

D. PARTS IDENTIFICATION, PARTS PRICES, TERMS AND ORDER PROCEDURE

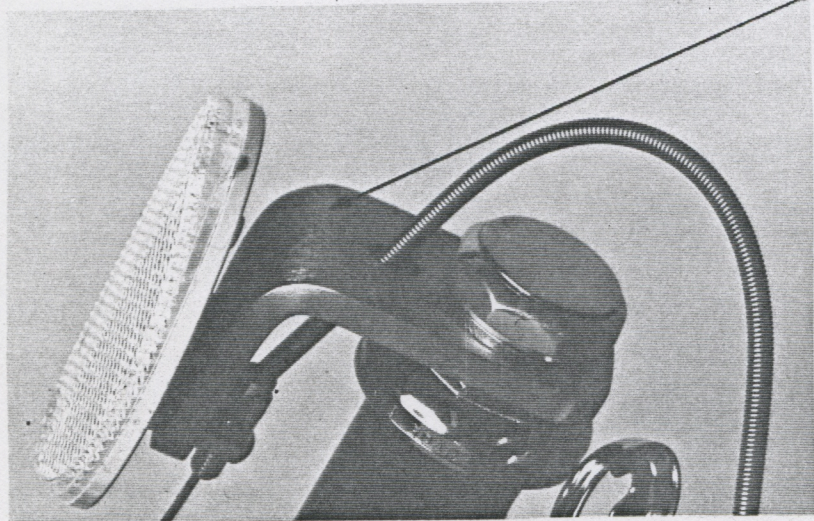
(a) For purposes of clarity, all parts and assemblies are prefixed by letters which directly relate to the following groups by function:

- BRA - Brakes
- CAR - Carriage
- DRI - Drive
- FEN - Fenders
- FOR - Fork
- FRA - Frame
- SEA - Seat
- STE - Steering
- WHE - Wheels

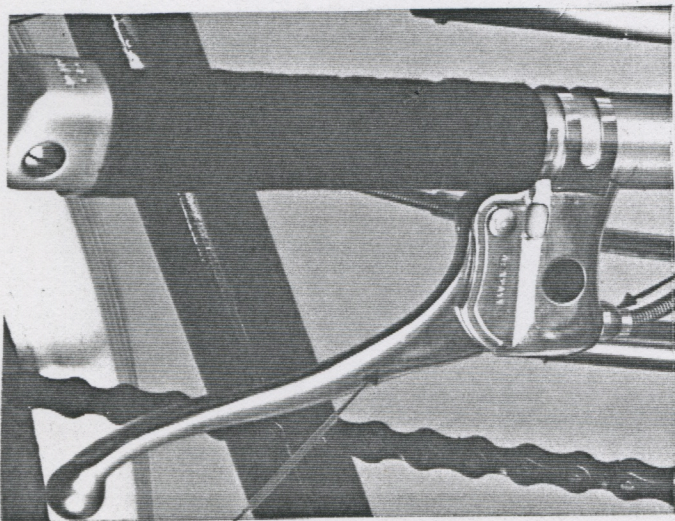
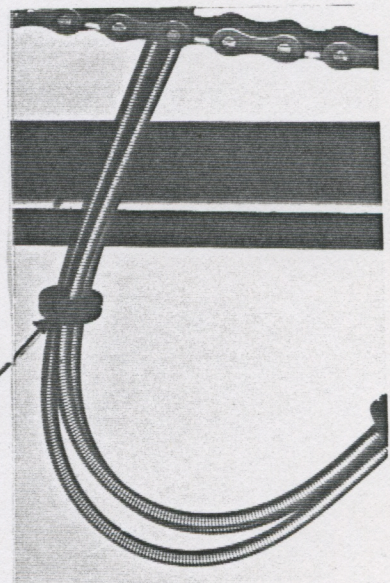
Please note: Obvious parts and/or components such as "fenders", "pedals" etc. are not identified.

Order #	Description	Sold by	Quantity needed per unit	Price
BRA-004	MAFAC "Cyclo-Tandem" calipers without levers and cables	Pair	1 Pair	\$19.95
BRA-008	Five-stud brake blocks with shoes	Pair	2 Pairs	4.95
BRA-012	Brake lever	Piece	1 Pair	4.25
BRA-016	Brake housing ferrules	Pair	1 Pair	.65
BRA-020	Brake cable adjuster, compl.	Piece	1 Piece	.95
BRA-024	Rear brake wire, 47" (1.19 m)	Piece	1 Piece	.95
BRA-028	Front brake wire, 62" (1.57 m)	Piece	1 Piece	1.45
BRA-032	Rear brake straddle wire, 58½" (1.49 m)	Piece	1 Piece	1.45
BRA-036	Front brake straddle wire, 15" (0.38 m)	Piece	1 Piece	.95
BRA-040	Rear brake cable housing, 39" (0.99 m)	Piece	1 Piece	2.65
BRA-044	Front brake cable housing, 55" (1.40 m)	Piece	1 Piece	3.50
BRA-048	End caps for brake and brake straddle wires	4 per Set	4 per Set	.30
BRA-056	White front reflector	Piece	1 Piece	1.95
BRA-060	Free-floating cable housing grommets	Piece	1 Pair	.25
BRA-900	Heavy duty brake hanger with mounting hole for reflector	Assembly	1 Assembly	14.32

BRA-900

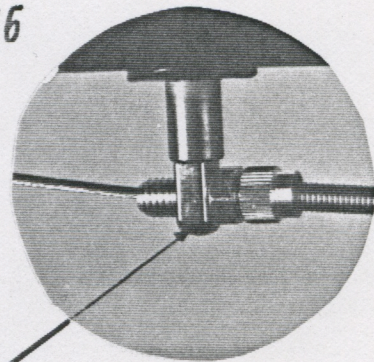


BRA-066



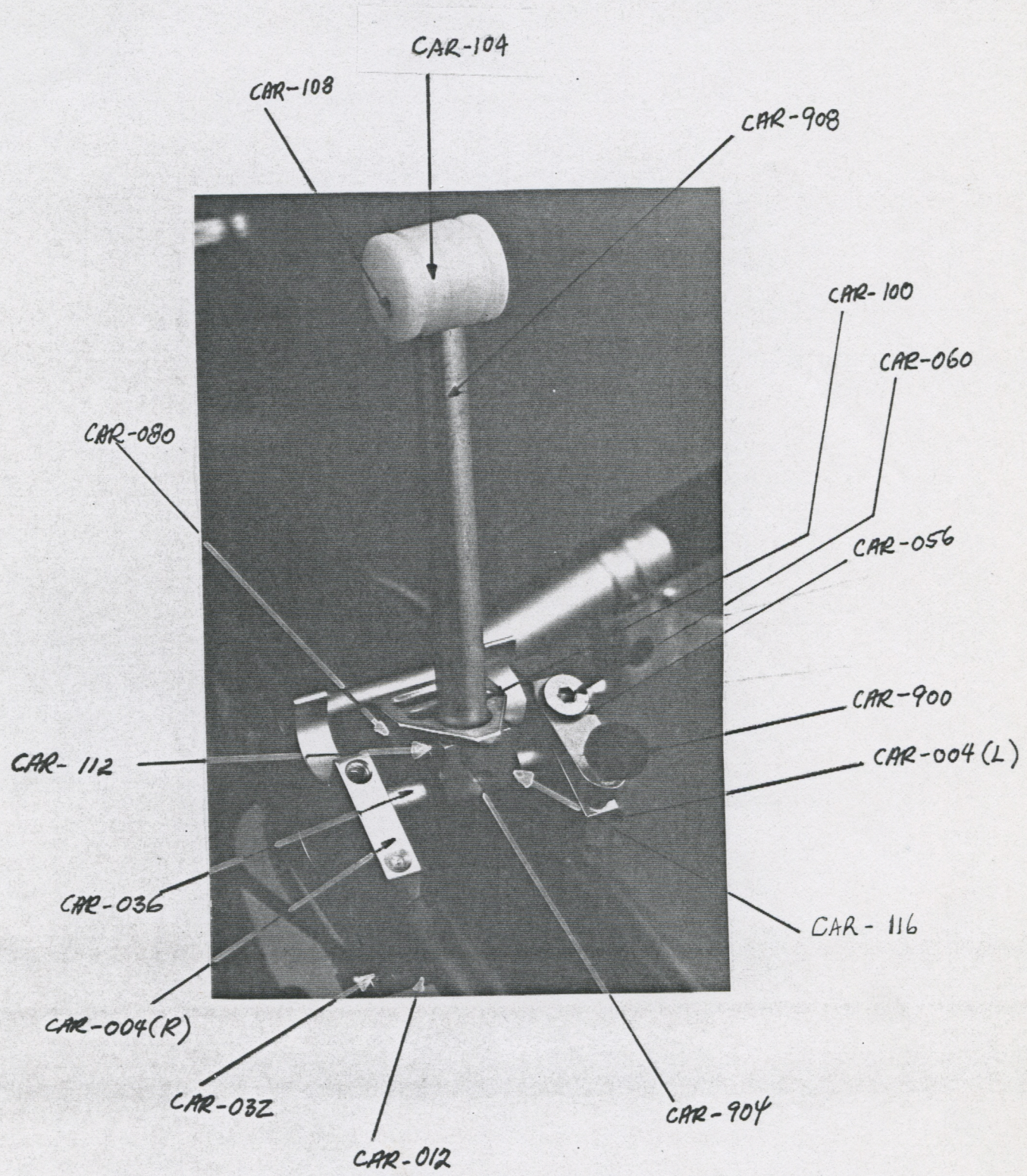
BRA-012

BRA-016



BRA-020

<u>Order #</u>	<u>Description</u>	<u>Sold by</u>	<u>Quantity needed per unit</u>	<u>Price</u>
CAR-004(R)	Side carriage plate (right side)	Piece	1 Piece	\$16.91
CAR-004(L)	Side carriage plate (left side)	Piece	1 Piece	16.91
CAR-008(R)	Extended side carriage plate for tall riders (right side)	Piece	1 Piece	21.74
CAR-008(L)	Extended side carriage plate for tall riders (left side)	Piece	1 Piece	21.74
CAR-012	Bottom carriage plate	Piece	1 Piece	11.95
CAR-032	Carriage clamp screws	Piece	8 per Set	.50
CAR-036	Carriage side plate spacers	Piece	1 Pair	1.21
CAR-056	Seat clamps	Piece	1 Pair	3.02
CAR-060	Seat clamp pivot screws	Piece	1 Pair	.85
CAR-080	Seat horn pivot block pad	Piece	1 Piece	.35
CAR-100	Seat horn buckle	Piece	1 Piece	4.71
CAR-104	Seat horn knob	Piece	1 Piece	3.26
CAR-108	Seat horn knob roll pin	Piece	1 Piece	.25
CAR-112	Seat horn pivot block roll pin	Piece	1 Piece	.25
CAR-116	Seat horn pivot block O-rings	Piece	1 Pair	.65
CAR-900	Seat clamp tension screw with knob	Assembly	1 Assembly	1.21
CAR-904	Seat horn pivot block with bushings	Assembly	1 Assembly	22.85
CAR-908	Seat horn tube with plug	Assembly	1 Assembly	5.43



Order #	Description	Sold by	Quantity needed per unit	Price
DRI-004	Rear derailleur	Piece	1 Piece	\$ 39.84
DRI-008	Front derailleur	Piece	1 Piece	25.66
DRI-012	End shifters with cables	Pair	1 Pair	28.72
DRI-016	Rear derailleur wire, 46 $\frac{1}{2}$ " (1.18 m)	Piece	1 Piece	2.35
DRI-020	Front derailleur wire, 48" (1.22 m)	Piece	1 Piece	2.35
DRI-024	Rear derailleur cable housing, 40 $\frac{1}{2}$ " (1.03 m), stainless steel	Piece	1 Piece	2.65
DRI-028	Front derailleur cable housing, 43" (1.09 m), stainless steel	Piece	1 Piece	2.95
DRI-032	Cable housing end caps	Piece	1 Pair	.25
DRI-052	$\frac{1}{2}$ "x3/32" chains	Pair	1 Pair	17.95
DRI-056	Bottom bracket axle, 1.37"x24T.	Piece	1 Piece	17.08
DRI-060	Lock ring, stationary cup, adjustable cup, 1.37"x24T.	Set (one each per set)	1 Set	18.64
DRI-064	Crank fastening bolts and washers	Set (two each per set)	1 Set	3.25
DRI-068	Bottom bracket axle steel balls	Container	1 Container	1.95
DRI-072	Right crank (with dust cap and pedal washer), 170 mm, 9/16"x20T.	Piece	1 Piece	35.78
DRI-076	Left crank (with dust cap and pedal washer), 170 mm, 9/16"x20T.	Piece	1 Piece	26.42
DRI-080	53 teeth chainwheel	Piece	1 Piece	18.95
DRI-084	49 teeth chainwheel	Piece	1 Piece	17.08
DRI-088	34 teeth chainwheel	Piece	1 Piece	10.86
DRI-092	Bolts, spacers and nuts to connect chainwheels	Set (5 bolts, 10 spacers and 5 nuts)	1 Set	4.64
DRI-112	Pedals	Pair	1 Pair	85.38
DRI-116	Toe clips clips	Pair	1 Pair	6.95
DRI-120	Leather toe straps	Pair	1 Pair	5.75

<u>Order #</u>	<u>Description</u>	<u>Sold by</u>	<u>Quantity needed per unit</u>	<u>Price</u>
DRI-124	Pedal reflectors, bolt-on type	Set (4 per set)	1 Set	\$ 4.50
DRI-128	Pedal reflector suspension straps	Piece	1 Pair	2.50
DRI-900	Triple chainwheel (53-49-34 teeth) complete with 170 mm cranks, bottom bracket axle, cups and lock ring, 1.37"x24T.	Assembly	1 Assembly	Price upon request

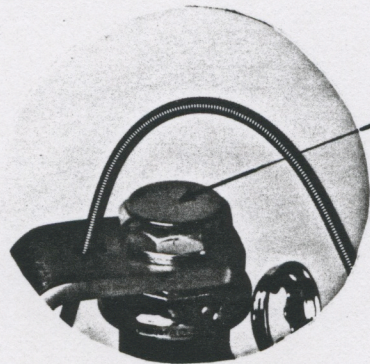
<u>Order #</u>	<u>Description</u>	<u>Sold by</u>	<u>Quantity needed per unit</u>	<u>Price</u>
FEN-008	Fender stays, rear	Piece	2 Pairs	\$.45
FEN-012	Fender stays, front	Piece	1 Pair	.45
FEN-016	Fender stay adjustment lug and nut	Set (one each per set)	3 Sets	.45
FEN-900	Full fenders complete with stays	Set	1 Set	29.95
FEN-904	Front fender stay screws with external lock washers	Set (two each per set)	1 Set	.95
FEN-908	Front fender tab screw, nut and external lock washer	Set (one each per set)	1 Set	.95
FEN-912	Rear fender stay screws	Set (two each per set)	1 Set	5.28

<u>Order#</u>	<u>Description</u>	<u>Sold by</u>	<u>Quantity needed per unit</u>	<u>Price</u>
FOR-900	Fork complete with all necessary fittings, painted	Assembly	1 Fork	\$139.71
FRA-004	Bottom bracket inside plugs	Pair	1 Pair	.95
FRA-008	Bottom bracket outside plugs	Pair	1 Pair	1.50
FRA-012	Seat tube plug	Piece	1 Piece	1.50
FRA-016	Head tube plug	Piece	1 Piece	1.30
FRA-020	Rectangular cable housing grommets	Piece	1 Pair	.25
FRA-040	Rear brake straddle wire rollers	Set (two per set)	1 Set	1.95
FRA-044	Front brake straddle wire rollers	Set (two per set)	1 Set	1.95
FRA-048	Roller pins, rear	Set (two per set)	1 Set	.50
FRA-052	Roller pins, front	Set (two per set)	1 Set	.65
FRA-068	Kickstand	Piece	1 Piece	3.69
FRA-072	Head set complete, 1"x24T.	Set	1 Set	24.95
FRA-900	Frame complete with head set and all necessary fittings, painted	Assembly	1 Frame	796.47

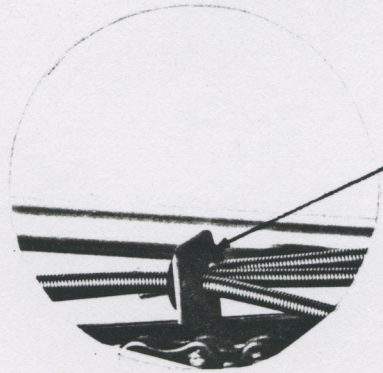
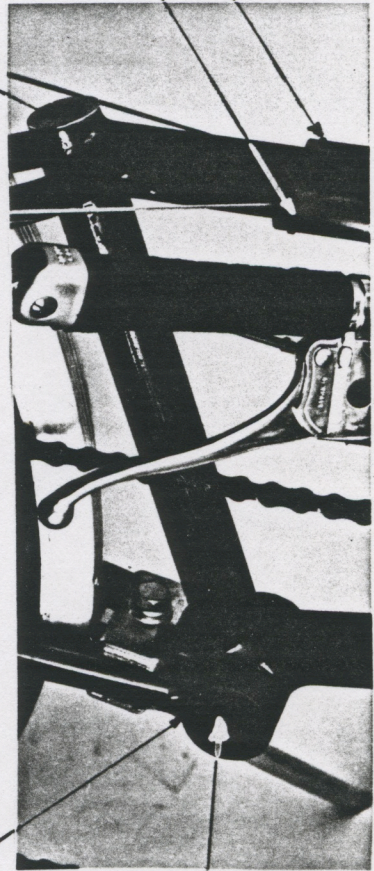
FRA-012

FRA-040
(NOT SHOWN) - INSIDE TUBE

FRA-048



FRA-016



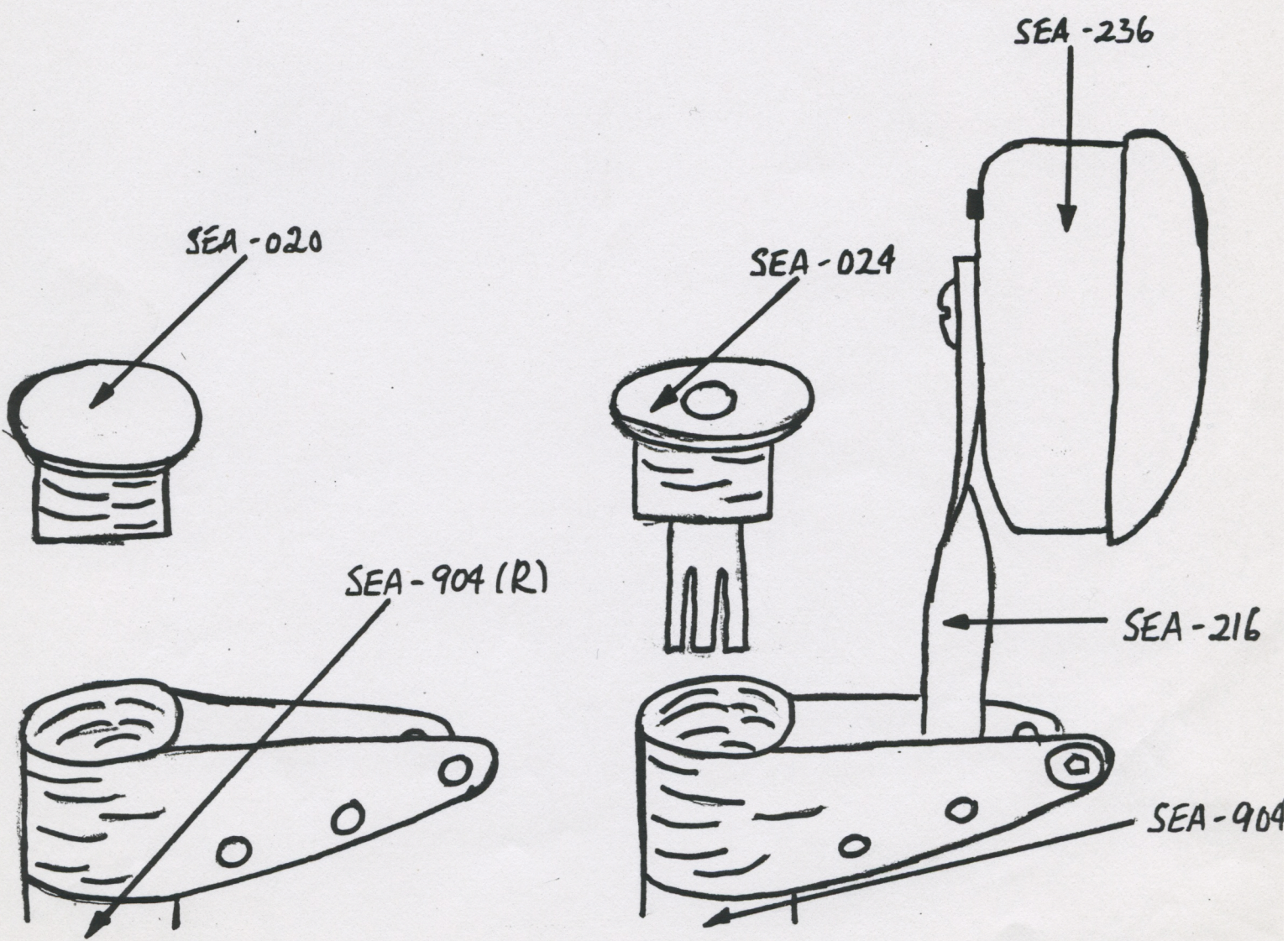
FRA-020

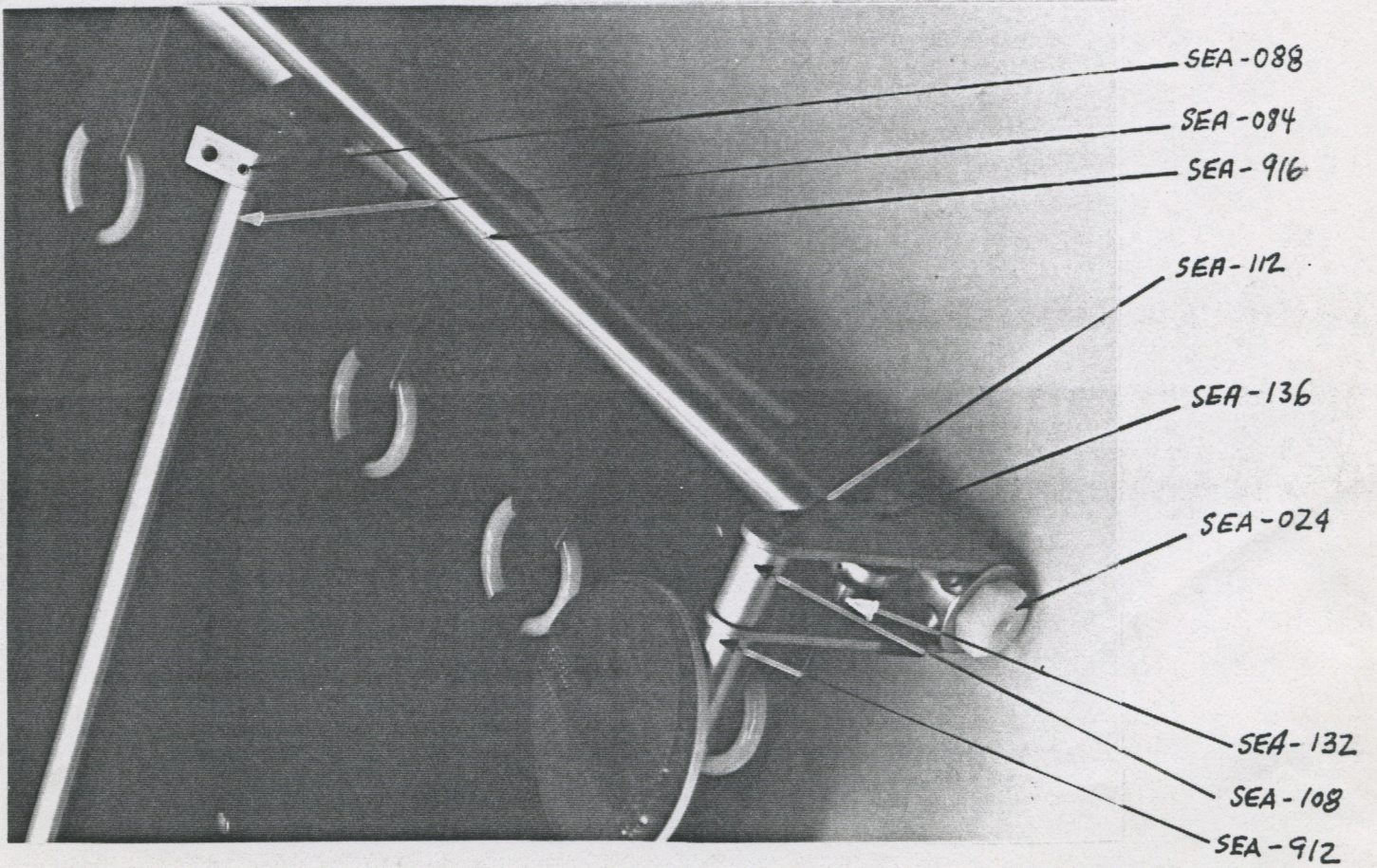
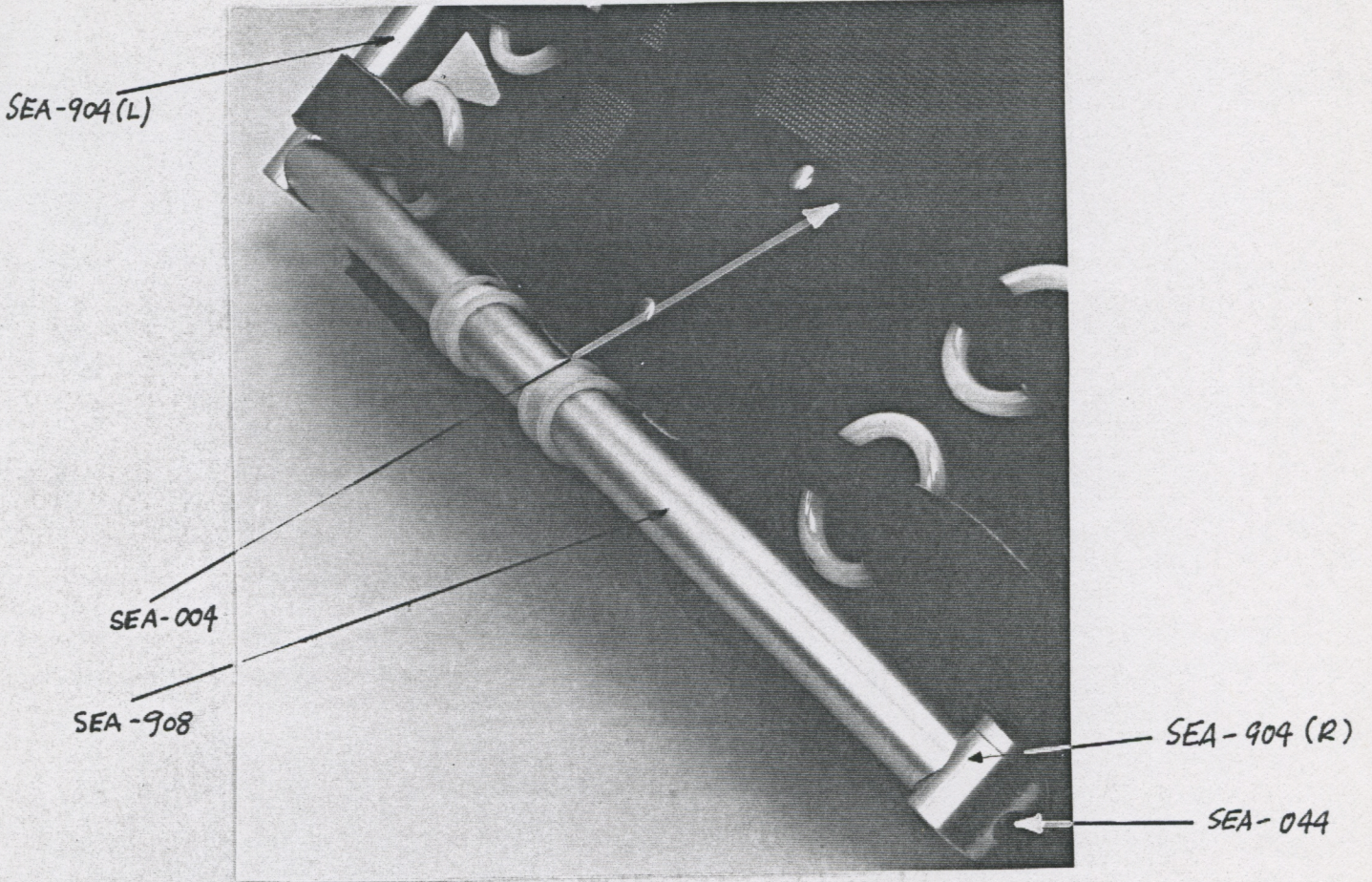
FRA-004

FRA-008

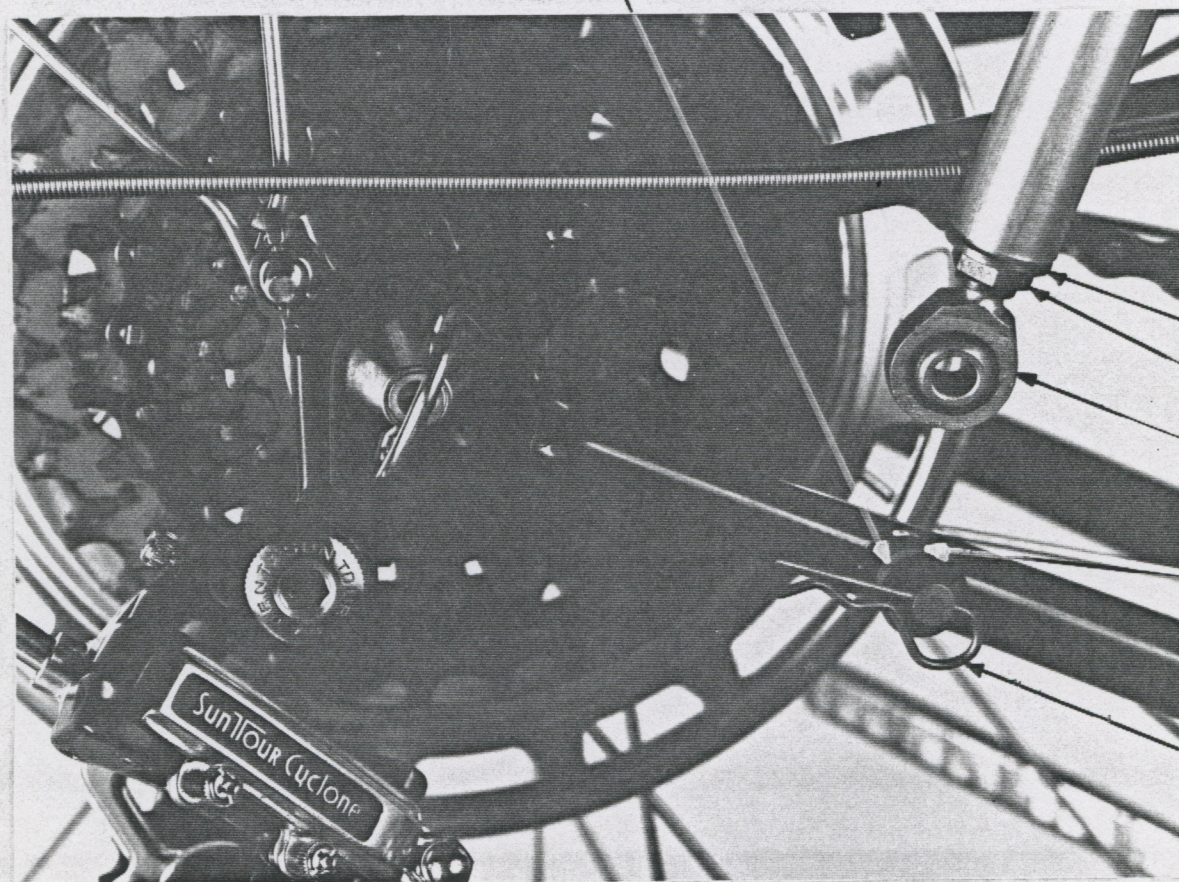
Order #	Description	Sold by	Quantity needed per unit	Price
SEA-004	Cross strap	Piece	6 Pieces	\$.95
SEA-020	Frame side tube cover	Piece	1 Piece	2.95
SEA-024	Flag holder	Piece	1 Piece	6.95
SEA-044	Lower frame cross brace screw	Piece	1 Pair	.75
SEA-084	Middle frame cross brace	Piece	1 Piece	6.95
SEA-088	Middle frame cross brace roll pins	Pair	1 Pair	.50
SEA-108	Upper frame cross brace spacers	Pair	1 Pair	1.95
SEA-112	Upper frame cross brace screw	Piece	1 Piece	1.98
SEA-132	Upper seat support spacers	Set (four per set)	1 Set	3.95
SEA-136	Upper seat support roll pins	Pair	1 Pair	1.95
SEA-156	Seat support rod end bearing	Piece	4 Pieces	4.56
SEA-160	Seat support washers	Set (four per set)	1 Set	.85
SEA-164	Seat support nut	Piece	1 Pair	1.25
SEA-168	Seat support stud flat washers	Pair	1 Pair	.25
SEA-172	Seat support stud rubber washers	Pair	1 Pair	1.25
SEA-176	Seat support retaining pins	Pair	1 Pair	.95
SEA-196	Safety flag	Piece	1 Piece	3.95
SEA-216	Flasher bracket	Piece	1 Piece	3.62
SEA-236	Flasher unit	Piece	1 Piece	14.95
SEA-256	Red rear reflector	Piece	1 Piece	1.95
SEA-260	Clamp for rear reflector	Piece	1 Piece	.25
SEA-900	Seat cover complete without cross straps	Assembly	1 Cover	127.66
SEA-904(R)	Frame side tube (right side) with upper support mount, swage nuts, lower plug and middle cross brace mount - without frame side tube cover	Assembly	1 Assembly	56.75
SEA-904(L)	Frame side tube (left side) with upper support mount, swage nuts, lower plug and middle cross brace mount - without flag holder	Assembly	1 Assembly	56.75

Order #	Description	Sold by	Quantity needed per unit	Price
SEA-908	Lower frame cross brace with plugs and locator bushings	Assembly	1 Assembly	\$24.15
SEA-912	Upper frame cross brace with plugs	Assembly	1 Assembly	8.65
SEA-916	Seat support with plugs	Assembly	1 Assembly	14.35
SEA-920	Seat support extensions for tall riders	Assembly (Pair)	1 Assembly (1 Pair)	17.51
SEA-924	Flasher bracket screw with split lock washer	Set (one each per set)	1 Set	.50





SEA-168



SEA-160

SEA-164

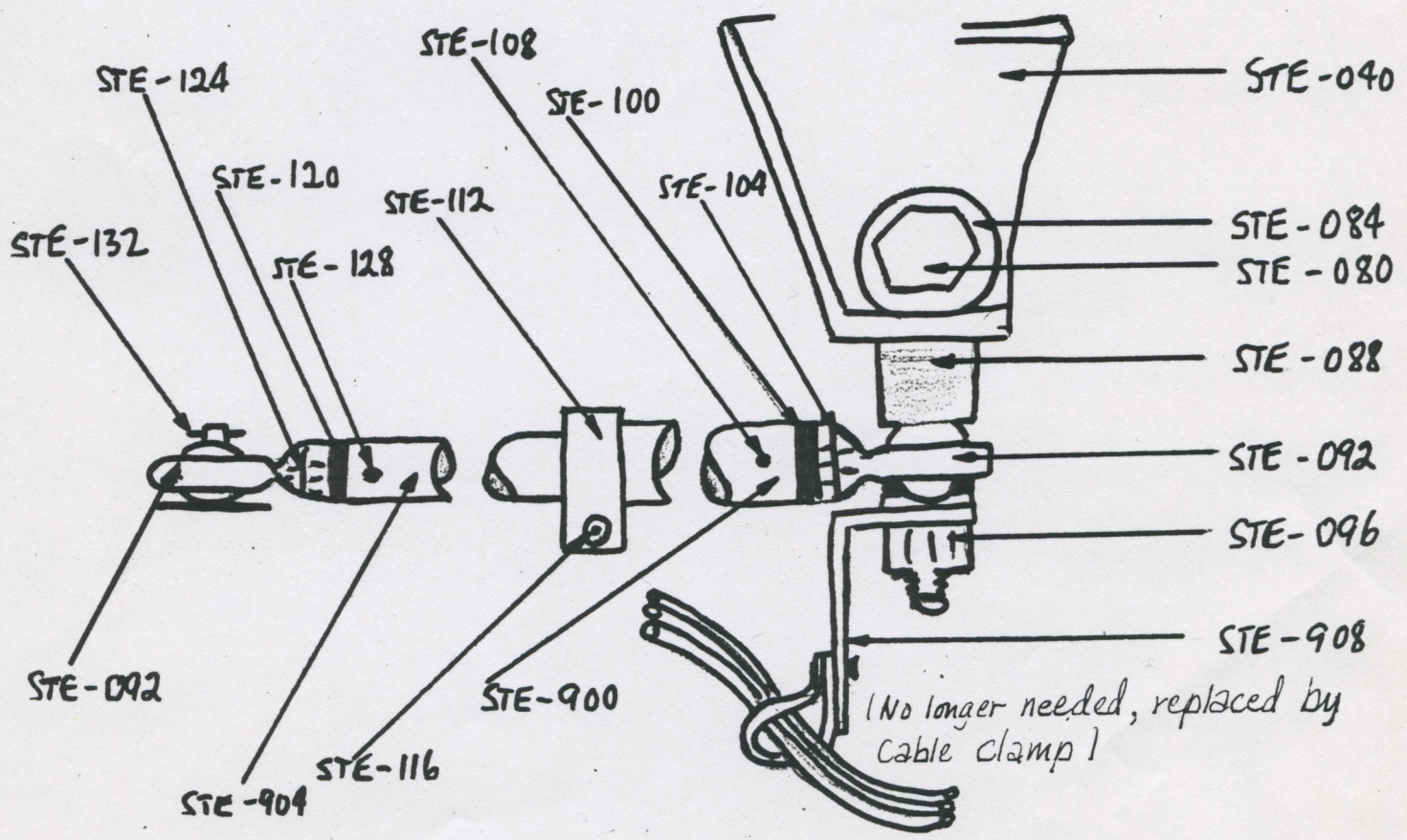
SEA-156

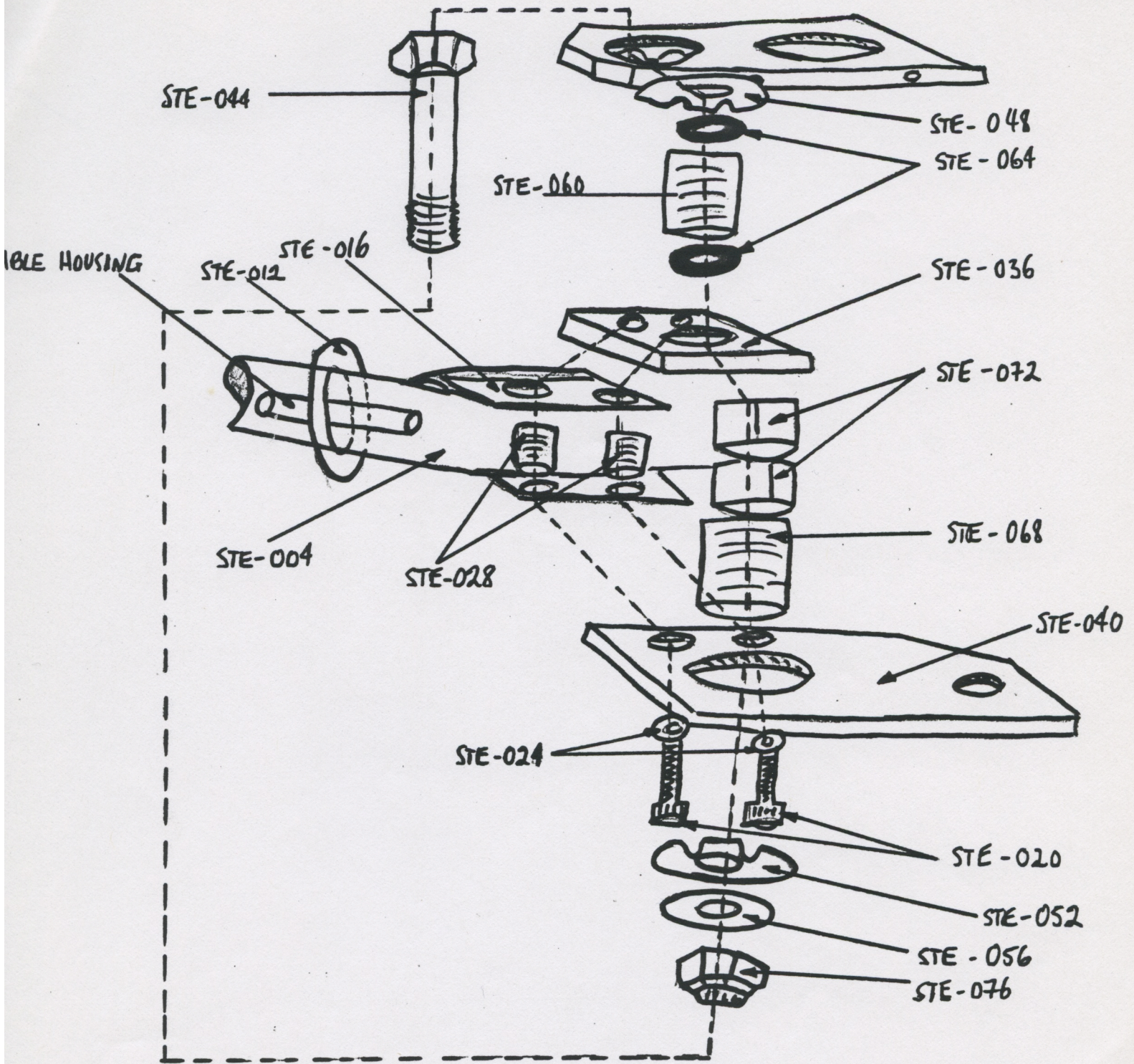
SEA-172

SEA-176

Order #	Description	Sold by	Quantity needed per unit	Price
STE-004	Handlebar	Piece	1 Piece	\$13.15
STE-008	Handlebar tape	Roll	1 Roll	1.64
STE-012	Cable housing retainer	Pair	1 Pair	1.05
STE-016	Handlebar clamp	Piece	1 Piece	6.95
STE-020	Handlebar clamp bolt	Piece	1 Pair	.60
STE-024	Handlebar clamp bolt washer	Piece	1 Pair	.15
STE-028	Handlebar clamp spacer	Piece	1 Pair	1.40
STE-036	Upper steering arm	Piece	1 Piece	7.95
STE-040	Lower steering arm	Piece	1 Piece	9.95
STE-044	Handlebar pivot bolt	Piece	1 Piece	1.58
STE-048	Upper handlebar pivot thrust washer	Piece	1 Piece	2.95
STE-052	Lower handlebar pivot thrust washer	Piece	1 Piece	2.95
STE-056	Handlebar pivot flat washer	Piece	1 Piece	.30
STE-060	Handlebar pivot bushing axle	Piece	1 Piece	2.95
STE-064	Handlebar pivot bushing axle spacer	Piece	1 Pair	.65
STE-068	Handlebar pivot bushing retainer	Piece	1 Piece	2.25
STE-072	Handlebar pivot bushings	Pair	1 Pair	7.40
STE-076	Clinch nut for handlebar pivot bolt	Piece	1 Piece	1.95
STE-080	Steering rod end bearing bolt	Piece	1 Piece	1.17
STE-084	Steering rod end bearing bolt flat washer	Piece	1 Piece	.30
STE-088	Steering rod end bearing spacer	Piece	1 Piece	.95
STE-092	Steering rod end bearing	Piece	1 Pair	12.95 15.00
STE-096	Clinch nut for steering rod end bearing bolt	Piece	1 Piece	1.25
STE-100	Large diameter steering rod washer	Piece	1 Piece	.20
STE-104	Large diameter steering rod nut	Piece	1 Piece	1.25
STE-108	Large diameter steering rod roll pin	Piece	1 Piece	.20
STE-112	Steering rod clamp	Piece	1 Piece	9.95

Order #	Description	Sold by	Quantity needed per unit	Price
STE-116	Steering rod clamp bolt	Piece	1 Piece	\$.95
STE-120	Small diameter steering rod washer	Piece	1 Piece	.20
STE-124	Small diameter steering rod nut	Piece	1 Piece	1.25
STE-128	Small diameter steering rod roll pin	Piece	1 Piece	.20
STE-132	Fork stud roll pin	Piece	1 Piece	.20
STE-900	Large diameter steering rod with threaded plug	Assembly	1 Assembly	23.61
STE-904	Small diameter steering rod with threaded plug	Assembly	1 Assembly	23.61
STE-908	Cable clamp Cable guide	Piece Assembly	1 Piece 1 Assembly	.25 5.37





Order #	Description	Sold by	Quantity needed per unit	Price
WHE-004	Front wheel spoke, stainless steel	Piece	36 Pieces	\$.30
WHE-008	Rear wheel spoke, stainless steel	Piece	36 Pieces	.30
WHE-012	Low-flange hubs, quick-release, 36 holes	Pair.	1 Pair	96.48
WHE-016	16"x13/8" alloy clincher rim	Piece	1 Piece	17.62
WHE-020	27"x1 1/4" alloy clincher rim	Piece	1 Piece	22.82
WHE-024	16" rim strip	Piece	1 Piece	.60
WHE-028	27" rim strip	Piece	1 Piece	.80
WHE-032	16"x13/8" front tire	Piece	1 Piece	8.95
WHE-036	27"x1 1/4" rear tire	Piece	1 Piece	9.95
WHE-040	16"x13/8" front tube, Schrader valve	Piece	1 Piece	3.95
WHE-044	27"x1 1/4" rear tube, Schrader valve	Piece	1 Piece	3.95
WHE-048	Freewheel, seven sprockets (13-15-17-19-21-26-32 teeth)	Piece	1 Piece	(Price quote upon request)
WHE-052	Alloy spoke protector	Piece	1 Piece	2.95
WHE-056	Spoke reflectors	Pair	1 Pair	3.50
WHE-900	Front wheel complete less tire, tube, rim strip and spoke reflector	Assembly	1 Wheel	87.30
WHE-904	Rear wheel complete less tire, tube, rim strip, spoke reflector, spoke protector and freewheel	Assembly	1 Wheel	97.86

(b) Terms:

- (1) Prices are understood to be Suggested Retail, F.O.B. Wilmington, Massachusetts (U.S.A.), in U.S. currency, and subject to change without notice.
- (2) In order to minimize our overhead and maximize our efficiency which benefits you as well as us, we do not extend credit and require advanced payment or C.O.D.
- (3) If you choose to submit advanced payment, a money order or certified check will expedite delivery. In accepting your personal check, however, we reserve the option to wait for clearing through your bank before we ship your order - a procedure which may take up to fifteen business days.
- (4) We must, by law, charge Massachusetts residents 5% sales tax.
- (5) For orders totalling less than \$5.00, please add a \$2.00 handling charge.
- (6) We send only one invoice which will be enclosed in the package. Please save it for your reference purposes.
- (7) Unless otherwise instructed, with the exception of the frame and the rear wheel, all orders shipped to domestic destinations will be via UPS, all orders shipped to foreign destinations will be shipped via parcel post.
- (8) If, for whatever reasons, you have to return the entire order or parts of it, please do so only after we have given you an authorized return number.
- (9) If ordered item(s) is (are) temporarily out of stock, you will promptly be notified to that effect, along with an anticipated delivery date.
- (10) PLEASE ORDER ITEM(s) BY NUMBER.

(c) Order procedure:

Option 1 - The speediest way for you to receive your parts and components is to call us. We will price your order right over the telephone and will promptly ship it C.O.D. (Merchandise plus Freight).

Option 2 - The next speediest way for you to receive your parts and components is to mail us your order and instruct us to ship it C.O.D. (Merchandise plus Freight). Please keep in mind that economic trends may have forced us to revise our prices upward in which case you will find a discrepancy between the prices charged at the time of your order and the prices originally attached to the Owner's Manual.

Option 3 - A less expedient but nevertheless feasible way for you to receive your parts and components is to first mail us a request for a current price list which we will mail you promptly. You now would have the assurance that the prices charged are indeed up-to-date. Then, simply calculate the total amount and send us your advanced payment with your order in which case we will promptly ship the item(s) C.O.D. (Freight only) or: Do not send us advanced payment with your order in which case we will promptly ship the item(s) C.O.D. (Marchandise plus Freight).

(E.) MAINTENANCE PROCEDURES

(a) Relating to conventional components:

Those mechanisms which are also found on conventional, derailleur-equipped bicycles require maintenance which can be performed by your local bicycle shop or, if you so feel inclined, by yourself. For guidelines, you can draw on several excellent publications which you may obtain from your local library or purchase from the publishers who frequently advertise in BICYCLING. If you have no access to this magazine, please write to: BICYCLING, 33 East Minor Street, Emmaus, Pennsylvania 18049. We therefore do not see the necessity of comprehensively dwelling on the maintenance aspects related to conventional bicycle components - other than the adjustment of the brakes, along with some general tips.

CAUTION: Brakes are considered unsafe if, with the levers not squeezed, the distance between the rubber braking and rim surfaces is more than 1/16" (0.16 cm) in which case you should immediately take corrective action. To ride the bicycle under the above condition may cause an accident and possible injury.

To adjust the brakes, applying two 9 mm open-end or box wrenches and a "third" hand, proceed as follows:

- (1) Apply the "third" hand across the brake shoes which takes the tension out of the brake and straddle wires.
- (2) Loosen the lock nut on the brake cable adjuster and raise the adjuster by rotating it clockwise several turns; then, tighten the lock nut. Take off the "third" hand and check whether or not the distance between the rubber braking and rim surfaces is now within the 1/16" (0.16 cm) range, and the wheel still turns freely. If not, manipulate the brake cable adjuster accordingly.
- (3) If the brake cable adjuster is turned up all the way, but not threaded out of the lug, and the distance between the rubber braking and rim surfaces is still in excess of 1/16" (0.16 cm), turn down the brake cable adjuster all the way and, with two 9 mm open-end or box wrenches, either reclamping the triangle tying into the straddle wire or the straddle wire binder bolt assembly which pulls the left brake shoe assembly against the side of the rim.

Some general tips:

- (1) A bent or otherwise damaged fork and/or frame should either be replaced or repaired by a qualified source. By the same token, bent or otherwise damaged components, of which the crank arms, chainwheels, derailleurs and pedals are the most critical, should be replaced.

CAUTION: Never attempt to repair the above items by straightening. To do so, will, among other things, cause fatigue which may cause failure and, in turn, an accident and possible injury.

- (2) If the wheels wobble, true them or have them trued but, most important, determine the cause and eliminate it.
- (3) At least once every two weeks - more often if you ride extensively - check all nuts and bolts for tightness and inspect all hardware to detect possible wear and tear.

- (4) Keep the tire pressure at recommended levels. Especially higher pressure-rated tires, even in the absence of a puncture, "bleed" off some air. Please keep in mind that by occasionally replenishing these "bleeding" losses, you are directly aiding your own efforts to propel the bicycle, because you are lowering the rolling resistance of the tires. When storing the bicycle, do not let it rest on uninflated or underinflated tires; instead, suspend it off the ground, otherwise your tires will develop cracks.
- (5) Occasionally and sparingly oil the following components by applying a lightweight, all-purpose oil or other equivalent lubricant:

Chain

- Moving parts of both derailleurs
- Brake wires inside cable housing
- Derailleur wires inside cable housing
- Brake shoe assembly pivot bushing
- Freewheel

- (6) When lubricating the chain, please keep in mind that oiling the outside of the outer link plates is not functional - it only attracts road dirt and grit in addition to soiling your legs and clothing. Instead, selectively apply the lubricant to the most needed areas of the chain - namely, the outer link pins and the inner link bushings. A disposable hypodermic, for instance, facilitates such selective application. In addition, the frequency being dictated by road conditions and extensity of use, the chain should occasionally be thoroughly cleaned with a suitable solvent to remove dirt and grit which, if not removed, even if chain is well lubricated, will prematurely introduce wear and tear.
- (7) The other moving components are prepacked in grease - components such as the bottom bracket axle, the head set, the pedal shafts and the hub axles - should occasionally be cleaned and repacked - in intervals dictated by road conditions and extensity of use.
- (8) Paint scratches can easily be covered up by any commercially available, automotive touch-up paint.

(b). Relating to unconventional components:

By definition, we classify all parts and components pertaining to the seat, steering and carriage assemblies as unconventional. As opposed to the conventional components, they require a much lesser degree of maintenance attention.

- (1) A bent or otherwise damaged component should be replaced.

CAUTION: Never attempt to repair a bent or otherwise damaged component by straightening it. To do so, will, among other things, cause fatigue which may cause failure and, in turn, an accident and possible injury.

- (2) At least once every two weeks - more often if you ride extensively - check all nuts and bolts for tightness and inspect all hardware to detect possible wear and damage.

Please note: After a few weeks of riding - when all components are properly seated in - you may find some up and down play. If this play exceeds 1/16" (1.587 mm), simply tighten the clinch nut for the handlebar pivot bolt until the play is less than 1/16".

- (3) The steering rod end bearings require no maintenance other than a drop of lightweight, all-purpose oil or other equivalent lubricant - once a year.
- (4) If it becomes necessary to remove a part or an assembly which is attached by roll pin, proceed as follows:

Acquire a drive pin punch of appropriate size.

A 1/16" (1.587 mm) drive pin punch for:

Seat horn knob roll pin (1) (CAR-108)

A 3/32" (2.38 mm) drive pin punch for:

Steering rod roll pins (2) (STE-108 and STE-120)

Fork stud roll pin (1) (STE-132)

A 1/8" (3.175 mm) drive pin punch for:

Seat horn pivot block roll pin (1) (CAR-112)

Roller pins, rear (2) (FRA-048)

Roller pins, front (2) (FRA-052)

Middle frame cross brace roll pins (2) (SEA-088)

A 1/4" (6.35 mm) drive pin punch for:

Upper seat support roll pins (2) (SEA-136)

Please note: In an emergency, a screw or nail, approximately the diameter of the roll pin, with the point ground off, can be used in place of a properly-sized drive pin punch.

Back up the piece from which you have to remove the roll pin with a piece of wood or other reasonably soft material and tap out the pin by applying the drive pin punch to either side of the pin.

- (5) To maintain the good appearance of the leather used in the seat cover and to prevent discoloration and hardening of the leather as a direct result of wetness, occasionally but sparingly apply some commercially available leather conditioning solution. There are several good brands on the market.
- (6) Please note: If your AVATAR 2000TM is equipped with a SHIMANO rear derailleur, and, for replacement purposes, you purchase the entire unit from a source other than us, please take the modified (by us) Stopper Plate from the old unit and transfer it to the new one. The Stopper Plate is identified in the enclosed manufacturer's service instructions.