16" OF "J" DIMENSION TO PREVENT BOWING OF AXLE WHEN AXLE NUTS ARE TIGHTENED.

RECOMMENDED INSEAM RANGE (Crotch to floor)

19"	29 1/2" — 32"
21 1/2"	32 — 33 1/4"
23 1/4"	33 1/4" — 36 1/4"
24"	36 1/4" — 38 1/2"

NOTE: All frames use 26" x 2.125" OR 26" x 1.75" wheels

PRO-CRUISER:

No. 800-PC-U
DEVELOPED BY TRAILMASTER & LAWWILL-KNIGHT LTD.
T.J.G. WELDED 4130 CHROMEMOLY TUBING (WITH 1010 BOTTOM BRACKET SHELL AND HEAD TUBE) COMPLETE WITH WELDED-ON REAR DERAILLEUR TAB FOR SHIMANO DERAILLEUR: FITS SUNTOUR AND HURET DUO-PAR ALSO. UNPAINTED.

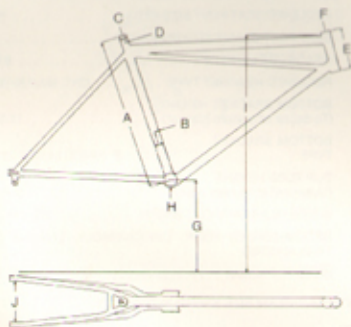
No. 800-PC-R
SAME AS ABOVE BUT WITH ELECTROSTATIC CANDY RED EPOXY PAINT.

800-PC-N
SAME AS ABOVE BUT WITH POLISHED NICKEL PLATING.

SPECIFICATIONS:

A. SEAT TUBE LENGTH /FRAME SIZE (Bottom bracket center to top of seat tube)		18 1/2"
B. SEAT TUBE OUTSIDE DIAMETER (Front derailleur fit)		1 1/4"
C. REQUIRED SEAT POST SIZE (O.D.)		1-1/16"
D. SEAT POST CLAMP SIZE REQUIRED		1-1/8"
E. HEAD TUBE LENGTH		5"
F. REQUIRED HEADSET TYPE		CAT. No. 710-TG-0
G. BOTTOM BRACKET HEIGHT (To center of bottom bracket)		12-3/8"
H. BOTTOM BRACKET TYPE		2" PRESS IN CUP TYPE
I. TOP TUBE HEIGHT, (Measured at highest point)		30 1/4"
J. INSIDE REAR DROPOUT WIDTH		127 mm (5") (An extra-long rear axle, e.g. 7", is needed with this frame because of its wide dropouts).
K. RECOMMENDED FORK: CHROMEMOLY, LAGUNA OR TRAILMASTER		
L. WEIGHT (Painted)		5 1/2 lbs
MINIMUM INSEAM SIZE (Crotch to floor: 32")		

NOTE:
REAR HUB SHOULD BE SPACED PLUS OR MINUS 1/16" OF "J" DIMENSION TO PREVENT BOWING OF AXLE WHEN AXLE NUTS ARE TIGHTENED.



LAGUNA:

T.I.G. WELDED MILD STEEL TUBING, NO REAR DERAILLEUR TAB. ANOTHER VINTAGE DESIGN WITH CURVED TOP TUBE. EPOXY PAINT.

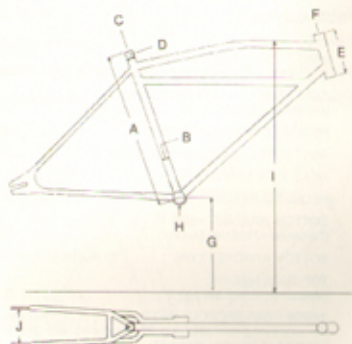
No. 800-LA-R	RED
No. 800-LA-BLU	BLUE
No. 800-LA-BLK	BLACK
No. 800-LA-WH	WHITE

SPECIFICATIONS:

A. SEAT TUBE LENGTH /FRAME SIZE (Bottom bracket center to top of seat tube)	18 1/2"
B. SEAT TUBE OUTSIDE DIAMETER	1"
C. REQUIRED SEAT POST SIZE (O.D.)	7/8"
D. SEAT POST CLAMP SIZE REQUIRED	1"
E. HEAD TUBE LENGTH	5 1/4"
F. REQUIRED HEADSET TYPE	CAT. No. 710-TG-0
G. BOTTOM BRACKET HEIGHT (To center of bottom bracket)	11-3/8"
H. BOTTOM BRACKET TYPE	2" PRESS IN CUP TYPE
I. TOP TUBE HEIGHT, (Measured at highest point)	31-1/8"
J. INSIDE REAR DROPOUT WIDTH	102 mm (4")
K. RECOMMENDED FORK: CHROMEMOLY, LAGUNA OR TRAILMASTER	
L. WEIGHT (Painted)	7 1/2 lbs

MINIMUM INSEAM SIZE (Crotch to floor: 32")

NOTE:
REAR HUB SHOULD BE SPACED PLUS OR MINUS 1/16" OF "J" DIMENSION TO PREVENT BOWING OF AXLE WHEN AXLE NUTS ARE TIGHTENED.



COOK BROS.:

T.I.G. WELDED 4130 CHROMEMOLY TUBING WITHOUT REAR DERAILLEUR TAB. VINTAGE DESIGN WITH CURVED TOP TUBE. EPOXY PAINT.

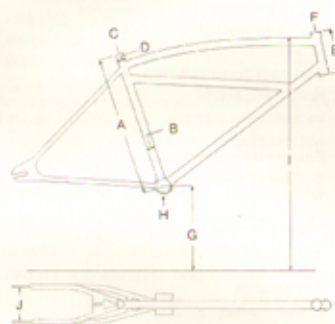
No. 800-CB-BLK	BLACK
No. 800-CB-WH	WHITE
No. 800-CB-YEL	YELLOW
No. 800-CB-SAN	SAND
No. 800-CB-CH	CHROME

SPECIFICATIONS:

A. SEAT TUBE LENGTH /FRAME SIZE (Bottom bracket center to top of seat tube)	17-5/8"
B. SEAT TUBE OUTSIDE DIAMETER	1"
C. REQUIRED SEAT POST SIZE (O.D.)	7/8"
D. SEAT POST CLAMP SIZE REQUIRED	1"
E. HEAD TUBE LENGTH	5 1/4"
F. REQUIRED HEADSET TYPE	CAT. No. 710-TG-0
G. BOTTOM BRACKET HEIGHT (To center of bottom bracket)	11 1/4"
H. BOTTOM BRACKET TYPE	2" PRESS IN CUP TYPE
I. TOP TUBE HEIGHT, (Measured at highest point)	31-7/8"
J. INSIDE REAR DROPOUT WIDTH	108 mm (4 1/4")
K. RECOMMENDED FORK: CHROMEMOLY, LAGUNA OR TRAILMASTER	
L. WEIGHT	6 lbs

MINIMUM INSEAM SIZE (Crotch to floor: 33")

NOTE:
REAR HUB SHOULD BE SPACED PLUS OR MINUS 1/16" OF "J" DIMENSION TO PREVENT BOWING OF AXLE WHEN AXLE NUTS ARE TIGHTENED.



CHAMPION:

T.I.G. WELDED 4130 CHROMEMOLY TUBING, WITHOUT REAR DERAILLEUR TAB. UNIQUE DOUBLE DOWNTUBE DESIGN. EPOXY PAINT.

No. 600-CH-R	RED
No. 600-CH-BLU	BLUE
No. 600-CH-BLK	BLACK

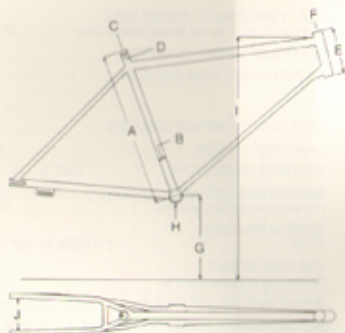
SPECIFICATIONS:

A. SEAT TUBE LENGTH (FRAME SIZE) (Bottom bracket center to top of seat tube)	19"
B. SEAT TUBE OUTSIDE DIAMETER	1"
C. REQUIRED SEAT POST SIZE (O.D.)	7/8"
D. SEAT POST CLAMP SIZE REQUIRED	1"
E. HEAD TUBE LENGTH	5 1/2"
F. REQUIRED HEADSET TYPE	CAT. No. 710-TG-0
G. BOTTOM BRACKET HEIGHT (To center of bottom bracket)	11 1/4"
H. BOTTOM BRACKET TYPE	2" PRESS IN CUP TYPE
I. TOP TUBE HEIGHT. (Measured at highest point)	31 1/4"
J. INSIDE REAR DROPOUT WIDTH	108 mm (4 1/4")
K. RECOMMENDED FORK: CHROMEMOLY, LAGUNA OR TRAILMASTER	
L. WEIGHT (Painted)	7 lbs

MINIMUM INSEAM SIZE (Crotch to floor: 32")

NOTE:

REAR HUB SHOULD BE SPACED PLUS OR MINUS 1/16" OF "J" DIMENSION TO PREVENT BOWING OF AXLE WHEN AXLE NUTS ARE TIGHTENED.



LAGUNA:

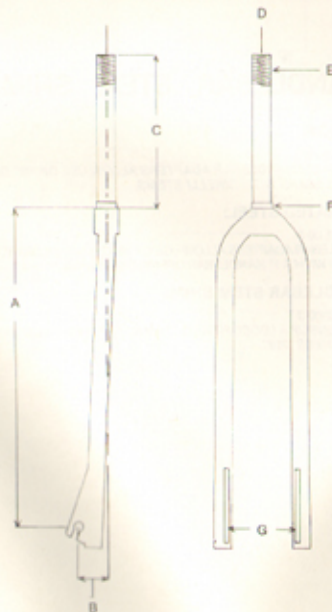
T.I.G. WELDED 4130 TUBULAR CHROME-MOLY, EPOXY PAINT

No. 700-LA-R	RED
No. 700-LA-BLU	BLUE
No. 700-LA-BLK	BLACK
No. 700-LA-WH	WHITE
No. 700-LA-CH	CHROME

SPECIFICATIONS:

A. FORK LENGTH (Fork crown race seat to axle dropout center)	15-18"
B. FORK OFFSET	1-7/8"
C. STEERER TUBE LENGTH	7"
D. HANDLE BAR STEM SIZE REQUIRED, O.D.	.812"
E. STEERER TUBE THREADING	1" x 24 T.P.I.
F. REQUIRED HEADSET TYPE	CAT. No. 710-TG-0
G. INSIDE DROPOUT DIMENSION	100 mm (3-15/16")
H. WEIGHT (Plated)	1080 grams

NOTE: FRONT HUB SHOULD BE SPACED PLUS OR MINUS 1/16" OF "G" DIMENSION TO PREVENT BOWING OF AXLE WHEN AXLE NUTS ARE TIGHTENED.



TRAILMASTER:

No. DIMENSION

700-TM-75U (.875")	T.I.G. WELDED 4130 TUBULAR CHROMEMOLY, UNPAINTED (Specify if you want this fork drilled for caliper brake)
700-TM-12U (.812")	
700-TM-75DU (.875")	T.I.G. WELDED 4130 TUBULAR CHROMEMOLY, (With brake tab for modified [Cat. No. 630-SA-DR] Sturmey-Archer front drum brake) UNPAINTED
700-TM-12DU (.812")	
700-TM-75CU (.875")	T.I.G. WELDED 4130 TUBULAR CHROMEMOLY, (With cantilever mounts for MAFAC tandem cantilever brakes) UNPAINTED
700-TM-12CU (.812")	
700-TM-75N (.875")	T.I.G. WELDED 4130 TUBULAR CHROMEMOLY, NICKEL PLATED (Specify if you want this fork drilled for caliper brake)
700-TM-12N (.812")	
700-TM-75DN (.875")	T.I.G. WELDED 4130 TUBULAR CHROMEMOLY, NICKEL PLATED (With brake tab for modified [Cat. No. 630-SA-DR] Sturmey-Archer front drum brake)
700-TM-12DN (.812")	
700-TM-75CN (.875")	T.I.G. WELDED 4130 TUBULAR CHROMEMOLY, NICKEL PLATED (With cantilever mounts for MAFAC tandem cantilever brakes)
700-TM-12CN (.812")	

TRAILMASTER FORK SPECIFICATIONS:

A. FORK LENGTH: (Fork crown race seat to axle dropout center)	15-18"
B. FORK OFFSET	2"
C. STEERER TUBE LENGTH	7"
D. HANDLEBAR STEM SIZE REQUIRED O.D.	.875" OR .812"
E. STEERER TUBE THREADING	1" x 24 T.P.I.
F. REQUIRED HEADSET TYPE	CAT. No. 710-TG-0
G. INSIDE DROPOUT DIMENSION	100 mm (3-15/16")
H. WEIGHT (Plated)	1085 grams (Cat. No. 700-TM-75N)

NOTE:

FRONT HUB SHOULD BE SPACED PLUS OR MINUS 1/16" OF "G" DIMENSION TO PREVENT BOWING OF AXLE WHEN AXLE NUTS ARE TIGHTENED.

HEADSETS

TANGE:

No. 710-TG-0 STEEL 1" x 24 T.P.I.
WEIGHT 185 grams

THIS HEADSET FITS THE FOLLOWING BICYCLES:

PRO-CRUISER

LAGUNA

COOK BROS.

CHAMPION

SCHWINN

S & S

AND MOST OTHER "CRUISER" FRAMES

IMPORTANT: SPECIFY IF HANDLEBAR STEM "C" DIMENSION

IS .812" OR .875"

CAMPAGNÒLO, NUOVO RECORD:

No. 710-CA-0 STEEL 1" x 24 T.P.I.
PRECISION HEADSET, GROUND BEARING SURFACES, FITS
"BREEZER".
WEIGHT 195 grams

HEADSET SEALS

No. 715-00-0
HEADSET SEALS. SPECIAL FORMULATION RUBBER BAND
KEEPS GARBAGE OUT OF HEADSET AND IS USUALLY RE-
QUIRED ONLY ON THE BOTTOM RACE.
FITS MOST HEADSETS.

HANDLEBAR GRIPS

MAGURA:

No. 000-MA-B
SLIGHTLY BARREL SHAPED TO FIT THE HAND. VERY COMFOR-
TABLE. BLACK RUBBER.

OURY:

No. 000-OU-B
A STANDARD, CLASSIC-SHAPE MX GRIP. BLACK RUBBER.

OAKLEY II:

No. 000-OA-B
ANOTHER POPULAR MX GRIP. BLACK RUBBER.

NOTE:

TO KEEP HAND GRIPS ON HANDLEBARS, ESPECIALLY DURING WET
WEATHER, PUT AN OVERLAPPING LAYER OF ELECTRICAL TAPE ON THE
HANDLEBAR — STARTING FROM THE INSIDE EDGE OF THE HANDGRIP AREA
AND WORK OUT TO THE END.

HANDLEBAR STEM SHIMS

BREEZE:

No. 041-JB-0
ALUMINUM HANDLEBAR ADAPTERS ALLOW USE OF 7/8" O.D.
HANDLEBARS WITH CINELLI STEMS.

SERRATED STEEL:

No. 041-00-0
HANDLEBAR ADAPTERS ALLOW USE OF 7/8" O.D. HANDLEBARS IN
STEMS WITH A 1" HANDLEBAR OPENING (Ashtabula, for instance)

HANDLEBAR STEM SHIM:

No. 042-00-0
TIGHTENS UP A LOOSE FITTING STEM IN THE FORK. SHIM WALL
THICKNESS .016".

HANDLEBAR STEMS

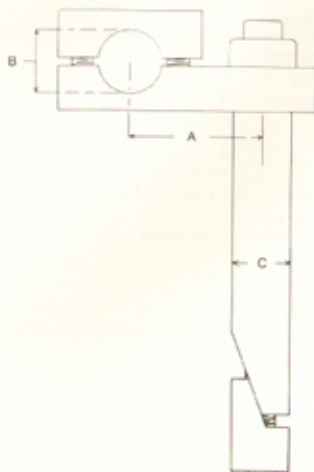
PRO-NECK:

SUPER STRONG, ALUMINUM HANDLEBAR CLAMP BASE IS
BOLTED ONTO THE TOP OF CHROMOLY STEM. HANDLEBARS
WON'T SLIP. FOR HEAVY JUMPING. ANODIZED.

No. 040-PN-GO GOLD
No. 040-PN-BLU BLUE
No. 040-PN-R RED
No. 040-PN-SIL SILVER

DIMENSIONS:

A. FORWARD EXTENSION 1 1/4"
B. HANDLEBAR DIAMETER 7/8"
C. STEM DIAMETER812"
D. WEIGHT 555 grams

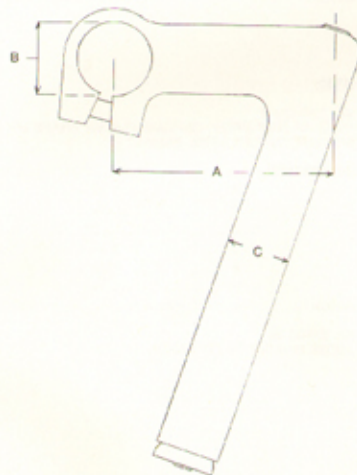


CINELLI: 1-A

FORGED ALUMINUM, CLEAR ANODIZED. THIS CLASSIC STEM IS
AVAILABLE IN DIFFERENT FORWARD EXTENSIONS. REQUIRES USE
OF BREEZE HANDLEBAR ADAPTERS TO FIT 7/8" O.D. HANDLEBARS.
ADAPTERS INCLUDED. HIGH STRENGTH, BUT NOT DESIGNED FOR
50 FOOT JUMPS.

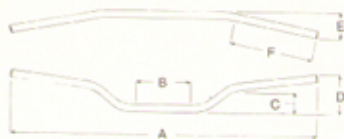
DIMENSIONS:

No. 040-CI-8
80 mm, FORWARD EXTENSION (A. Dimension) 3-1/8"
No. 040-CI-9
90 mm, FORWARD EXTENSION (A. Dimension) 3-9/16"
No. 040-CI-10
100 mm, FORWARD EXTENSION (A. Dimension) 3-15/16"
No. 040-CI-11
110 mm, FORWARD EXTENSION (A. Dimension) 4-5/16"
B. HANDLEBAR DIAMETER 1.035"
C. STEM DIAMETER875"
D. WEIGHT, (110 mm) 280 grams



CHECK THAT HANDLEBAR STEMS "C" DIMENSION
MATCHES FORKS "D" DIMENSION.

HANDLEBARS



MAGURA:

No. 030-MA-1
HIGH STRENGTH TUBULAR ALUMINUM. SILVER ANODIZED.

DIMENSIONS:

A	30"
B	5 1/4"
C	2 1/4"
D	4-1/16"
E	2-5/8"
F	7 1/4"

WEIGHT 570 grams

No. 030-MA-1S
ABOVE BAR CUT TO 27" WIDTH

No. 030-MA-2
HIGH STRENGTH TUBULAR ALUMINUM WITH CROSS BRACE.
MATTE BLACK FINISH.

DIMENSIONS:

A	30"
B	5 1/4"
C	4"
D	6 1/4"
E	3"
F	7"

WEIGHT 645 grams

GSM:

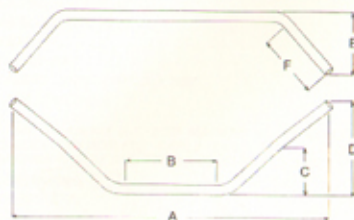
No. 030-GS-3
TUBULAR MILD STEEL, CHROME PLATED. SHAPE USED ON
BREEZER, SIMILAR TO No. 030-MA-1

DIMENSIONS:

A	29"
B	4 1/4"
C	2"
D	4-1/8"
E	3 1/4"
F	9"

WEIGHT 790 grams

No. 030-GS-3S
ABOVE BAR CUT TO 27" WIDTH



LAGUNA:

TUBULAR ALUMINUM CRUISER HANDLEBAR.
ANODIZED.

No. 030-LA-G GOLD
No. 030-LA-R RED
No. 030-LA-BLU BLUE
No. 030-LA-BLK BLACK

DIMENSIONS:

A	24-3/8"
B	7"
C	3-7/8"
D	7 1/4"
E	4 1/4"
F	6"

WEIGHT 400 grams

NOTE:
FOR ALL AROUND RIDING, ESPECIALLY IF YOU DO A LOT OF HILL CLIMB-
ING, No. 030-MA-1S AND No. 030-GS-3S OFFER THE BEST RIDING POSITION.
THEIR SHAPE ALLOWS MORE EVEN WEIGHT DISTRIBUTION BETWEEN THE
WHEELS. WE FIND A HANDLEBAR ABOUT 27" WIDE WORKS WELL, BOTH
FOR COMFORT AND FOR FITTING BETWEEN TREES AND BRUSH ON THE
TRAILS. THIS WIDTH PROVIDES PLENTY OF LEVERAGE.

THESE MOTORCYCLE STYLE BRAKE LEVERS IMPROVE THE PERFORMANCE OF ANY TYPE BRAKE BECAUSE OF THEIR ADDED LEVERAGE. THE LEVERS REQUIRE MOTORCYCLE SIZE BARREL TYPE CABLE ENDS AND MOTORCYCLE SIZE HOUSING FERRULES. CABLE ASSEMBLY NOT INCLUDED.

"SHORTIE" POWER LEVERS, FORGED ALUMINUM BLADES ARE MALLEABLE AND WILL BEND INSTEAD OF BREAK IN A FALL AND CAN BE BENT BACK INTO SHAPE. BEST QUALITY BRAKE LEVER MADE. SHORT LEVER LENGTH MAKES THEM EASIER TO USE, AND LESS LIKELY TO GET CAUGHT ON BRUSH, ETC. A NARROWER HANDLEBAR CAN ALSO BE USED.

A. 6"
WEIGHT 150 grams (ea.)
FITS 7/8" O.D. HANDLEBAR.
No. 010-MA-SR RIGHT
No. 010-MA-SL LEFT

"A" DIMENSION IS PROVIDED SO YOU KNOW HOW MUCH STRAIGHT HANDLEBAR IS NEEDED FOR LEVER — LEVERS SHOULD NOT EXTEND PAST END OF HANDLEBAR TO PREVENT SNAGS. IF YOU ARE USING THUMB SHIFTERS FOR DERAILLEURS, ALLOW ANOTHER 1" FOR THEM.

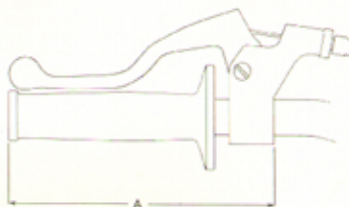
STANDARD LENGTH POWER LEVERS, SAME AS ABOVE EXCEPT FOR LENGTH OF LEVER BLADES.

A. 7 1/2"
WEIGHT 165 grams (ea.)
FITS 7/8" O.D. HANDLEBAR.
No. 010-MA-LR RIGHT
No. 010-MA-LL LEFT

AN ECONOMICAL MOTORCYCLE TYPE BRAKE LEVER.

A. 7"
WEIGHT 190 grams (ea.)
FITS 7/8" O.D. HANDLEBAR.
No. 010-00-R RIGHT
No. 010-00-L LEFT

WHEN INSTALLING THE BRAKE LEVERS ON THE HANDLEBARS, LEAVE THEM LOOSE ENOUGH TO BE TWISTED ON THE HANDLEBAR BY HAND SO THAT IN A FALL THE LEVER UNIT WILL TURN ON THE HANDLEBAR RATHER THAN GET DAMAGED. KEEP THEM TIGHT ENOUGH SO THAT THEY DON'T MOVE UNDER NORMAL CONDITIONS.



HEAVY DUTY BRAKE CABLE ASSEMBLIES. GIVE THAT SOLID FEEL TO YOUR BRAKES. FITS No. 010-00-R AND No. 010-00-L STEEL BRAKE LEVERS. INCLUDES SOLDERLESS CABLE ENDS TO FIT STURMEY-ARCHER AND CASING FERRULES. BLACK CASING

FRONT —
No. 100-00-F
CASING LENGTH: 42" O.D. 7/32"
WIRE LENGTH: 52"
REAR —
No. 100-00-R
CASING LENGTH: 66" O.D. 7/32"
WIRE LENGTH: 76"

SAME AS ABOVE BUT FITS MAGURA BRAKE LEVERS. INCLUDES SOLDERLESS CABLE ENDS TO FIT STURMEY-ARCHER AND CASING FERRULES. BLACK CASING

FRONT —
No. 100-MA-F
CASING LENGTH 42" O.D. 7/32"
WIRE LENGTH: 52"
REAR —
No. 100-MA-R
CASING LENGTH: 66" O.D. 7/32"
WIRE LENGTH: 76"

HEAVY DUTY, FITS CANTILEVER OR CALIPER BRAKES. FOR USE WITH STEEL BRAKE LEVERS. (Cat. No. 010-00-R and No. 010-00-L). INCLUDES CASING FERRULES. BLACK CASING.

FRONT —
No. 100-00-FC
CASING LENGTH: 20" O.D. 7/32"
WIRE LENGTH: 32"
REAR —
No. 100-00-R
CASING LENGTH: 48" O.D. 7/32"
WIRE LENGTH: 60"

HEAVY DUTY, FITS CANTILEVER OR CALIPER BRAKES. FOR USE WITH MAGURA LEVERS. INCLUDES CASING FERRULES. BLACK CASING.

FRONT —
No. 100-MA-FC
CASING LENGTH: 20" O.D. 7/32"
WIRE LENGTH: 32"
REAR —
No. 100-MA-R
CASING LENGTH: 48" O.D. 7/32"
WIRE LENGTH: 60"

No. 110-SA-2
TO FIT STURMEY-ARCHER DRUM BRAKES. NO NEED TO SOLDER THESE ON.

No. 110-02-A
ASSORTMENT OF VARIOUS SIZES (2 Each) TO FIT MOST DRUM BRAKES.

No. 120-00-5 (Pkg. of 5)
THESE LEAD END CAPS ARE EASILY CRIMPED ONTO THE END OF GEAR AND BRAKE WIRES TO PREVENT THE WIRE FROM FRAYING.

THESE PLASTIC CABLE TIES MAKE IT EASY TO SECURE THE CABLE ASSEMBLIES TO THE FRAME.

No. 101-00-B BLACK (Pkg. of 5)
No. 101-00-W WHITE (Pkg. of 5)

INSTALLING CABLE ASSEMBLIES: WHEN SHORTENING A CABLE ASSEMBLY, MAKE SURE THE CASING WILL BE TURNED FULLY RIGHT AND LEFT WITHOUT BINDING. THE CABLE CASING SHOULD ALWAYS BE ROUTED WITH THE FEWEST NUMBER OF BENDS POSSIBLE. ANY BENDS SHOULD MAKE AS SMOOTH AN ARC AS POSSIBLE. THIS RESULTS IN MINIMUM FRICTION.

REMOVE THE INNER WIRE FROM THE CASING. AFTER DETERMINING PROPER LENGTH, AND CUT THE CASING WITH DIAGONAL OR END CUTTERS. FILE OR GRIND THE CABLE END FLAT, THEN WITH A TWISTING MOTION, USING THE TIP OF A SMALL PHILLIPS SCREWDRIVER, REMOVE ANY BURRS FROM INSIDE THE CASING.

TO LUBRICATE THE CABLE, FIRST LIBERALLY GREASE THE WIRE AND THEN POUR ENOUGH OIL INTO THE CASING (drop by drop) UNTIL IT COMES OUT THE OTHER END. THEN INSERT THE WIRE INTO THE CASING AND LET HAND TO DRAIN UNTIL EXCESS OIL HAS RUN OUT BEFORE INSTALLING ON THE BIKE. ALSO GREASE THE END OF THE CABLE THAT FITS INTO THE BRAKE LEVER. MANY CABLES BREAK HERE BECAUSE OF FRICTION.

MANY RIDERS DOUBLE UP ON SOLDERLESS NIPPLES JUST TO MAKE SURE NOTHING SLIPS.

JUST ENOUGH SOLDER TO "TIN" THE END OF A GEAR OR BRAKE WIRE WILL KEEP THE WIRE FROM UNRAVELING, OR USE THE LEAD END CAPS. ANOTHER ALTERNATIVE IS TO CRIMP A SPOKE NIPPLE ONTO THE END OF THE WIRE.

7/32" O.D. CABLE CASING IS REQUIRED FOR BREEZER BIKES DUE TO CABLE GUIDE SIZE.

THUMB SHIFTERS

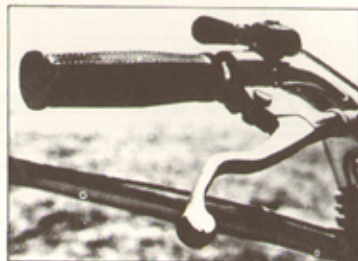
SUNTOUR:

No. 020-ST-0
RATCHET THUMB SHIFTERS ALLOWS YOU TO SHIFT GEARS WHILE KEEPING YOUR HANDS ON THE HANDLEBARS. RATCHET ELIMINATES SHIFTER FRICTION ON DOWNSHIFTS, ALLOWING PRECISE FEEL. INCLUDES CABLE ASSEMBLY WITH WHITE CASING.

WEIGHT..... 95 grams (Less cable assembly)
FITS 7/8" O.D. HANDLEBAR

NOTE:
BAR END OR "FINGER TIP" SHIFTERS ARE VULNERABLE TO DAMAGE FROM FALLS AND SNAGS.

TRIM HANDGRIPS FOR THUMB SHIFTER CLEARANCE. OBSERVE THUMB SHIFTER POSITIONING WITH SHORTER BRAKE LEVERS. THUMB SHIFTER SHOULD BE POSITIONED ON THE HANDLEBAR STEM SIDE OF THE BRAKE LEVERS. WITH STANDARD LENGTH (Motorcycle style) BRAKE LEVERS, THUMB SHIFTERS SHOULD BE POSITIONED BETWEEN BRAKE LEVER AND HANDGRIP. NOTICE ANGLES OF SHIFTERS FOR EASE OF USE AND COMFORT.



THUMB SHIFTER CABLE ASSEMBLIES

FOR SUNTOUR AND SHIMANO THUMB SHIFTERS: SUPPLIED IN REAR LENGTH ONLY.

CASING LENGTH: 66" CASING O.D. 3/16"
WIRE LENGTH: 72"

No. 200-ST-B BLACK CASING
No. 200-ST-W WHITE CASING

NOTE:
MUST BE SHORTENED FOR FRONT DERAILLEUR USE.
SEE CABLE INSTALLATION NOTES IN BRAKE CABLE SECTION.

THUMB SHIFTER WIRE

No. 210-ST-0
SUPPLIED IN REAR LENGTH ONLY. MUST BE SHORTENED FOR FRONT DERAILLEUR USE.

WIRE LENGTH: 72"

THUMB SHIFTER WIRE CASING

SUPPLIED IN 10 FOOT LENGTHS.

CASING O.D. 3/16"

No. 220-ST-G GREY
No. 220-ST-B BLACK
No. 220-ST-W WHITE

SADDLES

BROOKS: B-72

No. 300-BR-72
LEATHER SADDLE ON A DOUBLE WIRE FRAME. COILS IN THE FRAME PROVIDE SOME SPRING. VERY COMFORTABLE COMPLETE WITH 7/8" SEAT CLAMP.

WEIGHT 745 grams

AVOCET: TOURING II

LEATHER COVERED ANATOMICALLY DESIGNED BASE, LIGHT IN WEIGHT AND COMFORTABLE.

No. 300-AV-M MENS'

No. 300-AV-W WOMENS'

WEIGHT 415 grams (Mens')
REQUIRES SEAT CLAMP No. 310-ID-0 OR CAMPAGNOLO SEAT-POST.

TROXEL: HDD-10

No. 300-TR-10
A WIDE BEACH CRUISER SEAT COMPLETE WITH 7/8" SEAT CLAMP.

WEIGHT 1365 grams

NOTE:
FOR DISTANCE RIDES, BROOKS AND AVOCET SADDLES ARE THE BEST CHOICE BECAUSE THEIR SHAPE DOESN'T CHAF YOUR THIGHS AS DO WIDER SADDLES.

SEAT CLAMP

IDEAL

No. 310-ID-0
FOR USE WITH AVOCET SADDLES AND STANDARD SEAT POSTS. ATTACHES SADDLE TO SEATPOST, FITS SEATPOSTS WITH 7/8" AND 13/16" ENDS.

SEATPOSTS

TRAILMASTER:

SOLID ALUMINUM 2024 SEATPOSTS SELECTED FOR STRENGTH. LIMIT-PIN PREVENTS SEAT FROM SLIPPING DOWN.

No. 320-TM-13 13/16" O.D. x 14"
WEIGHT 335 grams
FITS SCHWINN

No. 320-TM-7 7/8" O.D. x 14"
WEIGHT 390 grams
FITS LAGUNA, CHAMPION, COOK BROS., LITTLEJOHN AND S & S.

CAMPAGNOLO NUOVO RECORD:

ALUMINUM SEATPOST, BEAUTIFULLY MADE.
No. 320-CA-0 26.8 mm O.D. x 180 mm
WEIGHT 325 grams

FITS SINGLE WIRE SEAT FRAMES (Avocet type) AND DOUBLE WIRE SEAT FRAMES (Brooks B-72 type). WITH BREEZE ADAPTER.

KNIGHT:

No. 320-PC-0 1-1/16" x 14" LONG
WEIGHT 340 grams
4130 CHROMEMOLY SEATPOST. SWEDGED AT THE TOP TO 7/8" TO FIT 7/8" SEAT CLAMPS.
FITS PRO-CRUISER.

BREEZE:

No. 310-JB-0
ALUMINUM ADAPTER, ALLOWS THE USE OF DOUBLE WIRE SEAT FRAMES (Brooks B-72 type) WITH CAMPAGNOLO NUOVO RECORD SEATPOST. ADAPTER GOLD ANODIZED, EXTRA LONG BOLTS INCLUDED.

No. 321-00-0 SEATPOST SHIM
THICKNESS010"

SEATPOST CLAMPS

SUNTOUR:

FORGED ALUMINUM SEATPOST CLAMP WITH RECESSED ALLEN BOLT. FITS FRAMES WITH 1" O.D. SEATTUBE. LAGUNA, CHAMPION, COOK BROS., LITTLE JOHN, S & S, SCHWINN. ANODIZED.

No. 330-ST-1S	SILVER
No. 330-ST-1G	GOLD
No. 330-ST-1R	RED
No. 330-ST-1B	BLUE
WEIGHT	45 grams

SAME AS ABOVE, BUT MODIFIED FOR QUICK-RELEASE. INCLUDES QUICK-RELEASE ASSEMBLY. FITS 1" O.D. SEATTUBE.

No. 330-ST-1SQ	SILVER
No. 330-ST-1GQ	GOLD
No. 330-ST-1RQ	RED
No. 330-ST-1BQ	BLUE
WEIGHT	110 grams

FORGED ALUMINUM SEATPOST CLAMP WITH RECESSED ALLEN BOLT. FITS FRAMES WITH 1 - 1/8" O.D. SEATTUBE. FITS PRO CRUISER.

No. 330-ST-2S	SILVER
No. 330-ST-2G	GOLD
No. 330-ST-2R	RED
No. 330-ST-2B	BLUE
WEIGHT	50 grams

SAME AS ABOVE, BUT MODIFIED FOR QUICK-RELEASE. INCLUDES QUICK-RELEASE ASSEMBLY. FITS 1 - 1/8" O.D. SEATTUBE.

No. 330-ST-2SQ	SILVER
No. 330-ST-2GQ	GOLD
No. 330-ST-2RQ	RED
No. 330-ST-2BQ	BLUE
WEIGHT	115 grams

SEATPOST CLAMP QUICK-RELEASE

SUNTOUR:

No. 340-ST-Q
SEATPOST QUICK-RELEASE. 8mm SHAFT DIAMETER FITS MOST SEATPOST CLAMPS. QUICK-RELEASE ALLOWS FOR FAST SEAT HEIGHT ADJUSTMENTS WITHOUT TOOLS. ALLOWS THE SEAT TO BE LOWERED FOR ROUGH GOING AND FAST DESCENTS.

WEIGHT	85 grams
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PEDALS

UNION:

RATTRAP STEEL PEDALS — CAN'T BEAT THEM FOR VALUE.

No. 440-UN-1	1/2" THREAD
No. 440-UN-9	9/16" THREAD
WEIGHT	445 grams (9/16")

KKT:

RATTRAP STEEL PEDALS WITH CHROMEMOLY AXLES AND ADJUSTABLE CONES. BLACK FINISH.

No. 440-KK-1	1/2" THREAD
No. 440-KK-9	9/16" THREAD
WEIGHT	630 grams (9/16")

KKT: LIGHTNING

SEMI-SEALED WITH CHROMEMOLY AXLES AND ALUMINUM CAGES.

No. 440-KK-1G	1/2" THREAD GOLD
No. 440-KK-1R	1/2" THREAD RED
No. 440-KK-1B	1/2" THREAD BLUE
No. 440-KK-9G	9/16" THREAD GOLD
No. 440-KK-9R	9/16" THREAD RED
No. 440-KK-9B	9/16" THREAD BLUE
WEIGHT	375 grams (9/16")

SUNTOUR: MP - 1000

THE ULTIMATE PEDAL. LIGHT WEIGHT, SEALED BEARINGS, CHROMEMOLY AXLES. REPLACEABLE ALUMINUM CAGES.

No. 440-ST-1G	1/2" THREAD GOLD
No. 440-ST-1R	1/2" THREAD RED
No. 440-ST-1B	1/2" THREAD BLUE
No. 440-ST-9G	9/16" THREAD GOLD
No. 440-ST-9R	9/16" THREAD RED
No. 440-ST-9B	9/16" THREAD BLUE
WEIGHT	310 grams (9/16")

NOTE:

9/16" PEDALS FIT COTTERLESS CRANKS. 1/2" PEDALS FIT STEEL ONE-PIECE CRANKS. SOME COTTERLESS CRANKS HAVE 14mm PEDAL AXLE THREADS BUT CAN BE TAPPED OUT TO 9/16" WITH NO LOSS OF STRENGTH. PEDALS HAVE RIGHT AND LEFT HAND THREADS. RIGHT HAND PEDAL SCREWS IN CLOCKWISE INTO RIGHT CRANKARM (Chainwheel side) AND LEFT HAND PEDAL SCREWS INTO LEFT CRANKARM COUNTERCLOCKWISE. ALWAYS PUT A DAB OF GREASE ON PEDAL THREADS AND USE PEDAL WASHERS WITH ALUMINUM COTTERLESS CRANKS.

PEDAL WASHERS

No. 431-TA-3 (Pair)

THE WASHER FITS BETWEEN PEDAL AND CRANK AND PREVENTS THE PEDAL FROM TEARING UP THE ALUMINUM AS YOU TIGHTEN IT DOWN.

CRANK BEARING ASSEMBLIES

TANQUE CRANK BEARING SET

FOR "ONE-PIECE" STEEL CRANKS. CONTAINS CUPS, BEARING RETAINERS, CONES, LOCKNUT, WASHER. FITS FRAMES DESIGNED FOR 2" OUTSIDE DIAMETER PRESS-IN TYPE BEARING CUPS.

WEIGHT	300 grams
No. 40 ₉ TG-24	24 THREAD PER INCH THREADING
No. 40 ₉ TG-28	28 THREAD PER INCH THREADING

REPLACEMENT BEARING RETAINERS

No. 40 ₁ 00-64	SIZE # 64 (Fits Tange)
No. 40 ₁ 00-66	SIZE # 66 (Fits old Schwinn, Etc.)

COOK BROS. SEALED BEARING CRANK SPINDLE ASSEMBLY

No. 40₉CB-5

FOR CONVERTING FROM A ONE PIECE STEEL CRANK TO COTTERLESS ALUMINUM CRANKS. BEARING CUPS ARE 2" O.D. PRESS-IN TYPE. SET-SCREW COLLAR DESIGN ALLOWS SPINDLE TO BE LATERALLY POSITIONED FOR PROPER CHAINLINE. CRANK ARM RETAINING BOLTS AND WASHERS INCLUDED. (Sold together with frame only, see following note).

OVERALL LENGTH	5-3/8"
WEIGHT	390 grams

FITS THESE CRANKSETS WITH 4" INCLUDED SPINDLE TAPER ANGLE:

T.A.
SUGINO MIGHTY TOUR
SUGINO MIGHTY COMPE
SHIMANO DURA-ACE
GIPIEMME
CAMPAGNOLO
SUNTOUR SUPERB
STRONGLIGHT

SUGINO SEALED BEARING CRANK SPINDLE ASSEMBLY:

No. 40₉SUS

SAME BASIC DESIGN AS COOK BROS. FITS THE SAME COTTERLESS CRANKS AS THE COOK BROS. (Sold with frame only.)

WEIGHT	400 grams
OVERALL SPINDLE LENGTH	4-29/32"

NOTE:
BECAUSE THE INSIDE DIAMETER OF THE BOTTOM BRACKET SHELL VARIES FROM ONE MANUFACTURER TO ANOTHER, (Sometimes from frame to frame) COOK BROS. AND SUGINO SEALED BEARING CRANK SPINDLE ASSEMBLY CUPS MUST BE MACHINED TO FIT EACH INDIVIDUAL FRAME. EXCESSIVELY TIGHT CUP FIT MAY CAUSE EARLY BEARING FAILURE. MACHINING AND INSTALLATION INCLUDED IN PRICE OF SPINDLE ASSEMBLY.

PHIL WOOD SEALED BEARING CRANK CARTRIDGE:

No. 400-PW-5

SPECIAL PHIL # 4 CARTRIDGE IS CENTERED FOR BALLOON TIRE USE (equal amount of spindle protrudes from both sides.) CARTRIDGE IS LOCATED IN THREADED TYPE BOTTOM BRACKETS WITH THREADED RETAINING RINGS THAT ALLOW LATERAL MOVEMENT OF THE UNIT FOR PROPER CHAINLINE ALIGNMENT. THE RETAINING RINGS ARE FIXED WITH BLUE LOCKTITE. THIS IS A GREAT UNIT FOR FRAMES WITH THREADED TYPE BOTTOM BRACKETS. UNIT INCLUDES ENGLISH THREADED LOCKRINGS (1.370" x 24 T.P.I.) UNIT DOES NOT INCLUDE CRANK ARM RETAINING BOLTS OR WASHERS. (Fits the same cotterless cranks as Cook Bros. & Sugino sealed bearing crank spindle assemblies.)

WEIGHT	305 grams
OVERALL SPINDLE LENGTH	4-15/16"

STEEL CRANKS

Note:
For rough terrain use some people like to use a longer crank for added torque during hill climbing. 6-7/8" is recommended for most riders. These steel, one-piece cranks fit only bicycle frames with 2" size press-in cup type bottom brackets. Pedal thread size: 1 1/2".

ASHTABULA:

ONE-PIECE STEEL FORGED AND HEAT-TREATED FOR STRENGTH, MATTE BLACK FINISH.

No. 410-AT-624	6 1/2" ARM LENGTH (Fits 24 T.P.I. bearing set)
No. 410-AT-628	6 1/2" ARM LENGTH (Fits 28 T.P.I. bearing set)
No. 410-AT-724	7 1/2" ARM LENGTH (Fits 24 T.P.I. bearing set)
No. 410-AT-728	7 1/2" ARM LENGTH (Fits 28 T.P.I. bearing set)
WEIGHT: 7 1/2"	1070 grams

TAKAGI:

ONE-PIECE CHROMOLY STEEL, FORGED AND HEAT-TREATED FOR STRENGTH.

No. 410-TK-70	170mm (6-11/16") — Fits 24 T.P.I. bearing set
No. 410-TK-75	175 mm (6-7/8") — Fits 24 T.P.I. bearing set
WEIGHT: 175 mm	840 grams

CHAINWHEELS FOR ONE PIECE CRANKS

ANODIZED IN COLORS. MUST SPECIFY RED, BLUE OR GOLD. OTHERWISE GOLD WILL BE SHIPPED.

No. 420-00-40	40T
No. 420-00-41	41T
No. 420-00-42	42T
No. 420-00-43	43T
No. 420-00-44	44T
No. 420-00-45	45T
No. 420-00-46	46T
No. 420-00-47	47T
No. 420-00-48	48T

(Aluminum single chainwheels for 1/2" x 3/32" derailleur chain—may be used with standard 1/2" x 1/8" chain also.)

WEIGHT: 48 TOOTH	125 grams
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ALUMINUM COTTERLESS CRANKS

NOTE:

FOR ROUGH TERRAIN, SOME PEOPLE LIKE TO USE A LONGER CRANK FOR ADDED TORQUE. MOST POPULAR LENGTH IS 175 mm (6 7/8"). FOR 6" PLUS RIDERS - 180 mm RECOMMENDED.

T.A. CYCLO TOURIST: CRANKSETS

FORGED ALUMINUM CRANKS ARE LIGHT, STRONG, AND OFFER A WIDE RANGE OF ARM LENGTHS AND CHAINWHEEL SIZES. AVAILABLE IN SINGLE, DOUBLE AND TRIPLE CHAINWHEEL SET-UPS. CRANK ARMS ARE THREADED FOR 9/16" x 20 T.P.I. PEDALS. THE FINISH ON ARMS AND CHAINWHEELS IS FINELY POLISHED.

DOUBLE SET UP INCLUDES: INNER AND OUTER CHAINWHEELS, CRANKARMS, ALL CHAINWHEEL HARDWARE, CRANKARM RETAINING BOLTS, WASHERS, DUSTCAPS, AND PEDAL WASHERS. DOES NOT INCLUDE CRANK SPINDLE/BEARING ASSEMBLY.

No. 410-TA-D1	30 x 48T
No. 410-TA-D2	32 x 48T
No. 410-TA-D3	32 x 48T

(Weight, example, 32 x 48T: 600 grams)

TRIPLE CHAINWHEEL SET UP INCLUDES ALL OF THE ABOVE.

No. 410-TA-T1	26 x 34 x 48T
No. 410-TA-T2	26 x 36 x 48T
No. 410-TA-T3	26 x 36 x 48T

(Weight, example, 26 x 36 x 48T: 640 grams)

(Please specify crank arm length desired for above — otherwise 175 mm will be shipped)

CRANK ARM LENGTHS STOCKED

170 mm
175 mm (Most popular length)
180 mm
185 mm

T.A. CYCLOTURIST ATTACHING HARDWARE:

No. 430-TA-25 T.A. ATTACHING HARDWARE SET CONNECTS OUTER CHAINWHEEL TO RIGHT CRANKARM. (Ref. 25)

No. 430-TA-64 T.A. ATTACHING HARDWARE SET CONNECTS INNER CHAINWHEEL TO OUTER CHAINWHEEL. (Ref. 64)

No. 430-TA-86 T.A. ATTACHING HARDWARE SET CONNECTS TWO INNER CHAINWHEELS TO OUTER CHAINWHEEL. (Ref. 86)

NOTES

No. 430-TA-25 REQUIRED FOR T.A. SINGLE CHAINWHEEL SET-UP

No. 430-TA-25 AND No. 430-TA-64 REQUIRED FOR T.A. DOUBLE CHAINWHEEL SET-UP

No. 430-TA-25 AND No. 430-TA-86 REQUIRED FOR T.A. TRIPLE CHAINWHEEL SET-UP

No. 431-TA-0 T.A. CRANKARM RETAINING BOLTS

No. 431-TA-1 T.A. CRANKARM RETAINING BOLT WASHERS

No. 431-TA-2 T.A. CRANKARM DUSTCAPS

No. 431-TA-3 T.A. PEDAL WASHERS

T.A. CYCLOTURIST — INNER CHAINWHEELS:

No. 421-TA-26	26 TOOTH
No. 421-TA-27	27
No. 421-TA-28	28
No. 421-TA-29	29
No. 421-TA-30	30
No. 421-TA-31	31
No. 421-TA-32	32
No. 421-TA-33	33
No. 421-TA-34	34
No. 421-TA-35	35
No. 421-TA-36	36
No. 421-TA-37	37
No. 421-TA-38	38
No. 421-TA-39	39
No. 421-TA-40	40
No. 421-TA-41	41
No. 421-TA-42	42

T.A. CYCLOTURIST — OUTER CHAINWHEELS:

No. 420-TA-40	40 TOOTH
No. 420-TA-41	41
No. 420-TA-42	42
No. 420-TA-43	43
No. 420-TA-44	44
No. 420-TA-45	45
No. 420-TA-46	46
No. 420-TA-47	47
No. 420-TA-48	48

NOTES:

1 OUTER CHAINWHEEL REQUIRED FOR SINGLE CHAINWHEEL SET-UP

1 OUTER AND 1 INNER CHAINWHEEL REQUIRED FOR DOUBLE CHAINWHEEL SET-UP

1 OUTER AND 2 INNER CHAINWHEELS REQUIRED FOR TRIPLE CHAINWHEEL SET-UP

T.A. CYCLOTURIST — CRANKARMS

PAIR OF CRANKARMS INCLUDES RIGHT AND LEFT CRANK ARMS, DUST CAPS AND PEDAL WASHERS.

No. 411-TA-70	170 mm
No. 411-TA-75	175 mm
No. 411-TA-80	180 mm
No. 411-TA-85	185 mm

SUGINO MIGHTY-TOUR: CRANKSETS

FORGED ALUMINUM CRANKS ARE A WIDE RATIO VERSION OF THEIR MIGHTY COMPETITION MODEL (Patterned after the famous Campagnolo design). THIS CRANK IS STOCKED IN TWO LENGTHS. ITS CHAINWHEEL SELECTION GOES FROM 34 TEETH TO 53 TEETH (9/16" x 20 T.P.I. PEDAL THREADING). CAN BE SET UP AS SINGLE, DOUBLE OR TRIPLE CHAINWHEEL. SILVER ANODIZED FINISH.

DOUBLE SET-UP INCLUDES: INNER AND OUTER CHAINWHEELS, CRANKARMS, ALL CHAINWHEEL HARDWARE, CRANKARM RETAINING BOLTS, WASHERS, DUSTCAPS, DOES NOT INCLUDE CRANK SPINDLE/BEARING ASSEMBLY.

No. 410-SU-D1	34 x 48T
No. 410-SU-D2	34 x 48T
WEIGHT, EXAMPLE: 34 x 48T (175 mm)	590 grams

TRIPLE SET-UP (Includes all of the above)

No. 410-SU-T1	34 x 40 x 48T
No. 410-SU-T2	34 x 40 x 48T
WEIGHT, EXAMPLE: 34 x 40 x 48T (175 mm)	660 grams

(Please specify crankarm length desired for above — otherwise 175 mm will be shipped)

CRANKARM LENGTHS STOCKED:

170 mm
175 mm

SUGINO MIGHTY-TOUR ATTACHING HARDWARE:

No. 430-SU-S
SUGINO ATTACHING HARDWARE SET, ATTACHES SINGLE CHAINWHEEL TO RIGHT CRANKARM.

No. 430-SU-D
SUGINO ATTACHING HARDWARE SET, ATTACHES DOUBLE CHAINWHEELS TO RIGHT CRANKARM.

No. 430-SU-T
SUGINO ATTACHING HARDWARE SET, ATTACHES TRIPLE CHAINWHEELS TO RIGHT CRANKARM.

No. 431-SU-0
SUGINO CRANKARM RETAINING BOLTS

No. 431-SU-1
SUGINO CRANKARM RETAINING BOLT WASHERS

No. 431-SU-2
SUGINO CRANKARM DUSTCAPS

No. 431-SU-3
PEDAL WASHERS

NOTE: IMPORTANT

THE USE OF PEDAL WASHERS IS RECOMMENDED WITH T.A. SUGINO, AND ALL COTTERLESS CRANKS. THE WASHER FITS BETWEEN PEDAL AND CRANK AND PREVENTS THE PEDAL FROM TEARING UP THE ALUMINUM AS YOU TIGHTEN IT DOWN.

ALUMINUM COTTERLESS CRANKS

SUGINO MIGHTY-TOUR CHAINWHEELS —

INNER

No. 421-SU-34	34 TOOTH
No. 421-SU-36	36
No. 421-SU-39	39
No. 421-SU-40	40
No. 421-SU-42	42
No. 421-SU-44	44
No. 421-SU-45	45

SUGINO MIGHTY-TOUR CHAINWHEELS —

OUTER

No. 420-SU-46	46 TOOTH
No. 420-SU-48	48
No. 420-SU-50	50
No. 420-SU-51	51
No. 420-SU-52	52
No. 421-SU-53	53

SUGINO MIGHTY-TOUR CRANKARMS:

PAIR OF CRANK ARMS INCLUDES RIGHT AND LEFT CRANK ARMS, PEDAL WASHERS AND DUST CAPS.

No. 411-SU-70	170 mm
No. 411-SU-75	175 mm

NOTE:

INSTALLING COTTERLESS CRANKS

WHEN INSTALLING COTTERLESS CRANKS MAKE SURE THE SQUARE HOLES IN THE CRANK ARMS AND THE FLATS ON THE SPINDLE ARE COMPLETELY DRY AND CLEAN OF DIRT, OIL, ETC. POSITION THE CRANKS ON THE SPINDLE. LIGHTLY LUBE THE THREADS OF THE CRANK RETAINING BOLTS AND INSTALL THESE BOLTS AND THE WASHERS AND TIGHTEN TO RECOMMENDED TORQUE. THEN GREASE AND INSTALL THE DUST CAPS. AFTER THE FIRST RIDE OR TWO, CHECK THAT THE RETAINING BOLTS ARE STILL TIGHT. USUALLY AFTER THE CRANKS HAVE BEEN TIGHTENED THE SECOND TIME, YOU SHOULD RETORQUE THEM EVERY HUNDRED OR SO MILES UNTIL THE CRANK ARMS HAVE BEEN FULLY SEATED ON THE SPINDLE. EVERY ONCE IN AWHILE, CHECK THE CHAIN WHEEL NUTS AND BOLTS ALSO. IF THE CHAIN WHEELS DON'T SPIN TRUE — WITHOUT SIDE-TO-SIDE MOVEMENT (lateral runout), CHECK THE FOLLOWING: MAKE SURE THE CRANK ARM RETAINING BOLT AND ALL THE NUTS AND BOLTS HOLDING THE CHAINWHEELS TOGETHER ARE TIGHT, AND IF THAT DOESN'T DO IT, REMOVE THE RIGHT CRANK ARM AND INSTALL AGAIN, MOVING IT 90 OR 180 DEGREES FROM FORMER POSITION. IF THAT DOESN'T DO IT, A HEALTHY TAP ON THE CRANK SPIDER IS IN ORDER — WITH A PLASTIC Mallet RAP ON THE ARMS OF THE SPIDER WHERE THE WOBBLE TO THE SIDE EXISTS. HIT ON THE CHAINWHEEL BOLT WHEN DOING THIS. IF THE CHAIN WHEEL IS BENT, USE A CRESCENT WRENCH ADJUSTED TO THE THICKNESS OF THE CHAINWHEEL, BEING CAREFUL NOT TO MAR THE FINISH, AND CAREFULLY STRAIGHTEN.

REMOVING COTTERLESS CRANKS

REMOVE THE CRANKARM DUST CAPS, RETAINING BOLTS AND WASHERS. BACK THE CENTER BOLT OF THE CRANK EXTRACTOR TOOL ALL THE WAY OUT (Make sure you have the proper crank extractor tool). CLEAN ANY DIRT, ETC., OUT OF THE CRANK THREADS WITH A TOOTHBRUSH. CAREFULLY THREAD THE OUTER BODY OF THE CRANK EXTRACTOR TOOL INTO THE CRANK ARM AND SNUG UP THE TOOL UNTIL IT BOTTOMS OUT. TURN THE CENTER BOLT IN UNTIL THE CRANK ARM COMES OFF. ON A STUBBY CRANK, SOME TIMES A SHARP RAP ON THE CENTER BOLT OF THE CRANK EXTRACTOR TOOL WILL LOOSEN THE ARM.

REAR DERAILLEURS

HURET "DUO PAR"

No. 470-HU-L
LONG ARM REAR DERAILLEUR, STEEL CONSTRUCTION. LATEST IN REAR DERAILLEUR DESIGN — AN ADDITIONAL PARALLELOGRAM KEEPS THE TOP IDLER PULLEY A MORE CONSTANT DISTANCE FROM THE CHOSEN FREEWHEEL COG, RESULTING IN CRISPER SHIFTS EVEN UNDER POWER. COMPLETE WITH ADAPTER FOR CAMPAGNOLO, SUNTOUR AND SHIMANO DERAILLEUR HANGERS.

LARGEST USABLE
FREEWHEEL COG SIZE 34 TEETH
WEIGHT 300 grams

SUNTOUR "CYCLONE"

No. 470-ST-L
LONG ARM, ALUMINUM CONSTRUCTION. THIS IS THE WIDE RATIO VERSION OF THEIR FAMOUS ROAD RACING DERAILLEUR.

LARGEST USABLE
FREEWHEEL COG SIZE 34 TEETH
FITS SHIMANO AND CAMPAGNOLO HANGERS ALSO.
WEIGHT 190 grams

SHIMANO "600"

No. 470-SH-S
SHORT ARM ALUMINUM. POPULARLY PRICED—A GOOD DERAILLEUR FOR CLOSE RATIO FREEWHEELS.

LARGEST USABLE
FREEWHEEL COG SIZE 28 TEETH
WEIGHT N/A

No. 470-SH-L
LONG ARM ALUMINUM. LONG ARM VERSION OF THE ABOVE. REASONABLY PRICED, SMOOTH SHIFTING.

LARGEST USABLE
FREEWHEEL COG SIZE 34 TEETH
WEIGHT N/A

FRONT DERAILLEURS

SUNTOUR "Vx"

STEEL, ALUMINUM CONSTRUCTION. A SMOOTH SHIFTING FRONT DERAILLEUR WITH STEEL CAGE (Lasts longer against a gritty chain).

No. 450-ST-VX1
FOR 1" O.D. AND 1-1/8" O.D. SEATTUBES. REQUIRES USE OF SHIM (included) FOR 1" O.D. SEATTUBE.

No. 450-ST-VX2
FOR 1-1/4" O.D. SEATTUBE (Modified to fit 1-1/4" O.D. SEATTUBE).

WEIGHT 115 grams

SUNTOUR "CYCLONE"

STEEL, ALUMINUM CONSTRUCTION. THE LIGHT WEIGHT COMPANION TO THE CYCLONE REAR DERAILLEUR. STEEL CAGE.

No. 450-ST-C
FITS 1" O.D. AND 1-1/8" O.D. SEATTUBE. REQUIRES USE OF SHIM (included) FOR 1" O.D. SEATTUBE.

WEIGHT 100 grams

SHIMANO "600"

No. 450-SH-6
COMPLIMENTS SHIMANO REAR DERAILLEURS. FITS 1" O.D. AND 1-1/8" O.D. SEATTUBE. REQUIRES USE OF SHIM (included) FOR 1" O.D. SEATTUBE. STEEL CAGE.

WEIGHT N/A

5 & 6 SPEED FREEWHEELS

NOTE:
FREEWHEELS COME IN DIFFERENT HUB THREADS; CHECK BEFORE ORDERING.

SUNTOUR: NEW-WINNER

"NEW-WINNER" FREEWHEELS ARE STRONG AND WELL MADE. THEY HAVE ADJUSTABLE BEARINGS AND PARTS AVAILABILITY IS GOOD. SILVER FINISH ON COGS. THESE ARE THE NEW "ULTRA" BODIES WITH STANDARD COG SPACING FOR STANDARD 1/2" x 3/32" DERAILLEUR CHAIN. THE REASON FOR STANDARD SPACING IS TO ALLOW THE USE OF CHAIN THAT IS READILY AVAILABLE MOST ANYWHERE. ENGLISH HUB THREAD ONLY.

5 SPEED

No. 485-NW-526 13 x 26T
No. 485-NW-528 13 x 28T
No. 485-NW-530 13 x 30T
No. 485-NW-532 13 x 32T

6 SPEED

No. 485-NW-626 13 x 26T
No. 485-NW-628 13 x 28T
No. 485-NW-630 13 x 30T
No. 485-NW-632 13 x 32T

WEIGHT (13-32T) N/A

SUNTOUR: PRO-COMPE

"PRO-COMPE" 5-SPEED FREEWHEELS WITH BROWN COGS. A MEDIUM DUTY FREEWHEEL THAT WILL PERFORM WELL FOR ALL BUT THE MOST POWERFUL RIDERS. SUPPLIED IN ENGLISH THREAD. FRENCH THREAD AVAILABLE AT EXTRA COST.

5 SPEED

No. 485-PC-26 14 x 26T
No. 485-PC-28 14 x 28T
No. 485-PC-32 14 x 32T
No. 485-PC-34 14 x 34T

WEIGHT 515 grams (14-34T)

NOTE:
TO CHANGE FROM A 5-SPEED FREEWHEEL TO A 6-SPEED FREEWHEEL REQUIRES THE DISTANCE BETWEEN THE REAR AXLES DROPOUTS TO BE WIDENED BY "COLD-SETTING" AN ADDITIONAL 5 OR 6 mm TO ALLOW FOR THE ADDITIONAL COGS' WIDTH. AN AXLE SPACER OF 5 TO 6 mm MUST ALSO BE INSTALLED ON THE FREEWHEEL SIDE OF THE HUB. SOMETIMES NECESSITATING A LONGER AXLE (The rear wheel must then be re-dished to properly center the rim again.) DEPENDING ON THE TYPE OF TUBING THE FRAME IS MADE OF, THIS MAY OR MAY NOT BE A GOOD IDEA. MILD STEEL CAN BE "COLD-SET" RELATIVELY EASILY WHEREAS CHROME MOLY OR MANGANESE MOLY TUBING USUALLY SHOULD BE LEFT ALONE. TAKE YOUR FRAME TO AN EXPERIENCED BICYCLE MECHANIC FOR THIS PROCEDURE, AND MAKE SURE THE REAR AXLE DROPOUTS ARE PARALLEL AFTER WIDENING ("Cold-setting") TO PREVENT AXLE BOWING.

THE TERM "COLD SETTING" REFERS TO CAREFULLY FORMING OR BENDING WITHOUT HEAT.

ALWAYS USE 5 WEIGHT OIL TO LUBRICATE ALL FREEWHEELS AND PUT A DAB OF GREASE ON THE HUB BEFORE YOU SCREW THE FREEWHEEL ON.

ONE-SPEED FREEWHEELS

SUNTOUR:

ONE-SPEED FREEWHEELS. THE SIMPLICITY OF A ONE-SPEED WITHOUT THE WEIGHT OF A COASTER BRAKE, CALIPER OR CANTILEVER BRAKE NECESSARY. ENGLISH HUB THREAD ONLY. FOR USE WITH 1/2" x 1/8" STANDARD CHAIN.

No. 481-ST-16 16 TOOTH
No. 481-ST-17 17
No. 481-ST-18 18
No. 481-ST-19 19
No. 481-ST-20 20
No. 481-ST-22 22
WEIGHT 260 grams (22T)

FREEWHEEL SPACERS

FREEWHEEL SPACERS ARE USED TO MOVE FREEWHEEL OUT FROM HUB. SOMETIMES NECESSARY FOR PROPER CHAINLINE. FITS BETWEEN HUB SHOULDER AND FREEWHEEL USE WITH ALL FREEWHEELS.

No. 490-00-0 (Pkg. of 3)

SPOKE PROTECTORS

SUNTOUR:

No. 495-ST-7
ALUMINUM SPOKE PROTECTOR KEEPS THE CHAIN AND REAR DERAILLEUR OUT OF THE SPOKES IF THE REAR DERAILLEUR GETS WHACKED OR IF YOU OVER-SHIFT LOW GEAR.

CHAINS

NOTE:
DERAILLEUR BICYCLES USE $\frac{1}{8}$ " x $\frac{3}{32}$ ".
STANDARD BICYCLES USE $\frac{1}{8}$ " x $\frac{1}{8}$ ".

UNION:

No. 460-UN-D
 $\frac{1}{8}$ " x $\frac{3}{32}$ " x 116 LINKS, EXCELLENT VALUE.

REGINA: CORSA

No. 460-RE-DC
 $\frac{1}{8}$ " x $\frac{3}{32}$ " x 116 LINKS, HIGH QUALITY.

REGINA: ORO

No. 460-RE-DO
 $\frac{1}{8}$ " x $\frac{3}{32}$ " x 116 LINKS, SAME AS ABOVE BUT WITH BRASS
PLATED SIDEPLATES.

UNION:

No. 460-UN-S
 $\frac{1}{8}$ " x $\frac{1}{8}$ " x 112 LINKS.

REGINA:

No. 460-RE-S
 $\frac{1}{8}$ " x $\frac{1}{8}$ " x 112 LINKS.
SAME HIGH QUALITY AS DERAILLEUR CHAIN

NOTE:
WHEN INSTALLING A DERAILLEUR CHAIN, THE CHAIN SHOULD BE
SET UP AS "LOOSE" AS POSSIBLE FOR GOOD SHIFTING. WHEN ON
THE SMALL REAR COG AND SMALL FRONT CHAINWHEEL, THE CHAIN
IS JUST THIS SIDE OF HANGING SLACK — BUT NOT SLACK. IN OTHER
WORDS, INSTALL THE CHAIN REMOVING AS FEW LINKS AS POSSI-
BLE. IF, AFTER INSTALLING THE CHAIN, THERE IS A TIGHT LINK, IN
THE AREA OF THE TIGHT LINK, "BEND" THE CHAIN SIDE TO SIDE TO
GAIN CLEARANCE BETWEEN THE SIDE PLATES AND INNER LINK.

CHAINSTAY SLEEVE:

No. 461-00-0
THIS PLASTIC SLEEVE PROTECTS THE CHAINSTAY FROM
DAMAGE CAUSED BY THE DERAILLEUR CHAIN BOUNCING
UP AND DOWN OVER ROUGH GROUND.
CLEAR PLASTIC.

BUILT-UP WHEELS ALUMINUM RIMS

THE FOLLOWING WHEELS USE: .080" (14 Ga.) D.T. STAINLESS
STEEL STRAIGHT GAUGE SPOKES, 26" x 1.75" UKAJ OR
ARAYA EXTRUDED ALUMINUM BOX RIMS (Anodized in five
colors). FOUR CROSS LACING PATTERN WITH SPOKES WOVEN
FOR STIFFNESS. ONLY THE HUBS DIFFER.

PHIL WOOD FRONT HUB

No. 600-PW-R	RED RIM
No. 600-PW-BLU	BLUE RIM
No. 600-PW-G	GOLD RIM
No. 600-PW-S	SILVER RIM
No. 600-PW-BLK	BLACK RIM

WEIGHT: 1110 grams (Complete wheel)

PHIL WOOD REAR HUB: 6-SPEED

No. 500-PW-R	RED RIM
No. 500-PW-BLU	BLUE RIM
No. 500-PW-G	GOLD RIM
No. 500-PW-S	SILVER RIM
No. 500-PW-BLK	BLACK RIM

WEIGHT: 1170 grams (Complete wheel)

SUNSHINE OR SUZUE FRONT HUB

No. 600-SS-R	RED RIM
No. 600-SS-BLU	BLUE RIM
No. 600-SS-G	GOLD RIM
No. 600-SS-S	SILVER RIM
No. 600-SS-BLK	BLACK RIM

WEIGHT: 1100 grams (Complete wheel)

STURMEY-ARCHER DRUM BRAKE FRONT HUB

No. 600-SA-R	RED RIM
No. 600-SA-BLU	BLUE RIM
No. 600-SA-G	GOLD RIM
No. 600-SA-S	SILVER RIM
No. 600-SA-BLK	BLACK RIM

IMPORTANT: SPECIFY STANDARD OR MODIFIED TORQUE ARM
ON HUB. (Modified fits Trailmaster Cat. No. 700-TM-75UD, No.
700-TM-12UD, No. 700-TM-75ND, and No. 700-TM-12ND) FORKS
WEIGHT: 1605 grams (Complete wheel)

STURMEY-ARCHER DRUM BRAKE REAR HUB

No. 500-SA-R	RED RIM
No. 500-SA-BLU	BLUE RIM
No. 500-SA-G	GOLD RIM
No. 500-SA-S	SILVER RIM
No. 500-SA-BLK	BLACK RIM

WEIGHT: 1705 grams (Complete wheel)

SHIMANO MX COASTER BRAKE REAR HUB, CHROME

No. 500-SH-R	RED RIM
No. 500-SH-BLU	BLUE RIM
No. 500-SH-G	GOLD RIM
No. 500-SH-S	SILVER RIM
No. 500-SH-BLK	BLACK RIM

WEIGHT: 1945 grams (Complete wheel)

NOTE:
DUE TO THE SPOKE HOLE DRILLING, THE SHIMANO MX COASTER
BRAKE HUB (Catalogue No. 500-SH-C & No. 500-SH-B) IS FITTED WITH
.105" (12 Ga.) D.T. STAINLESS STEEL STRAIGHT GAUGE SPOKES.

BUILT-UP WHEELS STEEL RIMS

SUNSHINE OR SUZUE FRONT HUB

.080" (14 Ga.) D.T. STAINLESS STEEL STRAIGHT GAUGE
SPOKES, ARAYA 26" x 2.125" STEEL CHROME PLATED
DOUBLE-WALL RIM. REQUIRES USE OF CALIPER OR CAN-
TILEVER RIM BRAKE.

No. 600-SS-CH
WEIGHT: 1900 grams (Complete wheel)

SHIMANO REAR COASTER BRAKE HUB, CHROME

.105" (12 Ga.) D.T. STAINLESS STEEL STRAIGHT GAUGE
SPOKES, ARAYA 26" x 2.125" STEEL CHROME PLATED DOU-
BLE-WALL RIM.

No. 500-SH-CH
WEIGHT: 2805 grams (Complete wheel)

NOTE:
.080" (14 Ga.) D.T. SPOKES RECOMMENDED FOR RIDERS UP TO 190
POUNDS. RIDERS OVER 190 POUNDS SHOULD USE .105" (12 Ga.) D.T.
SPOKES FOR ROUGH TRAIL USE. FOR HUB/SPOKERIM COMBINATIONS
NOT LISTED, CALL OR WRITE FOR PRICE QUOTE.

TIRES AND TUBES

UNIROYAL:

No. 680-UR0
BLACK WALL KNOBBY TIRE, 26" x 2.125", FITS 26" x 1.75" AND 26" x 2.125" RIMS. THE TOUGHEST PNEUMATIC BICYCLE TIRE MADE TO DATE. THE WIDTH OF THIS TIRE PROVIDES GOOD TRACTION AND HIGH FLOTATION ON DIRT, MUD, ETC. THE TIRE ALSO HELPS ABSORB ROAD AND TRAIL SHOCK.

WEIGHT, EACH 1260 grams

NOTE:

A WORD ABOUT TIRE PRESSURE: WHEN RIDING ON THE STREET, KEEP TIRES AT THE RECOMMENDED MAXIMUM PRESSURE (45 lbs./sq. in.) TO MINIMIZE ROLLING RESISTANCE. ON THE DIRT, DECREASING THE TIRE PRESSURE IMPROVES THE TRACTION AND ALSO PROVIDES A SMOOTHER RIDE. EXPERIMENT WITH DIFFERENT TIRE PRESSURES — KEEP ENOUGH AIR PRESSURE SO THE RIM WON'T BOTTOM OUT IF YOU HIT A ROCK, ETC. YOU CAN EFFECT WHICH END OF THE BIKE SLIDES IN A FAST CORNER (preferably the back end) BY RUNNING THE BACK TIRE A BIT HARDER THAN THE FRONT TIRE. FOR A RIDER WEIGHT OF 150 TO 170 lbs. GOOD BEGINNING PRESSURE TO EXPERIMENT WITH IS 18 lbs. FRONT AND 22 lbs. REAR.

(A high performance wrap-around tread knobby is in the works.)

MITSUBUSHI: BRUISER

No. 680-MB-0
26" x 2.125" SKINSIDE STREET TIRE. RAISED CENTER RIB DECREASES ROLLING RESISTANCE. TREAD DESIGN AND RUBBER FORMULA PROVIDE EXCELLENT TRACTION ON PAVEMENT. "SKINSIDE" SIDEWALL KEEPS WEIGHT TO A MINIMUM.

WEIGHT, EACH 830 grams

UNIROYAL/CARLISLE:

No. 681-UR-5
STANDARD INNERTUBE 26" x 2.125". BEST TUBE FOR ALL AROUND USE.

WEIGHT, EACH 295 grams

UNIROYAL/CARLISLE:

No. 681-UR-T
THORN RESISTANT INNERTUBE 26" x 2.125". THE OUTER CIRCUMFERENCE OF THIS TUBE IS APPROXIMATELY 3 TIMES THICKER THAN A STANDARD TUBE, MAKING IT MORE DURABLE. GOOD FOR AREAS WHERE CACTUS THORNS, ETC., ARE A COMMON PROBLEM. BECAUSE OF ADDED WEIGHT, THIS TUBE SHOULD BE USED ONLY WHEN NECESSARY.

WEIGHT, EACH 820 grams

NOTE:

UNLESS OTHERWISE SPECIFIED OTHER BRANDS OF QUALITY TIRES AND TUBES MAY BE SUBSTITUTED, DEPENDING ON AVAILABILITY.

RIMSTRIPS:

No. 682-00-1
FITS 26" x 1.75" UKAI OR ARAYA ALUMINUM RIM.

No. 682-00-2
FITS 26" x 2.125" STEEL RIM.

RIMS

(All rims 36 hole)

UKAI/ARAYA:

26" x 1.75" EXTRUDED ALUMINUM BOX RIM WITH WELDED SEAM. OUR TESTING INDICATES THESE RIMS TO BE AS STRONG AS THE DOUBLE WALL STEEL RIM. UKAI WAS THE FIRST 26" x 1.75" ALUMINUM RIM ON THE MARKET. ANODIZED. UKAI IS IDENTICAL TO THE ARAYA ALU. RIM. FITS 26" x 2.125" AND 26" x 1.75" TIRES.

WEIGHT 590 grams

510-UA-G GOLD

510-UA-S SILVER

510-UA-R RED

510-UA-BLU BLUE

510-UA-BLK BLACK

ARAYA:

No. 510-AR-CH
26" x 2.125" DOUBLE WALL STEEL RIM, CHROME PLATED. THE BEST DOUBLE WALL STEEL RIM AVAILABLE. FITS 26" x 2.125" TIRES.

WEIGHT, EACH 1450 grams

NOTE:

THE ABOVE RIMS ARE DRILLED FOR 14 GAUGE (.080") SPOKES. IF YOU ARE GOING TO USE THE HEAVIER 12 GAUGE (.105") SUPER DUTY SPOKES, THEN YOU WILL HAVE TO ENLARGE THE SPOKE HOLES IN YOUR RIM BY DRILLING THEM WITH A 1/8" DRILL BIT. ON ALUMINUM RIMS, DRILL THE HOLES AT THE SAME ANGLE THROUGH THE DIMPLE AS YOU FIND THEM TO MAINTAIN NIPPLE ALIGNMENT.

ALUMINUM RIMS ARE THE WAY TO GO FOR PERFORMANCE AS THE WHEELS ARE ROTATING WEIGHT. ROTATING WEIGHT IS THE MOST IMPORTANT MASS ON THE BICYCLE WHICH SHOULD BE KEPT LIGHT.

RIM BRAKES WORK BEST WITH ALUMINUM RIMS, ESPECIALLY WHEN WET.

THE SPOKE LENGTH DESCRIBED BELOW, 10 5/8" (270 mm), WILL PRODUCE A FOUR-CROSS SPOKE PATTERN WITH ANY HUB IN THIS CATALOGUE WITH 26" x 1.75" OR 26" x 2.125" RIMS.

D.T.

SWISS MADE STAINLESS STEEL .080" (14 Ga.) STRAIGHT GAUGE SPOKES. BEST QUALITY, STRONGEST SPOKES AVAILABLE. PROVEN MORE THAN AMPLE UNDER ALL CONDITIONS FOR RIDERS UP TO 190 lbs. PLATED BRASS NIPPLES. PACKAGE OF 40 GIVES 4 EXTRA SPOKES.

WEIGHT 280 grams (36 spokes and nipples)

No. 520-DT-114 PACKAGE OF 40.

No. 520-DT-214 PACKAGE OF 80.

SWISS MADE STAINLESS STEEL .105" (12 Ga.) STRAIGHT GAUGE SUPER DUTY SPOKES FOR RIDERS OVER 190 lbs. PLATED BRASS NIPPLES. PACKAGE OF 40 GIVES 4 EXTRA SPOKES.

WEIGHT 455 grams (36 spokes and nipples)

No. 520-DT-112 PACKAGE OF 40

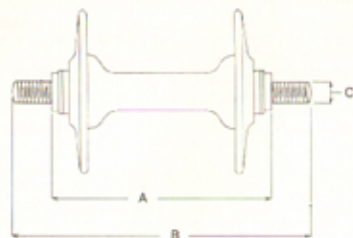
No. 520-DT-212 PACKAGE OF 80

NOTE:

A SMALL AMOUNT OF GREASE OR OIL APPLIED TO THE SPOKE THREADS ALLOWS THE NIPPLES TO BE TIGHTENED UP WITHOUT SEIZING. WHEN USING ALUMINUM RIMS, AFTER LACING UP YOUR WHEELS, LUBRICATE THE NIPPLES FROM THE OUTSIDE OF THE RIM WITH A LIGHT LUBRICANT SUCH AS WD-40, CHAINLUBE, ETC. THIS WILL PREVENT THE NIPPLES FROM BINDING IN THE ALUMINUM AND THUS ALLOW PROPER SPOKE TENSION TO BE REACHED. WIPE THE RIM DOWN TO REMOVE THE LUBRICANT FROM THE RIM WHEN FINISHED. WHEN USING .080" (14 Ga.) SPOKES, THE SPOKES SHOULD BE WOVEN AS IN ROAD RACING WHEEL LACING. MAKE SURE TO GRIND OFF THE ENDS OF THE SPOKES IF THEY PROTRUDE THROUGH THE NIPPLES TO PREVENT TUBE DAMAGE.

IF YOU ARE GOING TO USE THE HEAVIER 12 GAUGE (.105") SUPER DUTY SPOKES, THEN YOU WILL HAVE TO ENLARGE THE SPOKE HOLES IN YOUR RIM BY DRILLING THEM WITH A 1/8" DRILL BIT. ON ALUMINUM RIMS, DRILL THE HOLES AT THE SAME ANGLE THROUGH THE DIMPLE AS YOU FIND THEM TO MAINTAIN NIPPLE ALIGNMENT.

YOU'LL HAVE TO ENLARGE THE SPOKE HOLES IN YOUR HUB BY DRILLING WITH A 7/64" DRILL BIT. YOU SHOULD LIGHTLY CHAMFER THE EDGES OF THE HOLES AFTER DRILLING TO PREVENT THE SHARP EDGES FROM CUTTING THE SPOKES. CHAMFERING CAN BE DONE USING AN OVERSIZE DRILL BIT.

**ALUMINUM HIGH FLANGE HUB: FRONT**

No. 640-SS-F
WITH 3/8" AXLE. FOR USE ON THE FRONT WHEN NO BRAKE
IS REQUIRED OR FOR USE WITH CANTILEVER OR CALIPER
BRAKES. MADE BY SUNSHINE OR SUZEE.
36 HOLE, DRILLED FOR .080" (14 Ga.) SPOKES. POLISHED
ALUMINUM FINISH.

DIMENSIONS:

A. 100 mm (3-15/16")
B. 130 mm (5-1/8")
C. 9.5 mm (3/8")
CONE WRENCH SIZE 15, 16, OR 17 mm (Varies)
WEIGHT 230 grams

PHIL WOOD: FRONT

No. 640-PW-F
THE BEST HUB ON THE MARKET. LARGE DIAMETER AXLE IS
EXTREMELY STRONG. SEALED BEARINGS NEED NO
MAINTENANCE. THIS HUB HAS BEEN TESTED UNDER THE
TOUGHEST CONDITIONS. FOR USE WHEN NO FRONT BRAKE
IS REQUIRED OR FOR USE WITH CALIPER OR CANTILEVER
BRAKES. HUB IS CONSTRUCTED OF ALUMINUM FLANGES
AND A TUBULAR STEEL CENTER. WE OFFER THIS HUB WITH
ALLEN BOLT TYPE AXLE, DRILLED FOR .080" (14 Ga.) SPOKES,
36 HOLE. SUPPLIED WITH ALLEN WRENCH.

DIMENSIONS:

A. 100 mm
B. 7.5 mm
WEIGHT 240 grams

PHIL WOOD: REAR

SAME SUPER QUALITY AS FRONT HUB DESCRIBED ABOVE.
FOR USE WITH CANTILEVER OR CALIPER BRAKES. ENGLISH
FREEWHEEL THREAD. DRILLED FOR .080" (14 Ga.) SPOKES,
36 HOLE. SUPPLIED WITH ALLEN WRENCH.

No. 540-PW-5**5-SPEED****DIMENSIONS:**

A. 120 mm
B. 9.5 mm
C. ENGLISH FREEWHEEL THREAD

No. 540-PW-6**6-SPEED****DIMENSIONS:**

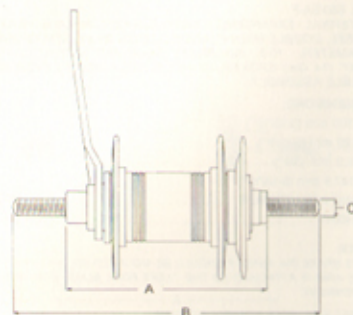
A. 125 mm
B. 9.5 mm
C. ENGLISH FREEWHEEL THREAD
WEIGHT 300 grams

NOTE:

"A" DIMENSION IS FIXED DUE TO NATURE OF HUB CONSTRUCTION.
OTHER LENGTHS MAY BE SPECIALLY ORDERED.

IMPORTANT:

FOR FRAMES WITH THICK REAR DROPOUTS LIKE PRO-CRUISER, EX-
TRA LONG BOLTS MUST BE SPECIFIED FOR PHIL WOOD REAR HUBS.

**SHIMANO: MX REAR**

COASTER BRAKE REAR HUB. A TOUGH, RELIABLE COASTER
BRAKE. DRILLED FOR 12 Ga. (.105") SPOKES. SUPPLIED WITH
17 TOOTH SPROCKET.

DIMENSIONS:

A. 109 mm (4-5/16")
B. 163.5 mm (6-7/16")
C. 9.5 mm (3/8")
CONE WRENCH SIZE 15 mm
WEIGHT 900 grams
No. 550-SH-C CHROME FINISH
No. 550-SH-B MATTE BLACK FINISH

SPROCKETS FOR ABOVE

No. 551-SH-14	14 TOOTH
No. 551-SH-15	15 TOOTH
No. 551-SH-16	16 TOOTH
No. 551-SH-17	17 TOOTH
No. 551-SH-18	18 TOOTH
No. 551-SH-19	19 TOOTH
No. 551-SH-20	20 TOOTH

NOTE:

SPROCKETS ARE INTERCHANGEABLE WITH STURMEY-ARCHER
3-SPEED.

STURMEY-ARCHER: SBF FRONT

No. 630-SA-F
INTERNAL EXPANDING DRUM BRAKE, CHROME PLATED STEEL, DOUBLE HIGH FLANGE DESIGN, 70 mm BRAKE DRUM DIAMETER, 15.5 mm BRAKE SHOE WIDTH, DRILLED FOR .080" (14 GA.) SPOKES, 36 HOLE. LESS HAND LEVER AND CABLE ASSEMBLY.

DIMENSIONS:

A. 100 mm (3-15/16")	
B. 129 mm (5-1/16")	
C. 9.5 mm (3/8")	
D. 147.5 mm (5-13/16")	
CONE WRENCH SIZE	16 mm
WEIGHT	735 grams

NOTE:

THIS BRAKE (No. 630-SA-F) SHOULD BE MOUNTED SO THAT THE TORQUE ARM IS ATTACHED TO THE "LEFT FORK BLADE FOR PROPER ALIGNMENT.

*LEFT SIDE WHEN STRADDLING BIKE.

STURMEY-ARCHER: SBF FRONT — MODIFIED

No. 630-SA-DF
ABOVE: WITH MODIFIED TORQUE ARM END. BOLTS TO TAB ON TRAILMASTER. CAT. No. 700-TM-75UD, 700-TM-12UD, 700-TM-75ND, AND 700-TM-12ND FORKS (Instead of using clamp).

D. DIMENSION: 125 mm (4-29/32")

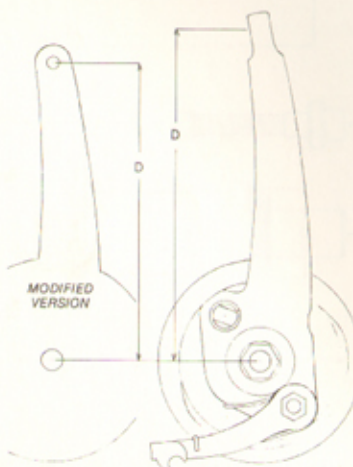
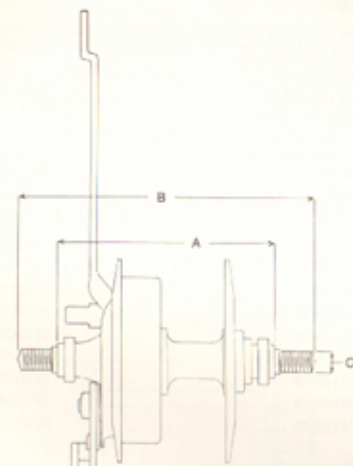
NOTE:

INTERNAL EXPANDING DRUM BRAKES ARE NOT AFFECTED BY WATER AND MUD AS ARE CANTILEVER AND CALIPER RIM BRAKES BUT THEY WEIGH MORE. THE WEIGHT DIFFERENCE BETWEEN MAFACT TANDUM CANTILEVER BRAKES WITH PHIL WOOD HUBS VERSUS STURMEY ARCHER 70 mm DRUM BRAKES IS 1 POUND 10 OUNCES, FOR BOTH WHEELS.

USING AXLE SPACERS OR WASHERS, THE CORRECT AXLE LOCKNUT TO LOCKNUT WIDTH FOR YOUR FORK OR FRAME SHOULD BE ATTAINED PLUS OR MINUS 1/16" TO PREVENT BOWING OF THE AXLE WHEN THE AXLE NUTS ARE TIGHTENED.

IF YOU WANT TO USE THE D.T. SUPERDUTY 12 GA. SPOKES, YOU'LL HAVE TO ENLARGE THE SPOKE HOLES IN YOUR HUB BY DRILLING WITH A .750" DRILL BIT. YOU SHOULD LIGHTLY CHAMFER THE EDGES OF THE HOLES AFTER DRILLING TO PREVENT THE SHARP EDGES FROM CUTTING THE SPOKES. CHAMFERING CAN BE DONE USING AN OVERSIZE DRILL BIT.

IT IS IMPORTANT WITH DRUM BRAKES, WHEN SECURING THE END OF THE TORQUE ARM TO THE FRAME, (or fork) THAT THE END OF THE TORQUE ARM NEED NOT BE FORCED TO TWIST OR BEND AS IT IS TIGHTENED AGAINST THE FRAME (or fork). IF THE ARM MUST BE PULLED INTO PLACE AS IT IS TIGHTENED DOWN — THE RESULTING PRESSURE WILL CAUSE THE BACKING PLATE (to which the brake shoes attach) TO RUN OUT OF ALIGNMENT WITH THE BRAKE DRUM CAUSING DRAG. CAREFULLY BEND THE TORQUE ARM, IF NECESSARY, SO ITS END FITS PROPERLY AGAINST THE FRAME OR FORK, BEFORE ATTACHING.

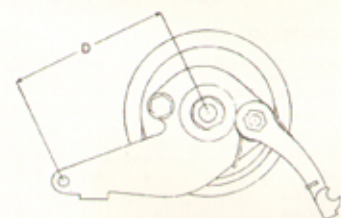
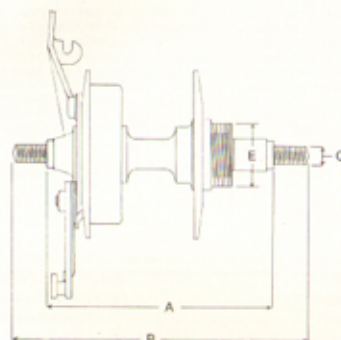


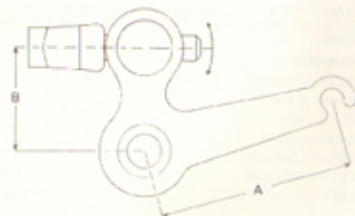
STURMEY-ARCHER: SBR REAR

No. 530-SA-R
INTERNAL EXPANDING DRUM BRAKE, COMPLIMENTS THE FRONT BRAKE. SAME SIZE BRAKE DRUM AND SHOE SIZE. ENGLISH FREEWHEEL THREAD, DRILLED FOR .080" (14 GA.) SPOKES, 36 HOLE. LESS HAND LEVER AND CABLE ASSEMBLY.

DIMENSIONS:

A. 125 mm (4-29/32")	
B. 161 mm (6-5/16")	
C. 9.5 mm (3/8")	
D. 86 mm (3-13/32")	
E. ENGLISH THREAD	
CONE WRENCH SIZE	16 mm
WEIGHT	835 grams





MAFAC:

THE MAFAC TANDER CANTILEVER BRAKE OFFERS EXTREME LIGHT WEIGHT WITH GOOD STOPPING POWER. BECAUSE THE BRAKE ARM FULCRUMS ARE BRAZED ONTO THE FORK AND FRAME AND THE BRAKE ARMS ARE MORE COMPACT COMPARED TO CALIPER BRAKES, THERE IS LITTLE FLEX. THE LONGER THAN AVERAGE HORIZONTAL REACH OF THE ARMS PROVIDES MAXIMUM LEVERAGE. CANTILEVER BRAKES (like all rim brakes) ARE AFFECTED BY WATER AND MUD BUT THIS FACTOR CAN BE COMPENSATED FOR BY THE RIDER. THE MAFAC TANDER CANTILEVER IS THE BEST CANTILEVER BRAKE ON THE MARKET. THE MAIN ADVANTAGE TO THESE BRAKES IS THAT VERY LIGHT WHEELS CAN BE USED. INCLUDES STIRRUP WIRE AND BRAKE SHOES, FULCRUMS AND BRAKE ARMS. DOES NOT INCLUDE HAND LEVER OR CABLE ASSEMBLY. THE FULCRUMS MUST BE BRAZED ONTO FRAME AND/OR FORK.

NOTE:

RIM BRAKES WORK BEST WITH ALUMINUM RIMS ESPECIALLY WHEN WET.

No. 560-MF-T1 PAIR/FOR ONE WHEEL

No. 560-MF-T2 SET/FOR TWO WHEELS

WEIGHT 310 grams (Set)

DIMENSIONS: A. 47.5 mm (1-7/8") B. 25 mm (1")

CALIPER BRAKES

DIA-COMPE: MX - 1000

THE CALIPERS ON THIS BRAKE HAVE A MUCH GREATER CROSS SECTION THAN NORMAL, MAKING THEM EXTREMELY RIGID FOR A CALIPER BRAKE. MINUS CABLE ASSEMBLY AND LEVER. ANODIZED.

No. 570-DC-FG FRONT, GOLD

No. 570-DC-FR FRONT, RED

No. 570-DC-FB FRONT, BLUE

WEIGHT 200 grams

No. 570-DC-RG REAR, GOLD

No. 570-DC-RR REAR, RED

No. 570-DC-RB REAR, BLUE

WEIGHT 205 grams

DIMENSIONS: A. 74 mm (2-9/32") B. 92 mm (3-5/8")

BRAKE SHOES:
RIM BRAKES

No. 562-MF-0 (Pair)
MAFAC TANDER CANTILEVER BRAKE SHOES COMPLETE WITH HOLDER

No. 563-MT-0 (Pair)
MATHAUSER FINNED ALUMINUM BRAKE SHOE ASSEMBLIES, WITH BONDED BRAKE BLOCKS. FIT MAFAC TANDER CANTILEVER BRAKES AND INCREASE THE STOPPING POWER UNDER ALL WEATHER CONDITIONS BECAUSE OF SPECIAL BRAKE BLOCK COMPOUND. OUT-BRAKE THE COMPETITION.

No. 572-DC-0 (Pair)
DIA-COMPE CALIPER BRAKE SHOES COMPLETE WITH HOLDER.

PEDAL WRENCH:

No. 990-00-0
HIGH QUALITY STEEL. THIN DESIGN GIVES EASY ACCESS TO ANY PEDAL. AMPLE LENGTH PROVIDES GOOD LEVERAGE. FITS 1/2" AND 9/16" PEDALS.

WHEEL TRUING STAND:

No. 991-00-0
TRUE YOUR WHEELS THE EASY WAY. HAS INDICATORS FOR VERTICAL AND LATERAL RIM RUNOUT AND ACCEPTS ALL WHEEL SIZES.

UNIVERSAL SPOKE WRENCH:

No. 988-00-U
FITS MOST EVERYTHING, INCLUDING D.T. 105" (12 Ga.) SPOKES. CHROME PLATED.

SPOKE WRENCHES, PARK:

EFFICIENT AND COMFORTABLE DESIGN. VINYL COLOR DIP. PED HANDLE, SHOP QUALITY.

No. 988-PK-G
FITS MOST .080" (14 Ga.) NIPPLES; GREEN VINYL GRIP. FITS D.T. 14 Ga. NIPPLES.

No. 988-PK-R
FITS MOST JAPANESE .080" (14 Ga.) NIPPLES; RED VINYL GRIP.

No. 988-PK-B
FITS MOST .105" (12 Ga.) NIPPLES; BLUE VINYL GRIP. DOES NOT FIT D.T.

No. 988-PK-Y
FITS .120" (11 Ga.) NIPPLES; YELLOW VINYL GRIP.

WHEEL DISHING TOOLS:

PARK:

No. 989-PK-0
A BUDGET-PRICED DISHING TOOL USED TO CHECK RIM CENTERING.

CAMPAGNOLO:

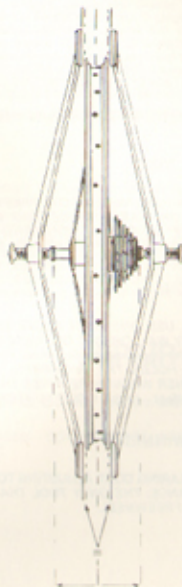
No. 989-CA-0
THE FINEST QUALITY CONSTRUCTION, TYPICAL OF CAMPAGNOLO. CAST ALUMINUM.

NOTE:

A DISHING TOOL IS USED TO CHECK RIM CENTERING BETWEEN THE AXLE LOCKNUTS SO THAT THE WHEELS ARE PROPERLY CENTERED IN THE FRAME AND FORK. TO USE THE DISHING TOOL ADJUST THE SCREW ON THE CAMPAGNOLO, (OR THE CENTER POINTER ON THE PARK) TO REST AGAINST THE AXLE LOCKNUT SO THE ENDS OF THE DISHING TOOL ALMOST TOUCH THE RIM. CHECK THE OPPOSITE SIDE OF THE WHEEL THE SAME WAY. THE DISTANCE SHOULD BE THE SAME BETWEEN THE ENDS OF THE DISHING TOOL AND THE RIM. (See diagram) WHEN THIS MEASUREMENT IS EQUAL ON BOTH SIDES, THE RIM IS CENTERED.

TO MAKE ROOM FOR A MULTI-COG FREEWHEEL ON THE REAR HUB, THE HUB'S SPOKE FLANGES ARE OFFSET TOWARDS THE LEFT; THUS THE REAR RIM IS NOT CENTERED OVER THE HUB FLANGES. NOTICE ALSO THE RESULTING DIFFERENCE IN ANGLE BETWEEN THE SPOKES ON THE LEFT AND RIGHT SIDES OF THE HUB — THE RIGHT (freewheel side) SPOKES LEAVE THE HUB AT A CLOSE TO PERPENDICULAR ANGLE. THIS TOOL ALLOWS YOU TO CENTER THE RIM BETWEEN THE AXLE LOCKNUTS SO THE WHEELS TRACK IN LINE WITH EACH OTHER GOOD FOR BUILDING FRONT WHEELS TOO.

WHEELS MUST BE TRUE IN ORDER TO CHECK RIM CENTERING WITH DISHING TOOL.



FREEWHEEL REMOVERS:

No. 970-ST-NW
 FITS SUNTOUR AND NEW WINNER
 No. 970-ST-PC
 FITS SUNTOUR PRO-COMPE AND SUNTOUR ONE-SPEED
 No. 970-SH-DA
 FITS SHIMANO DURA ACE
 No. 970-SH-S
 FITS SHIMANO STANDARD FIVE SPEED
 No. 970-RG-N
 FITS REGINA NOTCHED TYPE
 No. 970-NM-S
 FITS NORMANDY SPLINED

NOTE:

TO REMOVE A FREEWHEEL, SLIP THE REMOVING TOOL OVER THE REAR AXLE AND ENGAGE TOOL'S PRONGS (Or spline) WITH THE FREEWHEEL BODY'S NOTCHES (Or spline), MAKING SURE THE ENGAGEMENT IS FULL TO PREVENT THE REMOVING TOOL FROM SLIPPING OUT OF PLACE, POSSIBLY CAUSING DAMAGE. PUT AN AXLE NUT ON FINGER TIGHT TO HOLD THE TOOL AGAINST THE FREEWHEEL. (On quick-release wheels, install the quick-release with skewer nut finger tight.) CLAMP THE FREEWHEEL REMOVING TOOL IN A VISE AND TURN THE WHEEL COUNTER-CLOCKWISE 1/2 TURN TO "BREAK" THE FREEWHEEL LOOSE. (A wrench can be used on the freewheel removing tool if you lack a vise; turn the wrench 1/2 turn counter-clockwise in this case.) IMMEDIATELY AFTER THE FREEWHEEL IS "BROKEN" LOOSE, REMOVE THE AXLE NUT (OR QUICK-RELEASE) SO THE FREEWHEEL MAY BE COMPLETELY UNSCREWED.

*FAILURE TO REMOVE THE AXLE NUT (Or skewer) WILL DAMAGE THE HUB.

FREEWHEEL VISE:

No. 971-JE-0
 JEVELOT FREEWHEEL VISE. HOLDS FREEWHEELS BY THE COG TEETH FOR MAINTENANCE AND COG CHANGES. WORKS WITH SUNTOUR, SHIMANO AND OTHER FREEWHEELS FITTED WITH SPLINED COGS. A REAL KNUCKLE-SAVER.

COG WRENCH:

No. 972-ST-0
 COG WRENCH. USE ONE WITH ABOVE VISE TO REMOVE COGS THE EASY WAY, OR TWO OF THESE COG WRENCHES ALONE (Leave the freewheel on the wheel for easier handling). ONE WRENCH HOLDS THE FREEWHEEL FROM TURNING WHILE THE OTHER WRENCH REMOVES THE COGS (Starting with the smallest cog). COGS UNSCREW COUNTER-CLOCKWISE.

SUNTOUR "WINNER"

No. 973-ST-W
 FREEWHEEL BEARING CONE ADJUSTING TOOL. NECESSARY FOR MAINTENANCE. THE ONLY TOOL THAT WILL FIT SUNTOUR WINNER FREEWHEEL.

CHAIN TOOLS:

No. 974-CY-0
 CYCLO CHAIN RIVET REMOVING AND INSTALLING TOOL. POCKET SIZED — NICE WHEN YOU'RE TWENTY MILES FROM NOWHERE WITH A BROKEN CHAIN. COMES WITH SPARE PIN.
 No. 974-CY-1
 REPLACEMENT PIN FOR ABOVE.

NOTE:

IF DAMAGE OCCURS TO YOUR CHAIN AND/OR REAR DERAILLEUR, YOU CAN SHORTEN YOUR CHAIN AND GET HOME "A LA ONE-SPEED".

COTTERLESS CRANK EXTRACTORS:

FOR PROPER USE OF CRANK EXTRACTOR, SEE COTTERLESS CRANK SECTION.

FITS:

No. 980-TA-1
 T.A., INCLUDES SOCKET WRENCH.
 No. 980-SU-1
 SUGINO MIGHTY-TOUR AND MIGHTY-COMPE
 No. 980-SU-2
 SUGINO MAXY; INCLUDES BUILT-IN SOCKET WRENCH.
 No. 980-SH-1
 SHIMANO DURA ACE; BUILT-IN SOCKET WRENCH.
 No. 980-SH-2
 SHIMANO TOURNEY MX; BUILT-IN SOCKET WRENCH
 No. 980-CA-1
 CAMPAGNOLO
 No. 980-CA-W
 CAMPAGNOLO RETAINING BOLT WRENCH

COTTERLESS CRANK CHAINWHEEL TOOLS

No. 981-SU-W
 SUGINO CHAINWHEEL NUT WRENCH. FITS SUGINO MIGHTY TOUR, MIGHTY COMPE, CAMPAGNOLO, AND DURA ACE.
 No. 981-TA-T
 T.A., "T" WRENCH. THE BEST 8 mm "T" WRENCH ON THE MARKET. FITS 8 mm NUTS AND BOLTS, ALSO T.A. CHAINWHEEL BOLTS.
 No. 981-TA-D
 T.A. CHAINWHEEL NUT DRIVER. FITS T.A. CHAINWHEEL NUTS.

NOTE:

T.A. AND SUGINO CHAINWHEEL BOLTS REQUIRE 5 mm HEX KEY (Allen) WRENCH. ALSO FITS T.A. DUSTCAPS.

CONE WRENCHES:

A MUST FOR SERVICEING AND ADJUSTING STANDARD WHEEL BEARINGS.

No. 975-00-14 13 x 14 mm
 No. 975-00-16 15 x 16 mm
 No. 975-00-17 14 x 17 mm
 No. 975-00-B 7/8" x 47/64" (Bendix coaster brake)

NOTE:

SEE HUB SECTION FOR PROPER SIZED WRENCH.

ALLEN (Hex Key) WRENCHES:

No. 978-EK-M
 METRIC FOLDING HEX KEY WRENCH SET. KEEPS ALL SIZES IN ONE PLACE. HANDLE OFFERS GOOD LEVERAGE. CONTAINS SIZES:

1.5 mm	3 mm
2 mm	4 mm
2.5 mm	5 mm
	6 mm

No. 978-EK-A

AMERICAN FOLDING HEX KEY WRENCH SET. KEEPS ALL SIZES IN ONE PLACE. HANDLE OFFERS GOOD LEVERAGE. CONTAINS SIZES:

5/64"	9/64"
3/32"	5/32"
7/64"	3/16"
1/8"	7/32"
	1/4"

No. 978-00-5

5 mm HEX KEY WRENCH

No. 978-00-6

6 mm HEX KEY WRENCH

No. 978-00-7

7 mm HEX KEY WRENCH

No. 978-00-0

1/4" FITS PHIL WOOD HUBS.

THIRD HAND TOOL:

No. 979-00-0

SIMPLIFIES TAKING THE SLACK OUT OF BRAKE AND GEAR CABLES.

WIRE CUTTERS

No. 984-00-0

GEAR AND BRAKE WIRE CUTTERS HAVE SPECIAL DIAMOND SHAPED JAWS AND CUT STRANDED WIRE CLEANLY WITH NO FRAYED ENDS.

HAND PUMP: ZEFAL

No. 977-ZF-0

(H.P. Model) HAND PUMP. FRAME MOUNT STYLE, OR SMALL, ENOUGH TO FIT IN A BACKPACK. LIGHT WEIGHT. BEST HAND PUMP WE'VE SEEN — BUILT TO LAST. SILVER FINISH.

PUMP LENGTH, COMPRESSED: 18-5/16"

WEIGHT: 210 grams (Less clips)

COMPLETE WITH FRAME CLIPS TO FIT 1" TO 1 1/4" O.D. FRAMETUBES.

No. 977-ZF-1 REBUILD KIT FOR ABOVE.

TIRE LEVERS:

No. 985-00-0

THESE STEEL LEVERS HELP PRY THE TIRE OFF THE RIM WITHOUT PINCHING THE TUBE. (Removing and installing balloon tires can be done with bare hands if you choose).

PRESSURE GAUGE

No. 986-00-0

PHIL WOOD BOTTOM BRACKET LOCKRING WRENCH.

No. 976-PW-0

POCKET MODEL. NECESSARY FOR INSTALLING AND REMOVING PHIL WOOD LOCKRINGS IN THE BOTTOM BRACKET SHALL. A PAIR IS RECOMMENDED, ALTHOUGH FOR ENGLISH (1.370" x 24 T.P.I.) THREADING WHICH IS RIGHT AND LEFT HAND, ONE WRENCH WILL DO.

CHAINWHEEL/CRANK SPIDER ALIGNMENT TOOL:

No. 982-BR-0

BICYCLE RESEARCH; CRANK SPIDER AND CHAINWHEEL ALIGNING TOOL. ALLOWS YOU TO "TWEAK" THAT CHAINWHEEL OR CRANK SPIDER SO IT RUNS TRUE. ONE ADJUSTABLE (Crescent) WRENCH CLAMPED ONTO THE JAW OF ANOTHER SERVES THE SAME PURPOSE, THE FIRST WRENCH BEING ADJUSTED TO THE THICKNESS OF THE CHAINWHEEL OR SPIDER.

SERVICE STAND "VISE CYCLE".

No. 987-00-0

HOLDS YOUR BICYCLE SO YOUR HANDS ARE FREE. ALLOWS BIKE TO BE SWIVELED 360 DEGREES. MUST BE ATTACHED TO WALL FRAMING OR SECURE POST.

PIN TOOL:

No. 992-00-0

FOR ADJUSTING STANDARD THREADED BOTTOM BRACKET ADJUSTABLE CUPS. ALSO FOR SERVICING FREEWHEELS.

PAIR OF EXTRA PINS FOR THE ABOVE:

No. 992-00-1

NOTE:

THROUGH EXPERIENCE WE HAVE FOUND THE FOLLOWING TOOLS, ETC., USEFUL TO HAVE ALONG ON LONG RIDES: 6" VISE GRIPS, PATCH KIT AND/OR TUBE, VALVE CORE REMOVER, PUMP, A FEW FEET OF BAILING WIRE AND ELECTRICAL TAPE, SPOKE WRENCH, SCREW DRIVER OR KNIFE, CHAIN TOOL, ALLEN WRENCHES, AND A FEW SPOKES. WRAP TOOLS IN A BAG, SEPARATING THEM FROM EACH OTHER TO PREVENT RATTLING. SEW-UP TIRE OR SMALL TOOL BAG MAY BE USED TO CARRY TOOLS. AN EXTRA TOE-CLIP STRAP KEEPS THE TOOL BAG STATIONARY. (Usually it's someone else's bike you end up working on.)

REPAIR BOOKS

ANYBODY'S BIKE BOOK by Tom Cuthbertson

No. 960-AB-0

THIS IS A CLASSIC. COVERS MOST AREAS OF REPAIR, ASSEMBLY, ETC.

LUBRICANTS, ETC.

CAMPAGNOLO GREASE

THE "HIGH PRICED SPREAD"

No. 999-CA-0	100 grams
No. 999-CA-1	500 grams

PHIL WOOD GREASE

ANOTHER TOP QUALITY GREASE

No. 999-PW-0	85 grams
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STURMEY-ARCHER OIL

5 WT. OIL, GOOD FOR FREEWHEEL INTERNALS AND 3-SPEED HUBS, ALSO CABLES.

No. 999-SA-0	250 ml
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NOTE:

AN OIL WITH A VISCOSITY OF OVER 5 WT. CAN CAUSE THE FREEWHEEL PAWLS TO STICK, CAUSING FREEWHEEL DAMAGE.

CHAIN LUBE

BLUE MAGIC METAL POLISH

FOR CHROME, ALUMINUM, BRASS, ETC., DEFINITELY MAKES THINGS SHINE.

No. 999-BM-0	100 grams
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LOCKTIGHT (BLUE)

LOCKTIGHTS SPECIAL PLASTIC COMPOUND, WHEN APPLIED TO THREADS, PREVENTS SCREWS, BOLTS AND NUTS FROM VIBRATING LOOSE.

No. 999-LT-0	6 cc
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WATER BOTTLES AND CAGES

T.A.

STEEL DOWNTUBE WATER BOTTLE CAGES ARE RECOMMENDED FOR OFF-ROAD USE. THE ALUMINUM CAGES DO NOT LAST.

No. 900-TA-1
T.A. CAGE TO FIT 1" AND 1-1/8" FRAMETUBE.

No. 900-TA-2
T.A. CAGE TO FIT 1-1/4" FRAMETUBE.

No. 900-TA-0
T.A. WATER BOTTLE, WHITE WITH T.A. LOGO.

KNEE PADS

RECTOR

SAVE YOUR KNEES WITH THESE. FOR FAST DOWNHILLS. VELCRO CLOSURE. ONE SIZE FITS ALL.

No. 950-RE-0

BELLS

A PLEASANT WAY OF SIGNALLING THAT YOU ARE COMING BY — GOOD FOR ALERTING HORSES WHICH ARE EASILY SPOOKED FROM BEHIND BY SUDDEN APPEARANCES OF BICYCLES. ALSO FOR ALERTING HIKERS. ALUMINUM CONSTRUCTION, ANODIZED.

No. 910-00-S	SILVER
No. 910-00-R	RED
No. 910-00-BLU	BLUE
No. 910-00-G	GOLD
No. 910-00-GRN	GREEN
WEIGHT	40 grams

ORDERING AND SHIPPING INFORMATION

METHOD OF PAYMENT

All charges other than freight charges must be pre-paid. Include payment with order (California residents must add sales tax).

Methods of payment are:

Money Order
Certified Check
Personal Check
Visa
Master Charge

Allow two weeks for personal checks to clear.

PHONE ORDERS VISA MASTER CHARGE

Just call and give us your credit card number

MINIMUM ORDER

There is no minimum order—however to cover handling expenses there is a \$2.00 service charge on orders under \$20.00.

BACK ORDERS If an item is out of stock when your order is shipped - back order will be shipped within 30 days. If by that time item is still not in stock, you will get a refund or credit card credit. If you do not want to back order, check box for "NO BACK ORDER" on order form. Refund or credit card credit will then be issued immediately.

SHIPPING METHOD

Parts, wheels and frames are normally shipped U.P.S. (Freight collect). All charges other than freight charges must be pre-paid with order. If U.P.S. does not serve your area we will ship via truck. (Freight collect). Have freight payment ready for driver; certified check or cash only.

Because of their size, bicycles are shipped via truck (Freight collect). All charges other than freight charges must be pre-paid with order. Have freight payment ready for driver; certified check or cash only.

Private residences please include phone number with order, so carrier can check if home - saving you cost of additional delivery charges for second trip.

WILL CALL When shipped via truck, carrier will call when shipment is in. Customer may then pick up at freight terminal to save on freight.

Check "WILL CALL" Box if you desire this.

AIR FREIGHT For faster service air shipment is available, contact us for details.

OUT OF COUNTRY SHIPMENT Out of Country shipments normally go by air, contact us for details.

RETURNS No returns excepted without written prior approval.

DAMAGE/SHORTAGE CLAIM

Responsibility for filing claims for damage or shortage is with the consignee.