

# Bike Riders



**Aids '76**

The Holdsworth Co Ltd

UK Price  
25p

W. F. HOLDSWORTH Ltd.  
 Cycle Sport Specialists  
 55 HIGH STREET  
 PENGE, LONDON, SE20 7HW  
 TELEPHONE: 01-778 7714

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## ANKLE SOCKS

**WHITE.** Nylon stretch with smart castellated ribbing. Plain, soft underfoot ensures comfortable pedalling. Elasticated top prevents wrinkling. One size, 10-11 1/2 only. 0.41

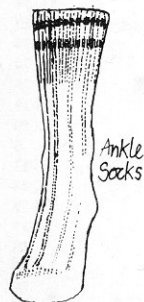
**DECORATED.** White heavy ribbed nylon with red and blue bands at top. Elasticated, padded foot, will last seasons. 0.65

## RACING CAPS

**CAMPAGNOLO.** For sporting occasions in yellow tailored cotton, elasticised with black signature on sides. Underpeak carries the same superimposed across the world championship rainbow. One size fits all heads. 0.65

**BANDED.** In various colours and elastic back, one size only, white or colours as available. 0.58

**HOLDSWORTH.** Well-tailored from a rayon-cotton mixture to give hard wear. Orange with blue contrasts in one size only, elastic back. 0.58



Ankle Socks



Campagnolo Racing Cap



Holdsworth Team

**HOLDSWORTH TEAM.** As above, but printed under peak and on sides, worn in Continental and British races. 0.70  
**WHITE SPORTS:** Plain, popular with tourists. 0.54

## TRAINING CAPS

**BOBBLE HAT.** Suitable for all outdoor sports. 100% Orlon in colours, plain or banded. Can be rolled over ears. 1.35

**BELGE WARM-UP.** Woollen with fashionable full-width contrasting ribbed section fitting snugly over ears. Contrasting colours, including the familiar Holdsworth orange and blue. Six-panel top reinforced peak, in one size only. 2.59

## CAPES

**SUPER QUEL.** A full size 17oz cape in translucent plastics with welded seams and neck gusset, fastened by quick-action Velcro. An 8in triangle of fluorescent orange on the back means you won't be missed in bad weather. Thumb ties to hold the front down. 48in only. 3.64



Warm up

**QUELSAFE:** Less than 16oz but generously cut to cover bars and bag, it packs flat or rolls tightly. Tough satin-finished in Dayglo orange or yellow plastics. Double-stitched seams and thumb loops with inside fastening 6in zip. 45in, 42in and 39in (junior). 48in.

2.49

2.59

**QUEL-PLAS JACKET.** Translucent plastics, with full-length Velcro that means no fiddly buttons. Loose under the arms, with elasticated wrists, one size fits 36-42in chests.

3.72

**QUEL-PLAS JUNIOR.** Identical, but for 32-36in chests.

2.70

**MARSHAL'S APRON.** Be seen and not hurt in tough orange Dayglo apron with adjustable side fastenings. Put one in the car for road side repairs or marshalling. With blue Campagnolo signature (1.40) or plain (1.15). One size.

**PLAS-STICK.** A patch in time . . . this handy tube of solution and transparent patching will soon remedy small tears in most plastics.

0.08

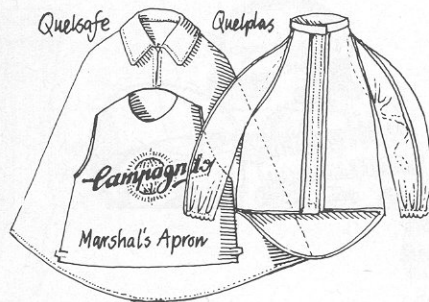
## CRASH HATS

**DANSK ROAD.** Danish styling, hand-finished to low profile with absorbent leather lining. Holdsworth orange/blue, or black, or to order your choice of colour, minimum order 6. Sizes 54-61mm.

5.75

**DANSK TRACK.** As Dansk road, but heavier design.

6.90



**LETTERING.** Extra on road or track. Holdsworth or to your choice, minimum order 6. Complete hats.

7.94

**VIGORELLI.** Superb Italian crash hat regularly used on road or track. Front and rear pads, padded cross member and ear straps, give extra protection. Medium weight, black, in sizes 54-61mm (57 is approx 6 7/8).

3.73

**FAUSTO.** A lighter Italian hat for comfort during long races. Padded bars give good protection. 54-61mm.

2.81

**VARNISHED FAUSTO.** Patent black, favoured by pros.

2.89

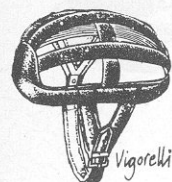
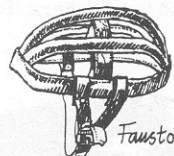
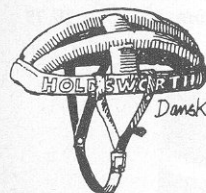
## GLOVES

**WORTHY COTTON.** Attractive black/grey fleck with contrasting wrist band, and warm inner fleecy lining. Washable, small, medium or large.

1.10

**WORTHY LEATHER PALM.** Be sure your hand signals can be seen! New-style gloves, as above but with supple tan leather palms and thumb and fluorescent Dayglo backs for safety. Small, medium, large.

2.45





## SHOES

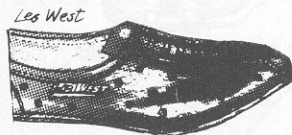
**LES WEST.** At last, a British-made champion's shoe properly-shaped and reinforced for hard road racing. Only 20oz a pair including plates, they are based on a double-tapered leather sole cut on a British-width last. A steel insert braces the sole, which has eight drain-holes. Full-chrome black leather uppers have a strong arch support stitched in, and are neatly perforated. The long tongue is fully padded for comfort and the heel reinforcement pulled round for firm close fit. A thick sponge-and-fibre lining pads the shaped sole to reduce fatigue in long events. Les West flash on sides. Sizes 5-11.

10.49

## CRODONI SHOES

**CLASSICA.** Sturdy and supple road shoe combining the best ideas for comfort in hard racing. Double leather sole with reinforcing plate is carefully shaped to minimise fatigue, perforated to cool the feet or drain water. The leather uppers and tongue are also perforated attractively for style and foot freshness. Black, sizes 40-46mm.

10.75



**CORSA.** A carefully-crafted Italian shoe with the neat appearance of a class product. Full chrome uppers, highly polished with no perforations and long all-leather Italian-last soles which need a long shoe plate. Black, sizes 38-48mm.

9.02

**CAMPIONE.** Another fine example from Italian craftsmen. Full-chrome uppers triple-perforated with close-rolled edges, tiny lace holes. Full-length Italian-last leather soles are unreinforced and a long shoe plate is recommended. Black, sizes 38-48mm.

9.66

**BOOTEE.** Beautifully-shaped for club or town riding, water-resistant with simulated fur lining. Chrome leather uppers cover the ankle but the throat is cut back to leave tendon free. Hard-wearing Viklite sole carries a medium heel and is completely waterproof. Shoe plates not advised. Sizes 5-12 in halves.

10.26

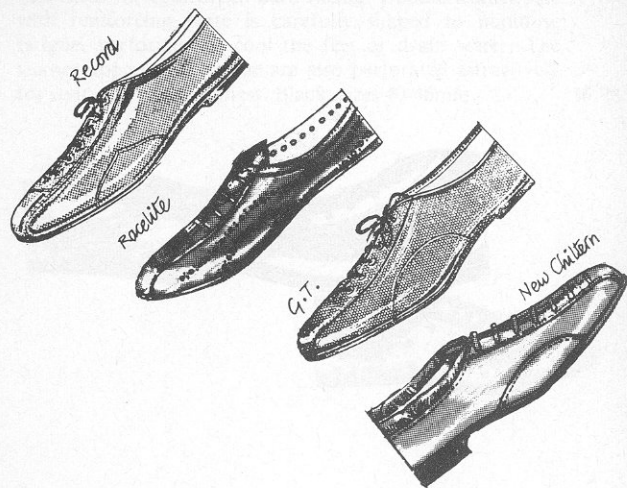


**RECORD.** A tough, supple black leather makes a first-class all-rounder, trimmed in wine colour. Heel and toe reinforced, with a triangular pedal patch. Single leather sole, light heel. Sizes 2-12 in halves.

**GRAND TOUR.** A well-shaped full-chrome black upper with tan trimming. Laced down to a deep-cut toe via brass eyelets. Large curved pedal patch, cork insole. Plates not recommended on this resin sole; horseshoe heel. Sizes 5-12.

**NEW CHILTERN.** Ultimate touring shoe comfort from the padded ankle line which fits snugly to the foot, complementing the all-leather sole and upper. This tourists' shoe is generously cut on a broad fitting, with cork inner sole. Heel, toe, reinforced, and the tongue padded, and a pedal patch fitted. Sizes 5-12 in halves.

**RACELITE.** A quality medium-weight heel-less light-soled shoe for the roadman or tester, with black Italian-style all-leather uppers, stylishly-perforated. Soft padded inner sole. Sizes 5-12 in halves



9.07

8.37

9.72

9.61

## ACCESSORIES

**NAILS.** Bikit square  $\frac{3}{4}$ in, 26 in plastics envelope.

0.09

**SHOELACES.** Tough, 30in long for cycling shoes.

0.05

### SHOEPLATES

**Peters Archambaud.** Alloy blocks riveted to steel plate drilled for nails; deep slots.

0.50

**Archambaud pro.** Long curved plate for arch support.

0.70

**Peters Dural.** Light alloy moulded plate, ready-drilled.

0.43

**Cinelli Unibloc 2000.** Designed and moulded in nylon to fit Campagnolo pedals. Supplied with fixing screws to fit over the barrel rather than the plates for really rigid control.

1.50

**TA Criterium.** Alloy blocks.

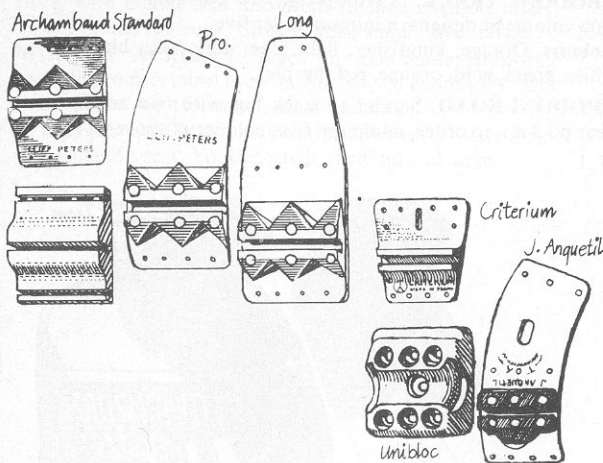
0.79

**TA Anquetil Road.** Alloy blocks riveted to steel plate, long for arch support.

1.10

**Track.** Similar but with short steel plate.

1.10



## JERSEYS

**BELGE ROAD.** Well-tried non-shrink Leacril, soft and easy to wash. Fast plain colour orange, with black and white cuff and collar trim, amply long. Two hip and one centre elasticated pockets 4½in deep, non-rusting zip, crew neck. Sizes 2, 3, 4.

8.59

**BELGE ROAD Double banded.** Similar, but carrying double bands in various colours as available. Sizes 1, 2, 3, 4, 5. Team Holdsworth orange and blue, 1 and 5 only.

8.21

**BELGE TEAM.** Identical to the Holdsworth/Campagnolo pro team jersey, with flocked lettering. Sizes 1, 2, 3, 4, 5.

11.23

**SLEEVES.** Wrist length, supplied extra on all jerseys.

1.13

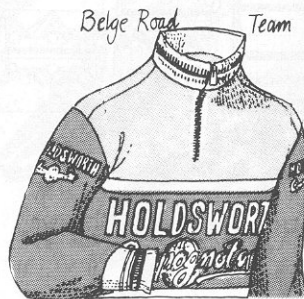
**TRADE.** Famous Continental trade team jerseys, limited supplies. Much coveted by many who build valuable lasting collections when available. Sizes 1, 2, 3, 4, 5.

11.07

**CRODONI TRACK.** Rayon-Nylon, to customer's own club colours or designs, minimum order five.

**Colours.** Orange, kingfisher, light blue, dark blue, black, white, green, gold, orange, red, purple.

**CRODONI ROAD.** Similar to track but with two ample rear pockets, to order, minimum five, colours as above.



## BELGE RACING SHORTS

**BELGE PRO/ROAD.** All-wool, these black shorts have a longer close-fitting leg that grips the thigh firmly and will not ride up. Low front, high back, with triple-stitched thick chamois seat. Sizes 2, 3, 4, 5.

9.72

**BELGE PRO ROAD TEAM.** As above, with Holdsworth/Campagnolo lettering. Sizes 2, 3, 4, 5.

10.37

## WORTHY RACING SHORTS

**WORTHY CONTINENTAL.** Made from a fine, dense all-wool cloth with double-locked seams that lie flat, these are a new introduction. Eight-inch legs, and a 14in back are coupled with an extra-large top quality chamois seat for long life and comfort. A 5½in deep pocket on the hip will hold a small flask. Sizes youths, small, medium and large.

6.48

**WORTHY BRI-NYLON.** Black shorts in man-made 'stretch' fibre, with double seat and multi-stitched chamois insert, which should not ruck. Sizes youths, small, med, large.

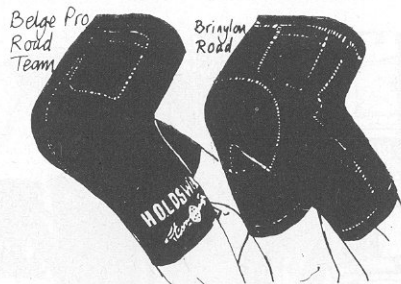
3.75

**WORTHY ACRILAN.** Black in man-made wool-style material comfortable even in hot sticky conditions. One rear pocket. Youths, small, med, and large.

4.48

**WORTHY COTTON.** Medium-priced with a short inside leg. Chamois seat. Youths, small, medium and large.

1.79



## RACING MITTS

**EL RAYADO.** High-quality workmanship in every stitch of these hand-finished mitts made from top-grade chamois with a generous patch. Backs crocheted with contrasting double bands, thumb panel padded. Finger ends are stitch-finished.

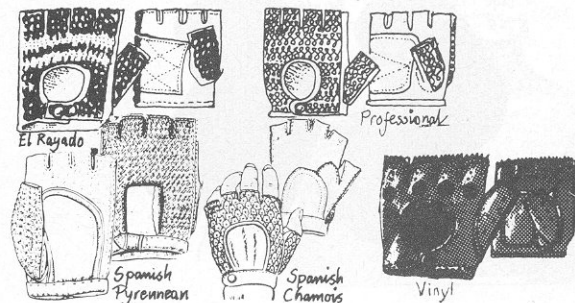
**PROFESSIONAL.** Strong chamois with deep butterfly thumb insert and reinforced palm. Half-fingers stepped for comfort, plain crocheted backs, attractive stud fastening. Red, blue, black, green, yellow or natural. Small, medium, large and extra large.

**SPANISH PYRENEAN.** The generous and comfortable palm takes bumps out of a rough road. Lightweight tough leather with the back in natural crochet, slide-action stud fastening. Small, medium, large, XL.

**SPANISH CHAMOIS.** Plain with deep patch on palm, heavyweight white crochet back, and press stud fastening. Small, medium, large and XL.

**NYLON NET.** Light and low priced. Chamois with nylon net back, easy-washing. Sm., med., L and XL.

**VINYL.** A new concept in cheaper gloves in cotton-backed stretch heavy vinyl that washes easily and remains comfortable. Open backs, stud fastening, perforated fingers, palm cushion. Small, medium, large.



3.10

2.25

2.25

1.94

1.65

1.30

## TRAINING SUITS

**BELGE WARM-UP.** Specially-made in Belgium from heavy-knit acrylic fibre, both tough and easy to wash. Pullover top with 7in zip polo collar, smart enough for casual wear. Legs close-fitting with sewn creases, double seat and zipped back pocket. 7in zips allow legs to be removed with shoes on, extra-deep body with elasticated waist. These suits will last years, various colours with neck and ankle decoration. Continental sizes 46, 48, 50, 52.

19.49

**BELGE TEAM.** With dark blue legs and orange top carrying Holdsworth/Campagnolo lettering. 46, 48, 50, 52.

20.74

**BELGE TEAM TOP.**

10.75

**BELGE PANTALONS.** Latest close-fitting 'overknees' for the year-round rider, in thick warm acrylic fibre. Back 18in deep with 5½in deep zip back pocket. External double seat, three-inch ribbing at knee with contrast bands. Sewn creases, elasticated waist, sizes 2, 3, 4, 5.

8.36

**CRODONI.** Light Bri-Nylon crepe track suit with full-length zipped top and open collar. Deep elasticated waist tops chamois-seated legs with ribbed ankle bands held by 5½in zips. Royal blue, orange or black with white contrast to collar and jacket front. Inset pockets. Sm., med., L, XL.

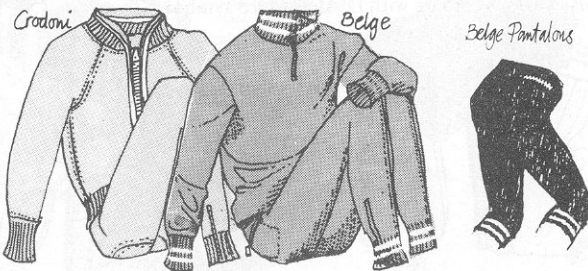
12.15

**CRODONI TOP.**

6.48

**CRODONI LEGS.**

5.67





## TOURING SHORTS

**LIRELLE.** Light washable, with two button-back pockets, two slide. Adjustable waistband, side 'V's in legs for easy movement. Nylon pockets, built-in creases, 28in-40in. Slate, light grey, aubergine, charcoal.

6.75

## VELO-PANTS

**TWEED.** For the all-weather rider who must look smart, in Terylene/wool flecked heavy tweed. Low waist with elastic side adjusters, two slant front, two inset buttoned rear pockets, all of Nylon. Knee bands gusseted with Velcro fastener, legs close-cut. Sizes 28in-40in.

8.64

**LIGHTWEIGHT.** Similar but made from washable Terylene and Sarille. Sewn-in crease, clipped elasticated waistband with grippings. Light grey hopsack finish. 28in-40in.

9.00

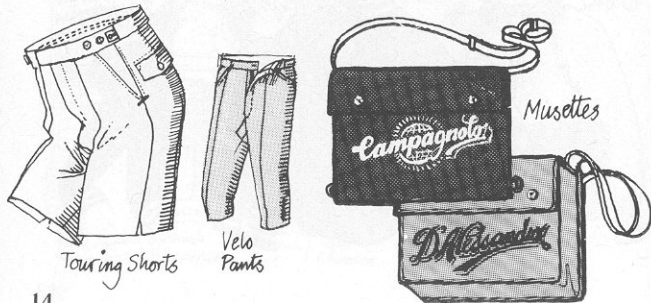
## MUSETTES

**CAMPAGNOLO.** Travel light, yet with maps, tools, sandwiches in this 13in×10in plastics-lined bag. Wide webbing strap, rings for waist strings, with a deep press-studded flap. Various colours with Campagnolo symbol.

0.99

**D'ALESSANDRO or HOLDSWORTH BLOCK.** Produced to meet the racing man's demand for a larger than normal block musette which can take a change of clothing, shoes, tools. Various colours with D'Alessandro symbol.

1.40



## SADDLEBAGS

**HIGHLANDER.** Wide but shallow to suit smaller frames, and reinforced with leather patches on back, underneath and corners. Four lid straps support the middle and corners, strongly-sewn to the heavy duck. Top flap and side pockets are boxed against the wet. Waterproof map pocket in top flap, cape rings.  $16\frac{1}{2} \times 7\frac{1}{2} \times 7$ in deep.

8.10

**HIGHLANDER PANNIERS.** Heavy-duty black duck, with long straps and deep inner flaps for extra height. Deep rear hooded pockets. With individual carrying handles and quick releases.  $12 \times 11 \times 5$ in.

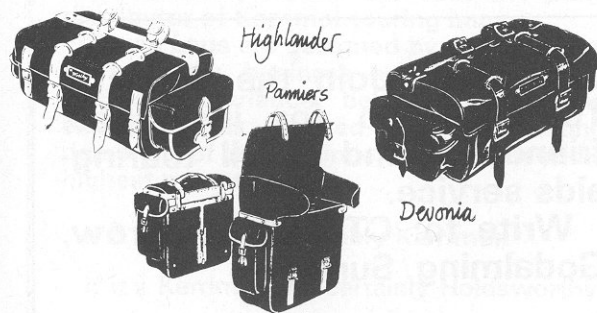
13.12

**DEVONIA.** A strongly-reinforced bag in tough Arlinghide, with deep box flaps on top and pockets to keep out rain. Fully-supported by long straps, with cape rings and a map pocket under flap.  $12\frac{1}{2} \times 7\frac{1}{2} \times 7$ in, slightly tapered.

4.59

**TOURMASTER.** In tough flexible reinforced plastic-faced black fabric that will defy the heaviest rain. Like the Highlander, but at a lower price.

6.00



**DEVONIA PANNIERS.** Arlinghide, piped, and with leather reinforcements. Deep flaps, rear pocket, long straps and Worthy quick release.  $11\frac{1}{2} \times 10\frac{1}{2} \times 4$ in.

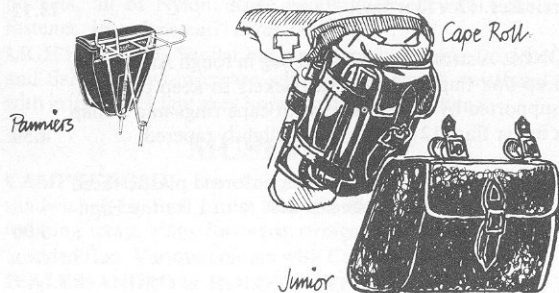
**CAPE ROLL.** Stop your tubs or cape from chafing, and carry tools. Two straps, black-plastic-reinforced fabric. Can be mounted vertically or on saddle bag cape rings.

**JUNIOR.** Bright-coloured plastics bag, cheap and attractive for youngsters, black, white, red, tan or blue.

8.10

1.40

0.78



**TOURING?** Join the Cyclists' Touring Club for insurance, friendship and a full touring-aids service.

Write to: CTC 69 Meadrow,  
Godalming, Surrey.

## KARRIMOR AND HOLDSWORTHY

*A partnership that was just  
right from the start*

CYCLE touring bags of heavy-grade nylon were a novelty when Karrimor introduced them to the British market, and these originals are still the best.

From the start Holdsworthy has distributed these superb touring bags and panniers.

Holdsworthy is still the sole UK trade distributor of Karrimor touring bags.

These bags are designed by the directors of a family business with a lifetime's cycling experience behind them. This experience is backed by the testing demands of mountaineers up the world's highest mountains.

If it's nylon it's probably Karrimor.

If it's Karrimor, it's certainly Holdsworthy.

## KARRIMOR NYLON BAGS

THESE ARE the supreme tourists' carriers, made from olive, nylon coated 7oz fabric, with red trim, light and waterproof.

**BARDALE.** A handlebar bag with transparent pvc top flap pocket for map-reading on the go. 10½oz, but has 5-litre capacity. Detachable shoulder strap, two back and one front zip pockets. 23 × 28 × 8cm.

**REAR BAGS.** With heavy quick-adjust webbing straps and built-in drawstrings, 23cm high, 33 wide, 15 deep.

**FULL TOUR, NO 1.** With two zip side pockets, one large flap pocket, and flap extends. 17 litre capacity up to 22 litres. 11b 1oz.

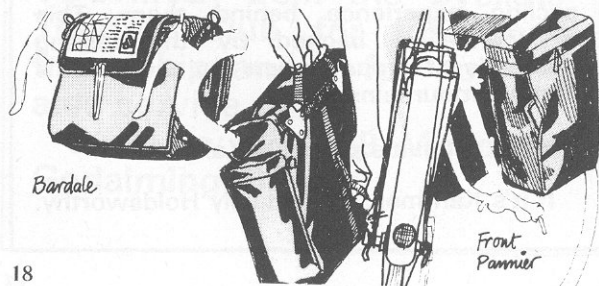
**WEEKENDER, NO 2.** Similar but with smaller flap. 17 litres, 11b.

**WEEKENDER NO 3.** Travel light and quickly.

**FRONT PANNIERS.** Pair joined by fabric with elastic insert for gloves, etc. 10.5 litres, 11b 1oz, 28cm high. 20 × 10cm.

**STUFF SAC.** Hard-rider's bag, leaves the legs free, cannot sway. Simple cylinder zipped full length with straps to attach to carrier. 10 litre capacity for 5oz! 37 × 21cm.

**REAR PANNIERS.** Wedge-shaped to clear heels, in pairs but can be handled separately. Hooked and sprung to attach to carriers. 45 litres per pair, 45cm × 15 × 28 tapering to 15. 11b 4oz.



8.30

9.95

9.34

7.35

8.35

2.95

14.85

## KARRIMOR BLACK DUCK

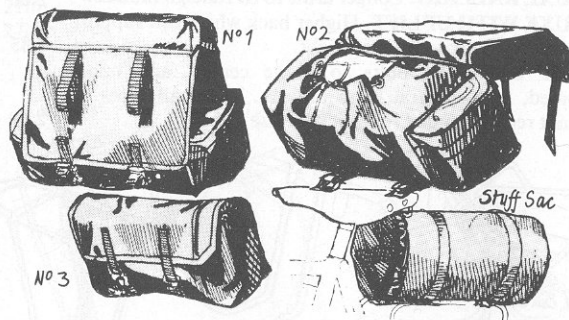
FOR THE TRADITIONALIST who prefers the rigidity and feel of stiff black cotton duck. Four styles with full chrome leather straps, and rust-resistant cadmium-plated buckles.

**DALESMAN.** With full-size chrome leather chafing patch, and two side pockets each 18 × 12.5 × 6cm. 20 litre capacity, 28oz 28 × 54 × 19cm in 15oz black duck.

**ROSSENDALE.** A plainer version in lighter fabric with two side pockets. 15 litres, 25 × 47 × 19cm. 22oz.

**SMALLDALE.** A plain bag of the lighter 12oz duck, for everyday use. 9 litres, 22 × 31 × 19cm. 14oz.

**REAR PANNIERS.** A pair of bags for the hardest conditions joined by three chrome leather straps. 45 litres per pair 45cm high, × 15 × 28 tapering to 15. 30oz. Deep flapped and strapped pockets at rear.



8.79

7.40

4.64

11.99

## BAG SUPPORTS

**CLAUD BUTLER REAR.** Keeps bag clear of centre-pull brakes. In 1/4in rod, hangs from seat bolt (not Allen key) by attachment plates, long bolt supplied. 1.30

**CLAUD BUTLER FRONT.** Simple one-piece support in the same rod coated with white plastic, with rubber end caps. Loops over handlebar stem and rests on 'bars. 0.97

**KARRIMOR UPLIFTS.** Standard, coated with silver-grey plastics, quick release fitting to any saddle eyes, 6oz. 0.97

**Tourist.** with extra height and support, 14oz. 1.45

**BROOKS.** Chromed clips to seat stays. 0.78

**T.A.** Bolts onto centre pull brake bolts at three points. 2.65

## CLAUD BUTLER PANNIER AND LUGGAGE CARRIERS

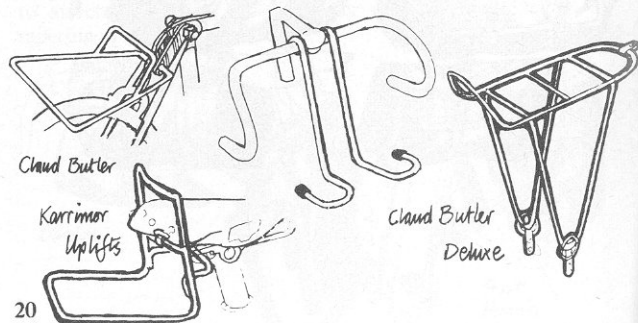
**STANDARD.** Triangulated support, of 1/4in steel rod bolting to mudguard eyes and brake bolt. Rings for quick-release fittings or straps, bright zinc plated. 2.11

**DELUXE.** Chromed, with centre-pull brake protector, rear lamp bracket, and extra cross bracing. 2.60

**DELUXE RALEIGH.** Longer arms to fit Raleigh models. 2.60

**DELUXE WITH UPLIFT.** Higher back which can support large bag from above saddle height. 2.85

**FRONT DELUXE.** Bolts to brake centre, and hubs. Chromed, with integral lamp bracket. Takes all types of bag, not recommended for quick release hubs. 2.60



**KARRIMOR CARRIERS.** Made from 3/16in steel rod, grey nylon coated, with integral lamp brackets.

**REAR.** Attaches by clips to seat stays, and to mudguard eyes, 26oz. 3.24

**FRONT.** With brake protector, attaches simply to brake bolt and wheel spindle. 3.03

**LIGHTWEIGHT REAR.** From light gauge chromed mild steel rod. Platform 10 1/2 x 6in. Ideal general carrier, curved brake protector, attaches mudguard eyes and brake bolt. 2.00

**PLETSCHER Model C.** Swiss light alloy, with large sprung clamp. To mudguard eyes and by clip to seat stays, rear lamp bracket, 26 or 27in. 2.46

**Model CS.** With centre pull brake protector, CS20 for small wheel bikes. 2.72

**Lamp bracket.** Bolt-on for battery lamps. 0.26

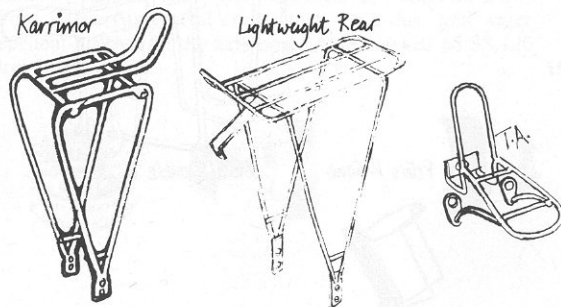
**PANNIER QUICK RELEASES.** To convert bags to quick release fittings. Standard on Highland and Devonian. 1.46

**BAGGAGE CORDS.** Braided elastic with strong hooks or extra loose hook for three point fitting.

18in 0.14

21in 0.16

27in. 0.20





## BOTTLE CAGES

**COLORAL.** Light chromed wire, accept any bottle.

**Double.** Handlebar fitting, wide spaced clips.

**Clips.** Available separately, with bolts.

**PETERS UNIQUE.** Jointless piece of heavy chromed wire, downtube fitting, self-sprung.

**PETERS HANDLEBAR.** For one bottle.

**TA.** Handlebar or downtube, with shaped nylon guide. The cage the pros use, clip or bolt-on.

**TA EXTRA LIGHT.** Identical but of black or silver anodised light alloy.

1.05

0.23

0.58

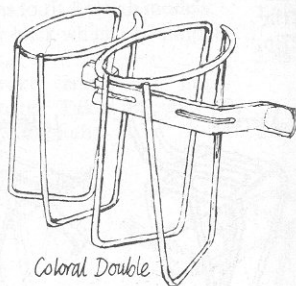
0.63

1.64

4.65



TA Light  
Bottle cage



Coloral Double



Peters Unique

## CAMPAGNOLO BOTTOM BRACKETS

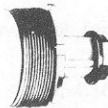
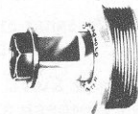
**FOR CAMPAGNOLO** cotterless light-alloy chain sets, accurately ground with centered square tapers which match the cranks, and must be fitted clean and dry. Cups finished satin chrome to fit English threads. Supplied complete with cups, fixing bolts, locking ring and bearings in chromed cages. State number and type on axle if possible when ordering complete sets.

**SUPER RECORD.** Without any doubt the finest possible combination of light weight and super strength available, using the most modern of materials—TITANIUM. The axle is formed of this wonder metal, which is 20 per cent lighter than chrome steel. The cups are satin-finished with steel ball-race inserts, as is the axle which is impervious to rust as well as being amazingly tough. For the pursuiter, record breaker, top time trialist, or the roadman for super-lightness, Super Record Campagnolo is essential.

54.00

**NEW RECORD.** Available only for two rings on Strada cranks, a sleeved set for the hard-rider or roadman. Dust-proof sleeve fits special cups which have dust and water repellent grooves in the axle bore. Axle marked 68 SS 120 Brev Inter.

15.12



**RECORD.** Hard-chromed axles carefully matched to the cups in five sizes. Metric threads available for most Continental frames. The axles that have set the standard of 'fit-and-forget' for others to follow.

**68P 120**—single ring on Pista crank, five speeds.

**68P 110**—single chain ring, Pista crank, fixed wheel.

**68SS 120**—Two rings on Strada crank, 10 speeds.

**68SS 120 × 3**—Three rings on Strada crank.

**68SL 120**—One ring and cyclo-cross flanges.

**SPORT.** Matt black finish to fit the elegant Sport three-pin set, double rings only, complete.

12.42

4.48



*Record Cotterless*

## CAMPAGNOLO BRACKET SPARES

<b>RECORD</b> axles, less bolts, state type.	6.10
<b>RECORD</b> axles, less bolts, triple or cyclo-cross.	7.18
<b>RECORD</b> fixed cup.	3.35
<b>RECORD</b> adjustable cup.	2.59
<b>NEW RECORD</b> axle, for sleeved set.	6.75
<b>NEW RECORD</b> fixed cup for sleeved set.	4.32
<b>NEW RECORD</b> adjustable cup for sleeved set	3.46
<b>NEW RECORD</b> sleeve 2110 and cone 2110/1.	1.03
<b>LOCKING RING</b> for adjustable cups.	1.30
<b>SUPER RECORD</b> axles, less bolts.	45.36
<b>SUPER RECORD</b> fixed cup.	10.26
<b>SUPER RECORD</b> adjustable cup.	7.94
<b>RECORD</b> axle bolt and washer.	0.65

## BRACKET SETS

**STRONGLIGHT.** To fit the French chainsets, for standard 1/4in bearings.

**No 65** cotterless—track, five speed, double or triple. 7.48

**No 34** cottered—single or double only. 3.66

**TA PROFESSIONEL.** Cotterless square taper axle with fixing bolts: 314 single, 344 double, 374 triple. 4.66

Fixing bolts and washers 0.72

Lockring and cups W709 Prof. 4.42

**TDC.** A complete range of British axles and cups for all standard cottered cranks.

**TDC Standard.** C16/2 single, C16/9 five speed, C16/4, 10 speed. Use with standard cups and lockrings. 0.46

**TDC Continental lightweight.** Polished chrome, hardened and ground axles drilled each end for lightness. S19/2 single, S19/9 five speed, S19/4, 10 speed. Use with Continental lightweight cups and lockring. 0.71

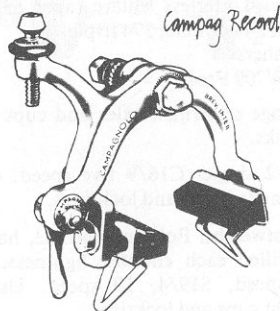
## CAMPAGNOLO BRAKES

ONCE again in 1975, as in most previous years since these wonderful brakes were introduced virtually every major Continental road race, from Paris-Roubaix to the Tour of Lombardy, from the Giro d'Italia to the world championships, was won using them.

They are made from space-quality light alloy, which gives these side-pulls the rigidity that makes them even more efficient than good centre-pulls. Blocks are made from a secret Campag formula which works equally well in wet or dry, and without snatch.

Wheel guides ensure no jamming when replacing wheels after a puncture. Flats on the pivot bolts and serrated washers ensure precise centering via Campag 2025 spanner.

Finger-light cable adjusters are cammed to prevent unwinding in use, and rubber-ringed to prevent those annoying chips on your down-tube. Riding on the hoods, or with fingers hooked while down on the bends, there are no more comfortable levers. The



rubbers do not bind your fingers, the cable pivot is knurled to ease cable replacement. The levers operate on a locked nylon-bushed pivot, the cables are pre-greased. A cam action quick-release opens the brakes but does not impede the braking.

**PICCOLO BRAKES.** Up to the moment in design, a new introduction with all the features of the Record brakes, but 5mm shallower stirrup providing ultra-close clearance for today's close-cut frames. Slightly lighter and with enhanced leverage.

**PICCOLO** brakes complete.

58.32

**SUPER RECORD BRAKES.** Artistically drilled on the levers to provide better grip in the wet, with standard clearances. Either Piccolo or standard depth.

**Complete**

61.83

**Super Record** hooded drilled lever.

15.12

**RECORD BRAKES.** The standard classics available with stepped centre bolts for mudguard-clearance frames (bolt available separately). Anodised finish that needs no polishing.

**Record** brakes complete.

58.32

**Hooded lever.**

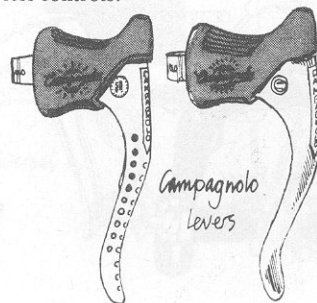
13.45

**Front brake** less controls.

20.25

**Rear brake** less controls.

19.44



**EVIAN-RACER.** France's latest centre-pull in satin-black light alloy forgings, one brake weighs only 6oz. No clamp bolts to work loose, and the blocks twist, angle, and can be raised or lowered. Cast alloy cable junction holds main cable clamp firmly, brake block fixed in shoe. Levers have black overall rubber hoods, milled adjusters. With cables and clips.

**EVIAN CRITERIUM.** Brazed-on centre-pulls for the specialist, with the self-lock brake blocks of the Racer, levers and hoods.

**EVIAN TANDEM.** Similar but sturdier, with more braking area, in polished alloy with levers and hoods.

**EVIAN.** Blocks in shoes, set of four.

**G.B. COUREUR '77'.** British centre-pull with a nylon-bearing symmetric action, independent working arms, fitted with Superhood lever.

**Brake blocks, black, for steel rims.**

**Brake blocks, in shoes, black.**

**Brake blocks, red, for light-alloy rims.**

**Brake blocks, in shoes, red.**

7.55

5.84

5.95

1.26

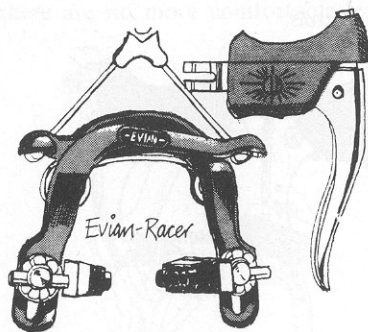
5.51

0.12

0.22

0.14

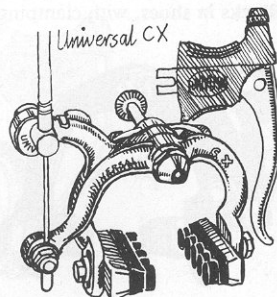
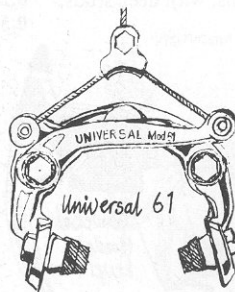
0.24



## UNIVERSAL BRAKES

**ITALIAN BRAKES** which have set a standard of workmanship and efficiency in the post-war period for others to follow. Descending a pass in the wet, or riding through narrow village streets in the Giro, they have proved their worth.

**CX.** In the highest traditions of Italian artistry, a new, anodised brake made from modern light alloys tested to provide maximum rigidity and therefore braking efficiency. Great care has been taken with the design of protruding bolts to ensure streamlining—the CX factor—even the brake shoes are angle-cut. Despite the sturdier construction, these brakes weigh only 20oz a pair with levers and rubbers. Centre pivot flattened to fit 14mm spanner for centering, with serrated grip-washer, new cam quick release with rubber protector. Levers have been redesigned for easier grip and comfort over long stages. Allen key tightening for lever and lever pivot means no more slackness and rattle. **41.00**





**MOD 61 CENTRE-PULL.** Roadman's favourite, enormous leverage and brake block area for wet weather security. Thick anchor plate allows for independent braking arms, which pivot freely in cross-over pattern with a straddle wire. Follow even an untrue rim. Cable hangers with quick release units. Hooded levers with translucent rubbers. Shallow stirrup No 105. Deep No 106. **12.42**

**SIDE PULL Mod 51.** A classic caliper with full mudguard depth. A unique release is linked from a lower stop to the upper cable pivot by a cranked arm. Soft studded blocks, rubber hooded lever. Shallow front stirrup, deep rear, Nos 100/101, deep deep 101/101. **10.37**

**UNIVERSAL 68.** An old favourite with testers and roadmen. Extended arms give powerful leverage on soft wet weather blocks. Simple release incorporates cable adjuster. Hooded lever now has white or the new fashionable black rubbers. Shallow or deep stirrups to choice. **11.18**

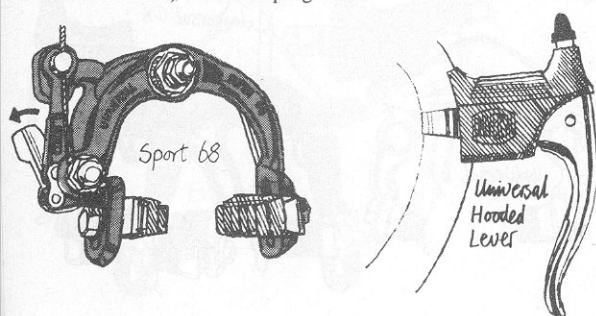
**HOODED LEVERS.** Can be clamped really tight onto 'bars for good pulling: soft translucent rubbers unequalled: cable adjuster rubber-covered to avoid chafing. **2.16**

**Lever hoods,** white or translucent. **0.97**

**Adjuster hoods,** black rubber cone sleeve. **0.10**

**Brake blocks,** soft rubber for alloy rims, with deep studs. **0.20**

**Blocks in shoes,** with clamping bolts. **0.55**



## WEINMANN

**CARRERA.** A really up-to-date anodised side-pull brake incorporating the refinements and attention to detail for which the Swiss are famous. Every bearing is plastics-bushed, rattle-free, non-binding, and self-lubricating. Butterfly release with twist-off action gives half-cm rim clearance. Black, grooved patented blocks in sealed shoes with wheel guides, depth adjusts 4.5-6cm. Milled cable adjuster takes up full block depth. Attachment bolts have Nyloc nuts for safety. Drilled, turned levers of new curved shape with easier finger-reach on the drops, and translucent rubber hoods, plastics bushes. Even the cable is graphite-greased, spring pivots bushed, new non-twist cable clamp. **34.69**

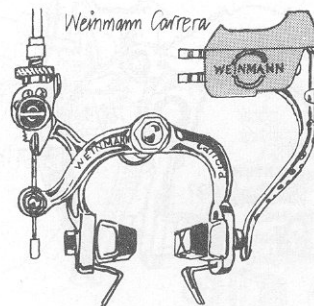
**VAINQUEUR 999.** A centre-pull mechanism which bolts firmly to the frame. Cantilever arms nylon-bushed in shallow front 610, and deep rear 750 stirrups. Soft red rubber brake blocks for light alloy rims. Choice of four levers.

With 144 lever. **8.67**

With 161 lever. **9.02**

With 161/1 lever. **9.20**

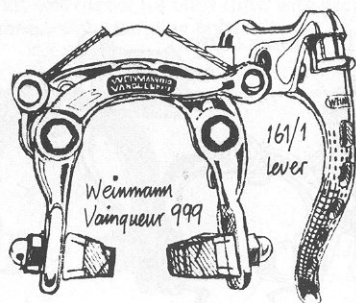
With 162 lever and hood. **10.37**



**SIDE-PULL.** Classic pattern brakes, the 500 being probably the lightest and shallowest of all for the close-cut racing frame. Wide curved to clear mudguards, levers in all sizes, even for junior hands.

Stirrups guide:

Code	Min depth	Max depth	
500	1 3/4in	2 1/4in	
730	2 1/2in	2 3/4in	
810	2 1/2in	3 1/2in	
890	2 3/4in	3 1/2in	
610 (centre pull)	1 1/2in	2 1/2in	
750 (centre pull)	2 1/4in	3in	
With 161 lever.			6.58
With 161/1 lever.			6.76
With 162 lever.			8.74
Stirrups only.			3.71



## WEINMANN LEVERS (Pairs)

**USA DUAL 144/170/1690.** For the hard-riding tourist this patented lever attachment allows braking from the centre of the bars. Nylon-bushed extra lever easily removed, and does not interfere with 'normal' braking. (See Randonneur 'bars.)

**133** Touring lever, open clip fitting.

**136** Touring lever, racing clip fitting.

**144** Plain hooded, with no adjuster or quick release.

**161** Hooded and milled, with quick release operable without removing hands from 'bars, and self-cancelling.

**161/1** Quick release lever, milled and drilled in modern testing style.

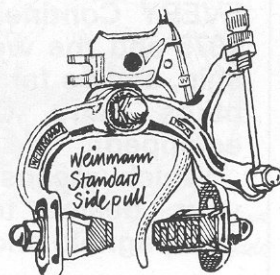
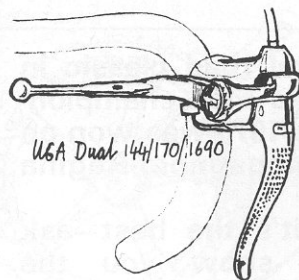
**162** Quick-release lever with built in non-slip adjuster, and translucent rubber hood.

**HOODS.** White rubber. **1.27** Translucent. **1.36**

**BLOCKS.** Long or short red, or grey for steel rims.

**BLOCKS AND SHOES.** Long or short.

**BLOCKS.** Extra-deep, red only, four large studs. In shoes.



5.56

1.74

2.29

2.95

3.44

3.63

5.41

0.1

0.4

0.5

## CHAINS $\frac{1}{2} \times 3/32$ in

**REGINA RECORD ORO.** Lightweight fanatic's special. A specially-hardened chain which matches the Oro Golden freewheel, but lightened by slots in the link-plates. Competition special which gives slick changes. 116 links.

7.99

**REGINA ORO.** Favourite of the hard roadmen for years, easily known by its golden side plates. As above but with plain plates. 116 links.

4.00

**REGINA SUPER COURSE.** A black chain flexible enough to be used with six-speeds on a short wheelbase 116 links.

2.00

**RENOLDS.** A first-class British all-rounder. 112 links.

1.94

**DID.** Japanese nickel-plated chain, a favourite with trackmen and testers for its superb appearance. 114 links.

2.27

## $\frac{1}{2} \times 1/8$ in

**REGINA.** The classic track chain strong enough for the fiercest sprint. 108 links.

1.45



*Record Oro*

**EVERY** Continental road classic in 1975 and the world road championship, and so far in 1976 was won on bikes fully Campagnolo-Regina equipped.

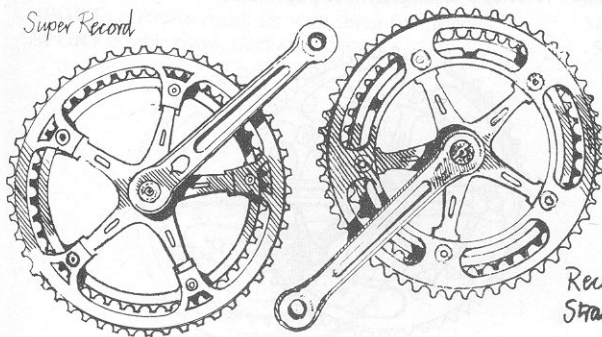
Which means it's the best—ask your dealer to show you the Campagnolo and Regina range.

## CAMPAGNOLO SUPER RECORD CHAINSETS

WORLD championship chainsets, cranks rings and axles, that are now cut away elegantly, use new materials intelligently to eliminate every excess gram. Meticulously-machined forgings minutely inspected at all work stages. Rings machined from solid blanks have been cut and slotted without reducing essential rigidity, run freely. They clamp to precise square shoulders with Allen keyed steel bushes and sleeves. Titanium axle runs in light alloy steel-insert cups, cranks are chemically-polished and anodised. Sets complete for road or track.

**RECORD CHAINSETS.** World's most widely-accepted racing chainsets with more world and Olympic championships than any competitors. Precise square taper fits accurately, dry, on hardened steel shaped axle. Clean even threads, elegant lines, and bearing surfaces which have been subjected to 100 per cent inspection for truth and hardness make CAMPAGNOLO the supreme name in racing equipment. Properly-fitted cranks will last almost indefinitely. Rings from 42T upwards fit either side of crank. Sets complete with steel axle, satin-chromed cups, sleeve and prelubricated  $\frac{1}{4}$ in balls in cages.

*Super Record*



*Record Strada*

**DOUBLE** set—Super Record or Record. Includes two 3/32in rings from 42T to 52T (larger rings extra).

**Super Record**

**Record**

**Record** with sleeved bottom bracket.

**TRIPLE.** Record only, with third ring on sleeved bush.

**CYCLO-CROSS FLANGES.** Inner or outer.

**PISTA.** Pista 1/8 or 3/32 single ring on outside shoulder (Rings above 52T extra).

102.60

59.40

62.10

71.55

7.56

49.41

## CAMPAGNOLO CRANKS

**THREE** lengths of crank—6½in (165mm), 6¾in (170mm) and 7in (177.5mm)—with five chainwheel bolts and standard Record bracket fittings for road or track use.

**STRADA.** Double-flanged only, available with New Record sleeved b/b fittings.

**STRADA.** Triple or 'cross, standard Record b/b only with extra-long sleeved bolts and bushes.

**PISTA.** Single outer flange, now ground to the same pitch diameter as Strada cranks to accept the same rings when sharing for road and single-ring tester's bikes with standard Record fittings only.

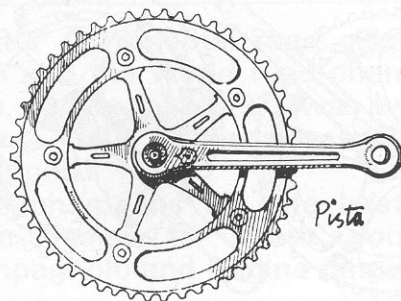
**TOOLS.** Available separately (see page 74).

39.42

42.12

40.50

39.42



Pista

## CAMPAGNOLO CHAIN RINGS

**SUPER RECORD:** 3/32in, cut-out 42-57T.  
1/8in cut-out 42-57T.

**STRADA 'S'.** 3/32 and 1/8in. rings to fit Strada cranks For both above, extra per tooth over 52T.

**SLEEVES.** Sets of five: double nos 754/55; single 761/2; cyclo-cross or triple, 831/32/30.

**SPACERS.** For single 3/32 rings on Strada cranks 754/A.

Some 'old-style' and Pista 1/8in double-flanged rings still stocked, but all spares subject to availability.

10.80

10.80

9.99

0.27

2.86

0.65

## CAMPAGNOLO SPORT CHAINSETS

Lower-priced, but with the same superb attention to detail, three-pin deep-fluted ultra-light cranks in the same anodised light alloy. Ideal for time trialists seeking to save nearly 3oz over standard five-pin cranks, these are available in 170mm only with black finish axle. Complete with satin-chrome cups and pre-lubricated ball races. Accept riveted pairs of light alloy rings attached by 11mm steel bolts and sleeves, 42/50, 42/51, 42/52 or 42/53 only. For single ring use will accept TA three-pin fitting.

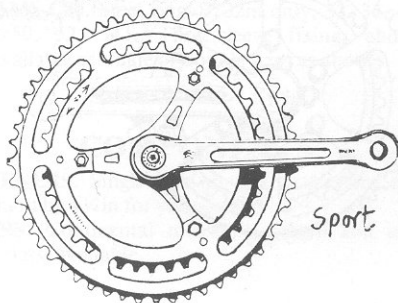
**SPORT** cotterless crank set with three fixing bolts.

**SPORT** double rings, sizes as above.

38.07

31.97

5.67



Sport



## TA COTTERLESS

**PROFESSIONEL.** Five-pin light alloy cranks on a square-splined axle for single or double rings. 165, 170 and 175mm complete with b/b fittings. 24.30

**ADAPTOR.** Light alloy five-pin adaptor to fit any steel or light alloy cranks, cotted or cottedless, for use with TA six-pin rings. State for double, single or triple rings. 5.56

**CHAINRINGS.** For adaptors, six-pin, light alloy.  
104 outer rings 47T to 60T. 3.65  
106 inner rings 44T to 52T. 3.65

**CRITERIUM.** Five-pin fitting light alloy rings to fit any steel or alloy five-pin cranks, as adaptor fitting. 4.60

**CR205** outer 47 to 60T. 3.65

**CR204** inner 44 to 52T

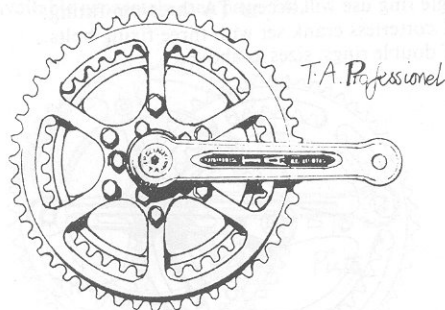
**CYCLOTOURISTE.** For the mountain specialist's wide ranges, double and triple rings. Criterium five-pin outer fitting. 4.16

**CY205** outer, five pin 36-60T. 3.65

**CY208** intermediate, by six bushes to above ring 36-50T. 2.59

**CY207** inner, same fitting, for double or triple 25-35T.

**SINGLE.** Three-pin light alloy rings fit any steel three arm Continental-pitch cranks; or for Campagnolo Sport. 4.16



Five-pin light alloy rings fit any similar light alloy or steel cranks, up to 60T. Either rings 1/8 or 3/32in. 4.16

**NB** All TA chainrings extra cost over 52T. 0.48

### TA BOLTS

**No 25**—ring or adaptor to crank, set five. 0.43

**No 62**—double ring to adaptor, set six. 1.11

**No P75**—single ring to adaptor, set six. 1.11

**No 84**—triple ring to adaptor, set six. 1.03

**No 64**—double Criterium or Cyclotouriste, set six. 1.11

**No 85**—triple Criterium, set six. 1.51

**No 87**—triple Cyclotouriste, set six. 1.23

## STROGLIGHT COTTERLESS

**TYPE 49D.** Original old faithfuls. Five-pin fitting accepts TA rings or adaptors. Complete with tools, b/b fittings, square-splined axle, less rings: 165, 170 and 175mm. 21.17

**NICKLIN STEEL.** Three-pin N34 fluted steel cranks with chainwheel sleeves, 6 1/2in only, identical old Williams C34. 3.80

**SLEEVES.** Set of three for Nicklin or Williams, single or double. 0.80

**JOGGLED SINGLE.** 48T x 3/32in, 6 1/2in only N200. 3.00

**JOGGLED DOUBLE.** 40/50T x 3/32in, 6 1/2in only N901. 4.86

These sets have fixed chainwheels.

**WILLIAMS C34.** Steel rings 3/32in only, 32, 36, 40/2/4/ 3.50

6/7/8/9/50, 52, 54T. Three-sleeve fixing, above 48T extra. Available as single or double sizes as above. 0.30

## COMPONENTS

**SHORTENERS.** Single bolt-on fitting shortens effective crank length by 1 1/4in for youngsters. 1.38

**COTTERS.** Continental metric, standard and unmilled (with no flats) available.

## FREEWHEELS

**REGINA.** Multiple freewheels, the classics for the roadman, tourist, time trialist or hard rider for use with all derailleurs. All sprockets replaceable, the ultimate block for Campag hubs. Wide-apart 1/8in ball races.

**ORO.** Gold finish sprockets made from specially-hardened steels to resist wet-road wear. Highly-polished ball races. Again in 1975 winner of the major classics and the world championship.

Six-speed—ratio limits as list below.

Five-speed 'Scalare'—time trialists' special 13-17.

Five-speed Specialist—13-15-17-19-21; 13-15-18-21-24; 15-16-17-18-19; 15-17-19-21-23.

Five-speed Standard—14-15-16-17-18; 14-16-18-20-22; 14-16-18-20-23; 14-16-18-21-24.

NB Scalare body not interchangeable.

**ORO BODY**—state if normal or Scalare required.

**ORO SPROCKETS**—

**Type 9**—Scalare second five speed 14T.

**Type 8**—second six-speed 14, 15, 16T.

**Type 7**—top six-speed, 13, 14, 15T.

**Type 7**—top five-speed, 13T only.

**Type 6**—second five-speed for 13T top, 14, 15, 16T.

**Type 5**—top five speed 14, 15, 16, 17, 18T.

**Type 3**—low (bottom two) any of 17 to 31T inclusive.

**Type 2**—middle 16 to 22T inclusive.

**Type 1**—top four speed, or Scalare (15T middle) 14, 15, 16T.

7.85

7.35

3.67

2.16

1.51

1.08

1.08

1.08

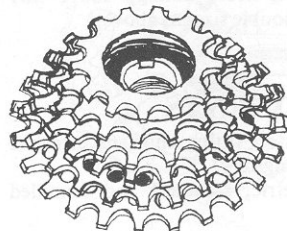
1.08

1.40

1.08

1.08

1.08



Oro Golden Regina

**STANDARD REGINA EXTRA.** A cheaper range in blued steel, built to the same precise limits.

Six-speed complete, sprockets as below.

Five-speed Scalare—13-17T; 13-14-15-17-19.

Five-speed Specialist—13-15-17-19-21; 13-15-18-21-24; 15-16-17-18-19; 15-17-19-21-23; 16-17-18-19-20; 16-18-20-22-24; 17-18-19-20-21.

Five-speed Standard—14-15-16-17-18; 14-15-16-18-20; 14-15-17-19-21; 14-16-18-20-22; 14-16-18-20-23; 14-16-18-21-24.

NB Scalare body not interchangeable.

Standard body—State if normal or Scalare required.

**Standard sprockets**

**Type 9**—Scalare second five-speed 14T.

**Type 8**—second six-speed, 14 to 17T.

**Type 7**—top six-speed, 13 to 16T.

**Type 7**—top five-speed, 13T only.

**Type 6**—second five-speed for 13T top, 14, 15, 16T.

**Type 5**—top five speed 14 to 18T inc.

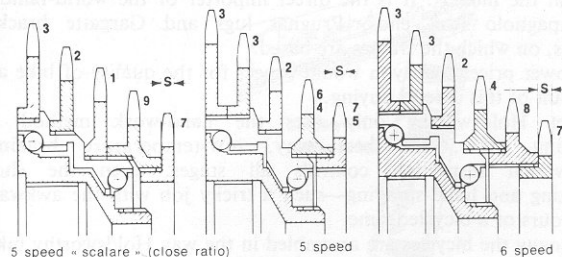
**Type 4**—second five-speed or third six-speed, 15 to 20T inc.

**Type 3**—low (bottom two) 17 to 31T inclusive.

**Type 2**—middle 16 to 22T inc.

**Type 1**—top four-speed or Scalare (15T middle) 14, 15, 16T.

Any ration, Standard or Oro may be assembled within these limits. Type 3 low gear sprockets over 24T extra.



5.00

4.75

4.30

3.95

1.84

1.08

0.76

0.54

0.54

0.54

0.54

0.54

0.70

0.54

0.54

## BALANCED BIKES YOU CAN AFFORD

**HOLDSWORTHY**—a name with half a century of unequalled enthusiast experience building touring and racing bikes of the highest standard behind it. Yet, because of this experience, they are sold at prices you can afford.

Holdsworthy means balanced bikes from the UK's most up-to-date workshops, of one of the few companies which backs a professional team on bicycles made by its own craftsmen.

Holdsworthy insists on keeping design, materials, building, finishing and assembly under one roof.

This means that its bicycles, from the cost-conscious Freddie Grubb and Claud Butler ranges to the elite Holdsworth collection, all carry the same hallmark of design know-how.

Bike Riders' Aids shows the vast range of accessories from which Holdsworthy, as agents or direct importers, can choose. The company is also the UK agent for Reynolds 531 tubing used on all the models. It is the direct importer of the world-famous Campagnolo fork ends, Prugnat lugs and Gargatte bracket shells, on which the frames are based.

Lower prices than you would expect for the quality of bike are a result of this careful buying.

Yet Holdsworthy only uses the hand-work method of making bikes, the best way, low-temperature brazing. Individual inspection controls all stages, even the shot-blasting and hand-spraying—such a tricky job with the awkward contours of a bicycle frame.

Finally the bicycles are assembled in the way Holdsworthy bikes are tested, by cyclists with an affinity for bicycles.

Only the final choice is yours.

**EQUIPE 5 and 10.** Now for the first time finished in the Holdsworth-Campagnolo team colours of kingfisher blue and orange, a really satisfying machine at a price to suit any pocket. Carefully built with plain gauge tubing and Reynolds 531 forks, this bicycle has Campagnolo Valentino Extra five- or ten-speed gears.

Highly chromed hp rims on light alloy small flange solid spindle hubs; Weinmann 999 centre-pull brakes; light alloy chainset; the world-famous GB Maes bars in GB Nova stem; Holdsworth fork ends. Other equipment includes Sportex saddle, Weinmann short stainless guards, Bluemels-AFA pump, TDC headset, Lyotard pedals.

**AUTOGRAPH 5 and 10.** A new introduction to the Holdsworth range, carrying the professionals' signatures on the top tube of its lively frame. This is hand-built with Prugnat spearpoint lugs, and has gradual-rake slender Reynolds 531 fork blades, slim seat stays.

The bike is equipped with a five- or ten-speed transmission using the Nuovo Gransport light alloy gear.

The wheels use light alloy large-flange quick-release hubs in British-made Birmalux light alloy hp rims. A new light-alloy cotterless chainset reduces weight, and helps make this a pleasure to ride. Other equipment, Weinmann side-pull brakes, Sportex saddle, Cromoplastic mudguards, Lyotard pedals, TDC headset, GB bars and stem.

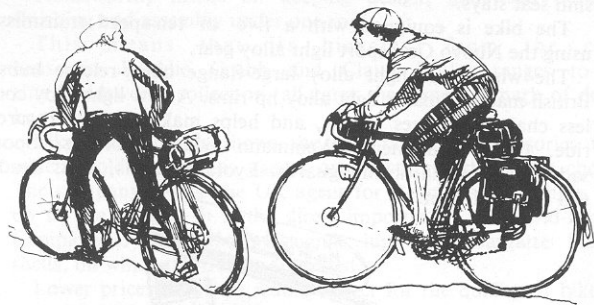


**NEW RECORD SPORT.** A really tough machine for the discerning rider, and the basis of the Holdsworth/Campagnolo service machines in the Milk Race. A thoroughly responsive frame in Reynolds 531 plain gauge tubing has meant that many riders preferred these to their own bikes.

The Record Sport for 1976 is fitted with the new three-pin Campagnolo Sport chainset and the well-tried Campagnolo Record gear.

The Record is fitted with an SR light alloy cotterless chainset for 1976, light and rigid.

For the everyday rider, these machines have Campagnolo Nuovo Tipo small flange quick release hubs with Fiamme hp light alloy rims and Michelin tyres. Other equipment, Weinmann 999 brakes, stainless short guards, Lyotard 462 single sided pedals, Regina chain, Holdsworth special steel fork ends with mudguard eyes.



**Ask your dealer to show you the  
full-colour brochure on the superb  
Holdsworth range.**

**MISTRAL 10.** One of the all-time classic bicycles from Holdsworth, combining a light and very lively frame with sound reliable top-class racing equipment. For a machine to combine touring with racing this has no equal.

Reynolds 531 double-buttet tubing throughout is fitted into Prugnat 'I' type spearpoint lugs, the forks being carefully shaped to give easy steering, clearance for mudguards with hp wheels.

The transmission is completely Campagnolo Nuovo Record with Regina freewheels and chain, for either five or ten speeds to choice. Really firm braking in all weathers is provided by the Universal 61 centre-pull brakes, mounted on Fiamme bars and stem. Other equipment, Campagnolo large-flange Strada hubs, Super Champion Competition rims with Canetti 100 tubulars, Brooks Pro saddle, Campagnolo Strada pedals.

**PROFESSIONAL NUOVO RECORD 12.** The machine that equips the Holdsworth-Campagnolo professional team, as its name implies, a superbly-strong racing bike.

Built to the closest of tolerances and clearances, the frame is Reynolds 531 double-buttet tubing throughout in Prugnat 'S' type lugs. Precise cornering from the exclusive Holdsworth forks specially curved to resist racing stresses, plus the Holdsworth exclusive wrapovers for the 5/8in seat stays.

This will not accept mudguards, and no eyes are fitted to the chromed Campagnolo forged fork ends. Machined gear and brake cable stops are hand-brazed to the frame.

A Campagnolo Nuovo Record gear complements the large flange Strada hubs with Super Champion Competition rims and Canetti 100 tubulars, 12-speed Regina Oro transmission.

**PROFESSIONAL SUPER RECORD 12.** Ultimate road bike ready for the fastest toughest racing, that has won the British pro road championship two years out of three.

This is the machine with everything, Campagnolo Super Record, the titanium-based transmission being fitted to the superlative, agile Professional frame.

It is fitted with the latest Campagnolo Piccolo shallow brakes with drilled levers, mounted on Cinelli bars and Record stem. Canetti Paris-Nice 8½oz tubulars Medaille d'Oro rims.

## CLAUD BUTLER

**FRAMES** with one of the most respected names in cycling built into a complete range of bicycles from a sports-touring machine to a superb road or track racing machine. Variations in specification enable Holdsworth to offer a wide range of prices on Claud Butler bikes without detracting from the handwork skills and experience built into every bike.

**ELECTRON 5 and 10.** Beautifully-finished bikes that will be satisfying to ride, wonderful value. A hand-brazed frame of plain gauge tubing with Holdsworth fork ends and brazed-on pegs, tunnels and stops, made in the new Holdsworth workshops. Campagnolo Valentino Extra gears, and lightweight alloy cotterless chainset. Ready to ride away from your dealer's with Weinmann 999 brakes, mudguards, Lyotard pedals, hp rims and tyres.

**GRANSPORT 5 and 10.** A machine with the 'quality' air of a hand-built pro's bike, but priced to suit everyone's pocket. Ready for fast easy touring, built with Reynolds tubing and Holdsworth fork ends, and using the Campagnolo Velox gear systems, light alloy cotterless chainset, TDC head bearings.

Other equipment, chromed steel hp rims on small flange light alloy hubs, Michelin tyres, Blumels Club Special guards, Weinmann 999 brakes, Sportex saddle, Blumels-AFA pump, Lyotard pedals and the world famous GB Maes bars in GB Nova stem.

**VELOX 'S' 5 and 10.** A robust sturdy all rounder in Reynolds plain gauge tubing, with Holdsworth fork ends and Prugnat lugs. Pegs, lamp bracket and cable stops brazed on for convenience. Smooth riding and easy steering, it has an SR light alloy cotterless chainset, light alloy large flange hubs and Schothorst chromed hp rims for a long life transmission.

This bike is fitted with the Campagnolo Velox gear system (rear only for five speed). Other equipment, Michelin

hp tyres, engraved GB Ventoux bars in GB Nova stem, Weinmann 999 brakes, Regina chain and freewheel, Sportex saddle on Birmalux stem.

**TORINO 5 and 10.** A classically-built very lively road bike with a hand-brazed Reynolds 531 double butted road frame, ready for road racing. The superb Campagnolo Nuovo Record transmission is matched by the Campagnolo Strada single or double light alloy cotterless chainset.

The wheels are Campagnolo Record large flange hubs in Super Champion Competition rims with Canetti 100 tubulars. Universal 61 centre-pull brakes mounted on Fiamme bars and stem complete this splendid machine which is beautifully finished in a range of colours.

## CLAUD BUTLER

Ask your dealer  
to show you:

- \* Brilliant new  
stove-enamelled  
colours
- \* Light alloy  
cotterless  
chainsets on  
every machine

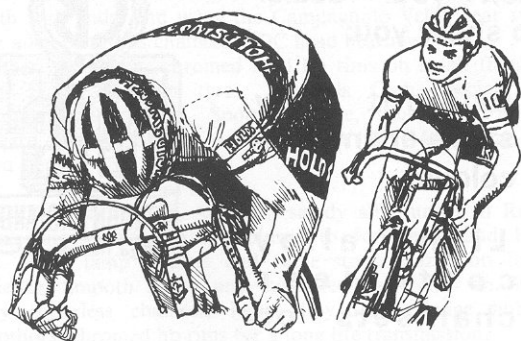




## FREDDIE GRUBB

**FREDDIE GRUBB GALIBIER.** A range of four models with five- or ten-speed Campagnolo Valentino Extra or Velox gears, aimed at the newcomer to cycling. Straightforward specifications and astute buying ensure bicycles which will be trouble-free in service.

Weight-saving cotterless light alloy chainsets for double or single rings are fitted to handbuilt frames, of plain gauge tubing, with Reynolds 531 double-budded tapered forks and Holdsworth steel ends. Pump pegs, lamp bracket, gear eyes are all brazed on. Other equipment includes GB Ventoux bars in Nova stem, light-alloy large flange hubs in chromed steel hp rims, Michelin tyres, Weinmann 999 centre pull brakes, Bluemels Club Special guards and AFA pump, Lyotard 462 pedals.



## Make the best of your bike

**BICYCLES**—man's most perfect technological creation, offer three or four times walking speed for similar muscular effort.

Does yours? It will if you are sitting correctly, can pedal freely with no friction losses.

Start where you sit, from your saddle you should be able to reach the pedals without stretching, but if you can touch the ground with both toes at once you are probably too low.

Your frame size will be roughly nine inches less than your inside leg length from crutch to ground.

Now, with your cranks horizontal, and your feet in the clips (see page on shoes) your knee joint should be vertically above the pedal axle. If it isn't, move the saddle forward or back until it is; the saddle should be dead level, by the way, not tilted. If you can only ride with your saddle tilted back then you are sitting too low.

Now go onto the drops. Putting it simply, your knees should just clear your elbows, by too much and you're probably stretching, if they don't clear at all you won't be able to breathe properly.

You push by muscular force exerted through your knee joints to your feet through the pedals, and if these are twisted, you'll feel it in your knees.

To check if the pedal is twisted, unscrew it slowly, keeping your eye on the centre of the dust-cap, either on the oil-hole or on a spot you have marked. If it describes a circle, however small, your axle is bent, replace it or the pedal.

Slip the chain off, and spin the cranks gently, if they don't spin freely, or stop in the same position every time, look for pitting or dryness; with free-running cranks you should be able to blow hard enough to make them move!

With no play in the wheel bearings, the weight of the valve should be sufficient to rotate a wheel, when they should need no more than a drop of oil. If not, check, and perhaps replace the balls and cones.

Scrub your rims and tyres clean with detergent, you can check a clean tyre for cuts, and a clean polished rim will brake you better.

You can check chain wear quickly and easily with no more than a ruler. From the centre of one rivet to the next is just half an inch, so 24 links should make exactly one foot; if you are more than a rivet's width out, replace the chain.

While you are about it, a chain should have the closed end of the spring link clip facing the direction of travel: a derailleur gear should be rivetted.

Look at the freewheel block, compare the most and least-used sprockets, they should look much the same; if there are any traces of 'hooking' replace the worn one.

Chains and gears should be cleaned with petrol or light oil, not paraffin, as this contains water. A modern gear will work when quite worn but it is amazing how much friction can be caused by bad alignment or worn rollers. Put it in middle gear, spin your cranks backwards, if they don't complete at least a full turn, something is binding, and holding you back! Is your gear rusty, twisted, clogged and is the tension just too tight?

You're going: now try to stop, your rear brake on that nice clean rim should be able to 'lock' your wheel.

If your brake blocks are reasonable, parallel with the rim both vertically and horizontally, and you can't lock up, friction is wasting your strength.

Most likely your inner cable needs greasing, so whip it out, replace it for a couple of bob, grease the new one and put it back after oiling the moving parts, adjusting the brake to give minimum clearance between shoes and rim. Then see how you stop!

Next look at your lights, worn batteries can corrode your lamp, bumps can knock it off: split a strap with a razor blade, and use it to hold the lamp on.

If you use a dynamo make sure it's gripping, when 'off' it should be about half an inch from the tyre and radially in line with the hub.

Finally, loose connections mean blown bulbs, dirty connections mean less light, so if you want to see and be seen, keep it tight and clean. Good riding!

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## You get what you pay for

A CYCLIST'S saddle and tyres are his best friends, three points of suspension which can make or break him.

Experts have been known to tell the weight of their tyres to the nearest half-ounce, but only to them, one feels, would it make any difference. But the puncture or blowout you could get from using the wrong 'tub', could make the difference.

Take a wheel, wet the tyre, stand it on a sheet of paper, and rest your weight on it; you will have a wet strip about five inches long, half an inch wide. For an average rider it's about 30 pounds per square inch pressing on about five square inches of rubber. But what sort of rubber?

Try this: ride with a friend to a short steep hill when it has been raining, one on a smooth tyre, the other on a good patterned tread. Each try sprinting up the hill on each bike, that will convince you of the need for a good tread.

If you can get access to rollers and several wheels, try riding them with the various types of tyre on the back, h.p., heavy tub, light tub, hard or soft. You will then be convinced of the need for light hard tyres, for your racing at least.

Remember you get what you pay for, you will get no more racing out of a 12oz cheap tyre than from a 9oz top-quality tubular.

The 'economy' racing man will opt for a pair of good cotton road tyres with a file or ribbed thread, which will weigh 8-9oz and probably cost £9-£10 each, with maybe a third as his spare.

With no more than reasonable care, a time trialist should be able to ride a full season of up to 50 events on one pair. I did two good seasons on a pair of 10oz road tubs, then gave them away to a lad to use for his racing and then training—now four years later!

On tyres heavy enough to last through a Milk Race of 1,500 hard miles, riders have done 53 minutes for 25 miles, 21 minutes for 10 miles!

But let us say you can afford a second pair, perhaps to go track racing.

Here you should look for a tubular with a plain cotton base tape—most road tyres have a rubberised cotton base tape. The plain dry cotton will accept shellac, (see 'Stick with It') which will be necessary if you go to Calshot one weekend or if you want to race on a steep outdoor track like Leicester. On the track you can run a couple of ounces lighter, or, since you'll be riding in the dry, you might go for top-quality silk tyres.

Wet is death to a silk tubular, though in the dry a good silk 60z track tyre might be used for a fast '10' on a good road.

The roadman, of course, has no way out like this. Security in the bunches, his own and others', means a good tread on the tyre, of cotton, for use in the wet.

Usually he would choose a tubular with a puncture-resistant 'imperf' band, file-and-ribbed thread, and whether he chooses a fat or narrow tyre depends on his own bulk.

How hard do you pump them?

Your 'wet-paper' test can show you how much the area of the rubber varies with pressure, and the rollers will tell you how much your effort varies with pressure.

Silk tyres—which presume dry smooth roads—will stand about 130psi, cotton will take about 110psi, while for reasons of comfort in longer races, the roadman who ventured much above 100psi would be hardy indeed.

So have fun, but remember, you get what you pay for!

**When buying tubulars always  
consult your dealer first,  
his advice  
could save you money**

## Stick with it!

HOW your tubulars are fixed to your rims means nearly as much as the choice of the tyres.

For tubular tyres do not just 'hold' on a rim, they have to be stuck down, with either a rubber-based solution or with shellac.

If they don't stick firmly when you sprint or brake they will creep backwards and forwards, perhaps tearing the inner tube at the valve, and when you corner they will roll, perhaps right off! Creeping is frequently the cause of complaints about a 'bump' in the tyre at the valve.

Start with a dry clean rim and a new tyre. Score the rim with a rasp or coarse emery paper, to provide a key. Inflate the tyre lightly—about 10 pump strokes—and fit it to the rim dry, if it goes on easily inflate it hard and leave it overnight to settle, oh, and use a push-on, not a screw-on connector.

If a tub needs stretching, don't just heave it at. Place your foot on the base tape, and with both hands pull it firmly and evenly, repeating every six inches or so, till you've done all the tyre. This will ease the material considerably.

Put it on the rim and ease about nine inches of the tyre off the rim with your hands—never use levers. Carefully and evenly coat the rim with solution, and the base tape, and fit that section, repeating until all the tyre is stuck.

It is useful to leave the space between the two spokes opposite the valve clean, except with track tyres, as this makes it easier to remove the tyre when puncturing in a race.

Track tyres should be stuck with shellac, which you can buy from a chemist or hardware store, usually in flake form. These flakes are dissolved in methylated spirit, usually two of spirit to one of shellac, but you can vary this, the idea is to have a solution with the consistency of warm treacle, which may take a day or so.

Start with a clean dry roughened rim, never, ever, put shellac onto a rim which has any trace of rubber solution on it.

Paint the shellac onto the rim and leave it to dry for 24 hours, three

thin coats being better than one thick coat. Repeat this two or three times, and then put on the last coat, before it dries, a thin strip of gauze—a bandage will do excellently. This will form a 'bed' for the tyre which will not peel away, leave it to dry, and put another coat on. While it is soft, yet not tacky fit a dry tyre, and inflate hard, this will 'shape' the shellac bed as it dries.

While the shellac has been drying, you will have put a coat of shellac on the plain cotton base tape, dried it and put another on. Be certain that your base tape is thoroughly stuck on the tyre, if it isn't, put corks in the spoke holes and shellac on without the tape.

Make sure, by the way, that the tub is stretched as shellac sometimes has the effect of 'shrinking' the base tape.

Finally, re-coat both the rim and the tyre, and when both are tacky, fit the tyre carefully, and roll the wheel with your full weight resting on the inflated tyre, to force it into the bed.

Wipe off excess shellac with a rag soaked in meths, and leave to dry overnight after inflating hard.

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## These shoes aren't meant for walking!

JUST as a farm-worker uses Wellington boots for muck shifting and slippers by the fire, so shoes for cyclists differ.

The sprinter forcing the last few ounces of strength from his legs would not be happy with anything but a skin-tight shoe. The tourist walking through a cathedral town after climbing a long hill fully-loaded would be thoroughly unhappy without a heel, and a shoe loose enough to take a thick-soled sock.

Two pairs for a start, not a bad idea, since leather, like human beings, likes a rest. Thus two pairs will last more than twice as long

as one pair, as each takes a rest while the other is used.

Rule no. one, let wet shoes dry naturally in a warm well-ventilated room, away from direct heat.

Never, ever, walk or stand around in racing shoes, the construction is such that they are made to stand pressure under the sole, not at the heel.

A good racing shoe will have a snug fitting heel, depth for the toes to spread when pedalling, perforations to allow a hard working foot to breathe, and most important, an arch-reinforcing plate.

A good touring shoe will have a heel, a thicker, wider, sole, and enough room for thicker socks and for walking, sole-reinforcements are not so important when lower gears are used, and walking may be part of the day's enjoyment.

Shoes left unpolished are like skin left unwashed, and the wax layer helps to keep out grit, mud and spray off the road. So keep them thoroughly clean and dry, polish them every time they are worn, and try to keep one pair for racing only.

These should fit as snugly as possible, probably half a size smaller than the touring shoe, since they will be worn with thinner, or even no, socks.

Never use new shoes for the first time when the weather is wet. Leather is shaped after soaking, and use of the shoes before the leather has compressed slightly on the sole could destroy the shoe's essential shape. Resoaking, you see, leaves the leather softened, and if you are riding at the same time, the pedal will distort the sole and the entire shape of the shoe will be altered.

If fitting shoe-plates, be careful that the foot assumes its natural position, and is not twisted, as this can damage your knee.

Stand in the shoe, and get a friend to mark carefully the centre of the ball of the foot on the side of the sole; this can easily be different on each foot.

Then place the plate so that when the pedal is in the slot, the mark you have made is exactly over the pedal axle.

Your shoe should then be just clear of the toe-clip, if it is not, use a spacer or a longer clip, as pressure on the toes can cause painful chafing over long rides.

You wouldn't want that, would you?

## TRY A TOUR—IT'S FUN

by Peter Knottley  
(Randonneur of CYCLING)

The thing about cycle touring is that it is carefree and it's *fun*. Ask any cycle tourist, and he (or she) will tell you that there's nothing to compare with a holiday awheel, whether it's just a day or weekend trip or a whole vacation, for sheer enjoyment, interest and relaxation.

It's a recreation shared by the young and the not so young, and the fit and the not so fit; you don't have to be a Tarzan or an Amazon—but you must be correctly equipped, machine and clothing, to enjoy it fully.

People come in various shapes and sizes, and so do cycles, and it's most important that the size of the cycle frame, let's assume something like a Mistral, should be suitable for the individual rider. Look at 'Make the best of your bike' for this. Given the right adjustment of saddle and handlebars, riding should be comfortable and thus your pedalling effort will be used to maximum effect. If you have the slightest discomfort, there is something maladjusted which must be put right.

What about gears? The idea behind their use is to produce a constant rate of pedalling whatever the grade, and hence whatever the speed. There's no particular magic in a 'ten-speed' machine—five gears will often give an adequate range (a difference between top and bottom gears of 40" or so),

Eight or ten can double this difference. It depends what you want to do. As a guide, a good 'middle' gear is 60in, a gear of 30in will enable most riders to tackle a 1 in 7 gradient (even with touring kit aboard) and a gear of 90in is useful in a following wind on the level. (See gear table on back cover.)

Speed is not the tourist's main consideration; ease of riding and enjoyment are the aims.

You can get all you need for tours up to a week in length in a large saddlebag like a Highlander. On longer trips, or if you're going cycle-camping, you'll want pannier bags or a handlebar bag (or both) as well. Rear panniers hold a lot of kit; front panniers and handlebar bags are smaller but handy for carrying 'at the ready' things needed on the road like camera, chocolate, maps, though you may prefer a separate map-holder.

Make sure that all bags are fixed securely; importantly, the rack or frame carrying pannier bags must be rigidly attached to the cycle frame and for maximum reliability should be basically triangular in shape and of steel. Look at the pannier section and your purse can decide what you can afford.

Light, loose clothing is best. When it's warm, shirt and shorts with white socks feel and look good. Cooler conditions call for 'longs'—knee-length pants (track suit or tailored style) and long socks are popular, with long-sleeved pullovers and anorak. You create your own breeze when riding in warm weather, and your own warmth when riding in the cold; you soon discover this and your personal optimum clothing needs.

**Consult the gear chart on the inside back cover when choosing your ratios.**

**Belge training suits, page 13, make ideal cool-weather touring wear, warm and easily washed.**

**Ever thought of touring on tubs? The 15½oz Worthy, page 77, is an all-weather tyre.**



Some items of clothing designed for the sporting cyclist are also very practical for the tourist—woollen racing shorts, a road racing jersey with pockets at the back, for example. But in the end you can choose your own style of wear from most sports and leisure clothing. Cycling shoes are specially styled and stitched to cope with the flexing caused by pedalling.

You need good maps for touring. Ordnance Survey in England, Michelin, Hallweg on the Continent. The average 'road diagram' kind is useless to the cyclist. Advance planning is best done with a small-scale map of the area to be visited—you can see the complete general layout on a map of 16 miles to the inch (metric equivalent 1 : 1,000,000).

Having settled the general outline with this, detailed sheets of about 3 miles to the inch (1:200,000) reveal the minor roads and scenic ways to choose. Most map-makers show trunk roads in red. Avoid these like the plague.

There's almost always a network of minor roads for the cyclist—they're free of all but local traffic and are of far better scenic and interesting quality. Not only that, on them you come across unhurried towns and villages and you really meet the people, who welcome you as a guest and not as a mere traveller. You'll often find quieter and more pleasant accommodation off the beaten track, too.

Continental maps are traditionally to metric scales, but in Britain we are in the process of changing from miles to metres. A lot of 'miles' maps are still in use but all new issues are metric—but 'on the ground' signposts continue to show distances in miles!

Wherever you go, don't overdo the local food and drink until you've found out what effect it has on you, if any! There's always a chance that strange diet will cause protests from inside, and these do nothing to make cycling more pleasant. It's best anyway to take the main meal of the day in the evening when on the road.

So it might rain. So what? You have your cape and cap. It's never so bad as it looks through a window. You don't have to take my word for it. Coming?

## TEAMWORK IN DESIGNING A FRAME

CONSTANT feedback from Britain's top professional team puts the experienced frame builders and designers at Holdsworth in an unbeatable position. The superlative accessories in Bike Riders' Aids can only be complemented by this kind of teamwork in skills which Holdsworth can put in after 50 years' experience.

From the competitively-priced Galibier or Electron frames right up to the world-beating Professional—which has been called 'the Rolls-Royce of bicycle frames'—the same skill is at your service.

Hand-crafting, in the most modern workshop in Britain, is still the only method used by the top lightweight frame builders at Holdsworth. Tubes are mitred and polished before going to open-hearth low-temperature brazing.

Even the cheapest frames get that right 'feel' because of the individual filing, careful tracking and inspection.

At Holdsworth, professional means what it says, men with a pride in their craft making frames for riders earning their living in European road racing. Holdsworth-Campagnolo is one of the few professional teams backed by a factory which makes the bikes from scratch.

Design, materials, building, preparation and finishing at Holdsworth are all under one roof.

Tourist bikes get the same expert consideration. Mudguards, Holdsworth-designed carriers and panniers, accessories, all fit tailor-made. Hand-sprayed eye-catching colours are carefully baked on, bearings aligned to provide smooth easy handling.

Only Holdsworth fits Reynolds 531 double butted fork blades to all its models, regardless of price, in the interests of safety as well as pleasure, proof of its real trump card—at Holdsworth, every item is not just made and workshop-tested, it is ridden day in and day out by experienced riders.

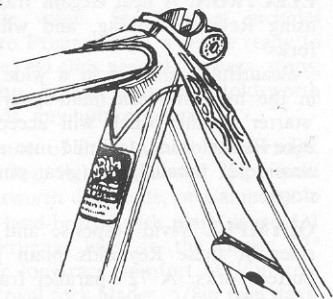
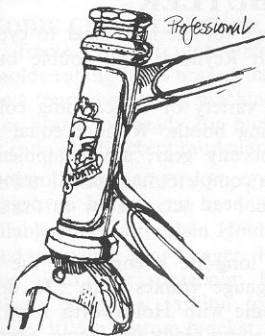
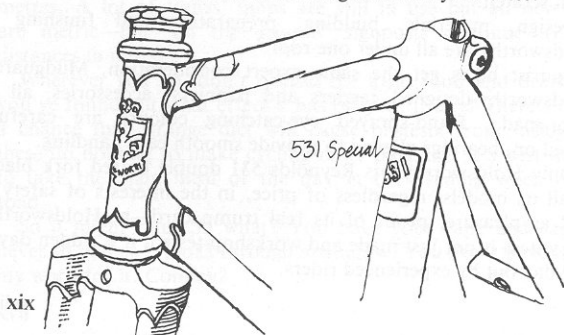
## HOLDSWORTH

**RECORD.** Supplied either with plain Holdsworth ends or Campagnolo forged fork ends, a frame ready for road racing. Neat spearpoint Prugnat lugs carefully hand-brazed with Reynolds tubing, 72° parallel, 17¼in rear triangle, 10½in bottom bracket. Slim gradual rake oval 531 double butted fork blades give easy smooth steering. With brazed-on brake and gear cable stops, and cable tunnel, the 5/8in rear stays provide beautifully rigid transmission. Ideal as a spare frame for the roadman.

**MISTRAL.** Classic all-rounder in 72° parallel Reynolds 531 double butted tubing throughout. Seat stays are 5/8in, the fork crown has a semi-sloping shoulder, and the drop-outs are Campagnolo forged, fitted with mudguard eyes; clearance for hp's and guards. Rear triangle 17¼in, bottom bracket height 10½in, the whole hand-brazed with Prugnat 'I' type lugs. Straight rear brake bridge, machined gear stops and cable guides. For the connoisseur who does not wish to concentrate solely on racing.

**531 SPECIAL.** A really superb, 73° parallel road frame for the all-round speedman, with a 40in wheelbase, built from Reynolds 531 double butted tubing throughout. Prugnat lugs, flush mitred 5/8in seat stays moulding into the seat lug, give a really strong 16¼in rear triangle, 10½in bracket height.

The oval fork blades have a smooth taper, 1¼in rake and diamond patterned flat top crown, 22in top tube (22½in for frames larger than 22in). Campagnolo fork ends front and rear, chrome ends extra, colours and designs to suit your taste.



**PROFESSIONAL.** Les West's champion frame, upright and very responsive, with the latest developments incorporated. 75° parallel, 39¼in wheelbase, ultra-close road clearance for Piccolo brakes.

Solely made of Reynolds 531 double butted tubing in Prugnat 'S' type lugs, this has 5/8in seat stays incorporating the Holdsworth designed full hollow wrapover for lightness and extra strength. The fork blades are a Holdsworth exclusive, made by Reynolds to special order with a very large oval section and gradual rake to spread cornering stresses.

The rear triangle is only 16¼in, but the 10¾in bracket height and steep angles make this ideal for tight corners. Campagnolo Record front and rear drop-outs are chromium-plated for crisp lasting looks and quick wheel changes, but have no eyes, the frame will not accept guards.

The Professional is supplied with Campagnolo seat pin and head set, and Allen key seat bolt. Finish team orange with kingfisher blue panels on top and down tube, Holdsworth large block transfers, world championship bands and Holdsworth crests to seat tube and metal headrest, or to choice.

This superlative racing frame is also available to order as the Pro Sprint, with Campagnolo heavy forged track ends, no drillings for brakes.

## CLAUD BUTLER

**ELECTRON.** A neat elegant frame for the newcomer to cycling, using Reynolds tubing, and with Reynolds 531 double butted forks.

Beautifully finished in a wide variety of eye-catching colours in the most modern hand-spraying booth. Without equal as a 'starter' frame which will accept any gear, any equipment in Bike Riders' Aids, to build into a complete machine. Continental classic 72° parallel, with seat pin, head set, brazed on pegs and stops.

**OLYMPIC.** Vivid response and long-life strength for the hard rider in these Reynolds plain gauge frames with 531 double butted forks. A 72° parallel frame with Holdsworth front and rear drop outs, and all stops brazed on ready for racing. Supplied in a range of brilliant finishes, all hand-sprayed, and complete with Birmalux seat pin and TDC head set.

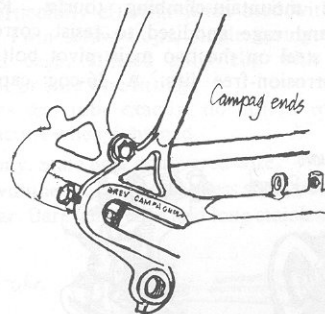
**C.B. INTERNATIONAL.** From the name that has won so many British track titles, a rigid frame to match with anything. Reynolds 531 double butted tubing throughout, combined with Campagnolo track ends, all hand brazed into Prugnat lugs for a superb light immensely strong frame. Supplied with Birmalux light alloy seat pin, TDC chromed steel headset.

**C.B. TORINO.** Claud Butler's classic road frame, a beautifully made gem of Reynolds 531 double butted tubing. 72° parallel Prugnat lugs, 5/8in seat stays, semi-sloping fork crown with Campagnolo forged drop-outs and gear hanger, with mudguard eyes. Rear triangle 17¼in, bottom bracket height 10½in. Machined gear stops and cable rings, straight rear brake bridge with reinforced bushed hole. A beautiful frame for the keener rider.

## FREDDIE GRUBB

**FREDDIE GRUBB GALIBIER.** No doubt, for someone buying a first frame, this is unbeatable value. Specification includes Reynolds tubing hand-brazed into Prugnat lugs, a frame ready to make a touring or racing machine. No clips needed, all pegs, stops, guides brazed on ready for pump, brakes, gear and Holdsworth fork ends which accept mudguards, any hubs or gears.

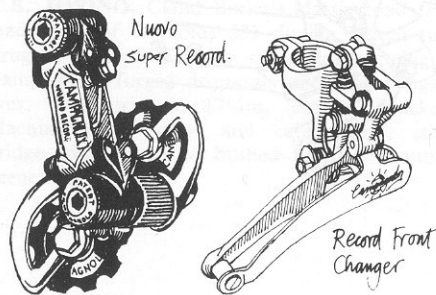
**GRUBB TOURMALET.** Top frame of this old-established range, suitable for road racing or touring, light, rigid and responsive. Available either with plain Holdsworth drop-outs, or Campagnolo forged ends with gear hanger. Hand-brazed with plain gauge 531 tubing, into long spearpoint Prugnat lugs, in the classic 72° parallel Continental fashion for long-race comfort. 17¼in rear triangle, 10½in bottom bracket, oval fork blades, 5/8in rear stays. A fully-equipped frame with all brazed-on stops and tunnels and steel headset, ready to race.



## CAMPAGNOLO GEARS

WITHOUT PEER in cycle derailleurs since the first post-war Italian Tour de France win in 1948, when Bartali brought CAMPAGNOLO to the fore. First with parallelogram changing in 1951 with the Gransport steel gear, CAMPAGNOLO was the first all-light-alloy gear in 1968 with the Nuovo Record. Now, in a gearing system which is still unsurpassed, comes the intelligent use of titanium. All mechanisms available for any frame, with covered cables, with bare wires for brazed-on stops or CAMPAGNOLO tunnel clips and short stainless cables. Down tube levers, (single right or twin) or handlebar control.

**SUPER RECORD.** A superb combination of modern materials, titanium with light aluminium alloys. A 6oz gear tough enough for the longest tour, with a range big enough for the mountain-climbing tourist. Rocket alloys on body and cage anodised to resist corrosion, titanium replaces steel on the two main pivot bolts, for lightness and corrosion-free life. A 36-cog capacity,



toothed nylon jockey sprockets, gives precise changes even with today's wide changes. Normally supplied as system only, with hanger.

30.40

**Downtube control.** Bare wire, with short stainless outer and clip/tunnel.

35.05

**Handlebar control.** Bare long stainless outer, clips.

39.20

**NUOVO RECORD.** Has set the pace since the first classic of 1968. A rocket alloy and steel gear which, like the Super Record will take a 13-28T block and 42-52T double chainwheel, or up to 36T with single chainwheel. Fully sleeved extra-long tension spring works through nylon toothed sprockets which give precise changes even of 13-17 blocks. Full chain wrap achieved without excessive tension, a must for the roadman. Supplied system only.

21.60

**Downtube.** Bare wire, stainless outer, clip/tunnel.

26.25

**Handlebar control.** Bare longer stainless outer, clips.

28.84

**RECORD CHANGER.** Partner to the Nuovo and Super Record gears, a chromium-plated cage is carried by a light-alloy bell crank. This provides a diagonal movement which makes it particularly efficient when used with wide-ratio chainrings. Twin screw stops, single spring which holds and returns cage. Hinged alloy clip with single bolt fixing. Cable or bare wire fitting.

**NB** Clip fits seat tube exactly, do not fit over tape, or clip may fracture when tightened.

**System only.** State bare or covered wire.

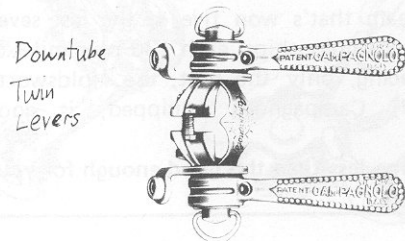
9.88

**Twin downtube.** Bare wire stainless short outer/clip.

14.31

**Handlebar.** Bare wire, clips and long stainless outer.

14.20



## HOLDSWORTH *Campagnolo*

PROFESSIONAL bike racing, by its very nature, makes the very highest demands.

Holdsworth fully supports the sport through its own team of professionals, who form the finest team under contract in the United Kingdom.

This brilliant team is not a one-man band, either. In June GEOFF WILES, Medway's King of the Criteriums, succeeded LES WEST and KEITH LAMBERT to give Holdsworth-Campagnolo its third successive British professional road championship.

For tough, acrobatic Geoff, a hardened pro, this was his first British championship. Behind him, taking the bronze medal was young PHIL CORLEY, only in his second professional year, but already in 1976 a winner of the classic Chequers Grand Prix.

Backing them is the team's powerhouse-man, tough JOCK KERR, a rider who can face the worst.

For a team that's won five of the last seven British pro championships, each 130 plus miles of gruelling racing, only the best, the Holdsworth Professional, Campagnolo equipped, is good enough.

Is anything less than this good enough for you?

**SUPER RECORD/RECORD** ensemble with twin down-tube controls, tunnels, clips and stainless outers.

47.52

**NUOVO RECORD/RECORD** ensemble.

38.72

**RALLY.** Pass-storming capacity, CAMPAGNOLO precision with the widest range of all—13-31T block with 32/54T rings, or from 28—112in! Forward facing parallelogram of light alloy on a spring-loaded light alloy casting which provides fantastic wrap round, yet clears wheel for removal. Light alloy cage 3in long carries toothed nylon sprockets for minimum chain wear. Twin screw adjustment, and will fit standard or Campagnolo ends. Only 10oz.

**System only.** With hanger.

21.98

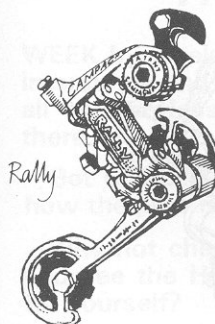
Any Campagnolo controls suitable, but for wide-ratio chainrings Record Front changer is essential.

**NUOVO GRANSPOORT.** Ideal for the racing man on a budget, a light alloy parallelogram carrying a steel sleeve and jockey cage, yet weighing only 8oz. Nylon toothed jockeys, range as Nuovo Record up to six speeds.

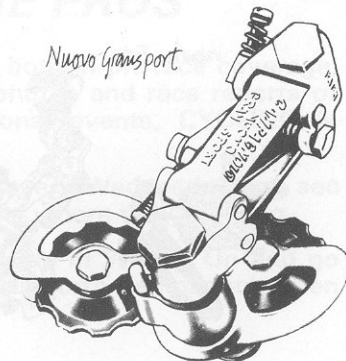
12.42

**System only.** With hanger (less controls).

**Nuovo Gransport** may be used with any control combination. Record front changer is recommended.



*Rally*



*Nuovo Gransport*



**VELOX.** A 10oz steel Campagnolo gear of great strength. Extended cage for the wider freewheels, with nylon jockeys and bright chromed finish, twin screw adjustment. Lever has serrated tension adjuster. Up to six speeds and double chainwheel.

**System only.** With hanger (less controls).

4.75

**Complete** with Velox lever and control wire.

5.08

**NB** State if needed for Campagnolo ends.

**VALENTINO EXTRA.** Simpler, a 9½oz mechanism giving Campagnolo simplicity for beginners' pockets. Five speed 3/32in throw will take 13-31T block and medium double chainset. Parallelgram with twin screw adjustment, nylon jockeys. Butterfly nut tensions lever.

**System only.** With hanger (less controls).

3.94

**Complete** with Valentino d/tube lever and wires.

6.37

**VALENTINO CHANGER.** Similar to original Gransport, angled cage-shaft is fully-enclosed in an alloy casting, providing a smooth diagonal movement. Single-screw adjustment, lever action. Twin bolt clip on seat tube.

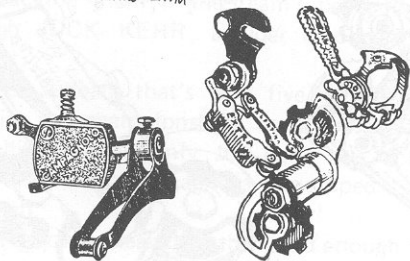
3.19

**System only** (less controls).

**VALENTINO ENSEMBLE.** Up to 10 speeds for the youngster, with reliability and quick changes. Complete with Valentino twin d/tube levers and wires.

7.18

*Valentino Extra*



## GEAR CONTROL LEVERS

**Record** right d/tube lever.

2.49

**Record** twin d/tube levers

4.43

**Record** handlebar controls.

4.32

**Valentino** lever.

1.78

**Valentino** twin levers.

2.81

# Cycling

## KEEP UP WITH THE PROS

WEEK by week, both in pre-race coverage, interviews and photos and race reports of all the professional events, CYCLING is there.

Get CYCLING every Wednesday and see how the pros ride, where they're riding.

Why not check up in What's On and go and see the Holdsworth-Campagnolo men for yourself?

## HURET

**CHALLENGER 2400.** A six-speed gear from a famous French company in light alloy, satin-chromed steel and plastics. Parallelogram action, twin screw adjustment. Patented depth adjustment by one screw allows rapid conversion from wide to close-ratio block, with full wrap-round. Double position spring gives increased tension for rough roads, cable adjuster allows for stretch. Steel d/tube lever with wide-tension butterfly nut.

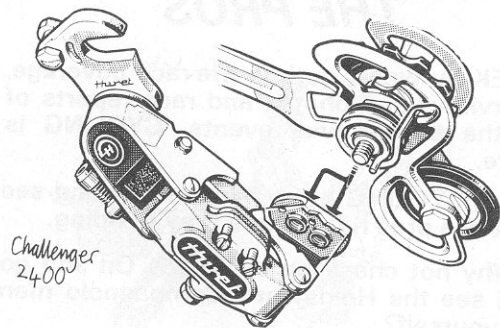
7.78

**CHALLENGER CHANGER 950.** Satin-chromed, fashionably drilled, with a bell crank parallel action by an enclosed spring. Twin clip mounting pivoting cable clamp for easy movement.

4.82

**CHALLENGER ENSEMBLE.** Twin gears finished in satin chrome, providing smooth changes over wide ratios. With d/tube control, bare wires.

11.79



**ALLVIT 1900.** Unique parallelogram is reversed, moving cage down to engage larger sprockets, keeping constant wrap-round. Double roller cage with toothed sprockets allows 17T on freewheel, a further 17T on chainwheels, twin tension positions. Strong plates are mounted in chromium-plated arm of stiff 'U' section. D/tube control.

5.79

**FRONT CHANGER 900.** Twin clip mounting, left or twin levers d/tube.

4.43

**ALLVIT ENSEMBLE 1900.** 1900 and 900 changer with twin levers.

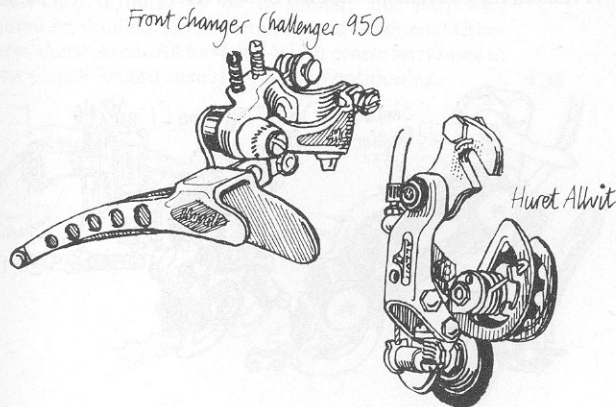
9.44

**SVELTO 2000.** One of the most robust and simple derailleurs weighing 9½oz. Up to six speeds and 32T range, using 1/8 or 3/32in chain. Steel parallelogram pivots to remove wheel, traverse powerfully-sprung, controlled by twin screws. Twin tension covers wide or close-ratio freewheels. Complete with downtube control.

5.03

**SVELTO 2090 ENSEMBLE.** 2000 rear with 900 front, twin levers.

8.66



## L. JUY SIMPLEX

**SIMPLEX PRESTIGE 637.** Undistortable plastics derailleur which needs no lubrication, and gives silent operation over a 32T range. Double tension springing keeps chain taut over wide or close ratios. With black plastics lever and chromium plated clip.

**637P** with hanger for standard ends.

**637N** for use with Campagnolo ends.

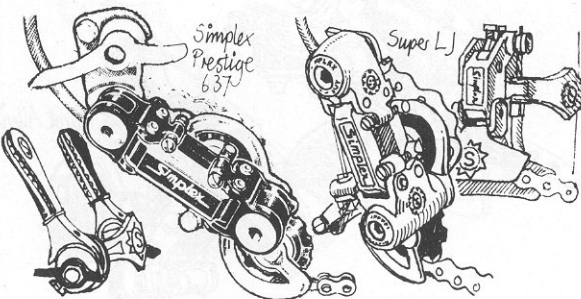
**AV223 CHANGER.** Simple mechanism in black plastics housing operates rod-mounted cage by cable.

**PRESTIGE ENSEMBLE 637/AV223.** Combination with twin plastics levers.

**Handlebar control.** With white outer casing.

**SUPER LJ ENSEMBLE.** 1975's Tour de France winner, identical to the 637 in principle, but a superb light alloy combination weighing only 18oz complete with cables, clips and levers. Nylon self-lubricating jockeys, rigid alloy cage and parallelogram. Front changer has hinged mounting incorporating cable guide to pivoted bolt, cage is drilled for lightness. With d/tube or h/bar controls and bare wires.

AV223 changers available with left or twin lever.



3.98

4.15

3.53

7.18

3.62

34.56

## HANDLEBARS

**GIRO DI SICILIA.** Extra width makes this bar popular with roadmen who appreciate the control and easier breathing it affords. Of 15/16in light alloy tube, it has a long raised centre which encloses a reinforcement. This is engraved with the Il Primo badge and a map of Sicily. Square on the Maes style, 16 x 4 1/2 x 6in deep.

2.59

**FIAMME.** A really practical and smart road bar from Italy's leading duralumin specialists. Square-cut, it is extremely strong, suitable for the rough stuff or 'cross rider, and of 15/16in alloy. With engraved external ferrule, decorated with Fiamme and a knight's head. 147/8 x 4 x 4 1/4in deep. Fits Cinelli Record stem.

3.50

**ALLEZ MAES.** A popular familiar all-rounder.

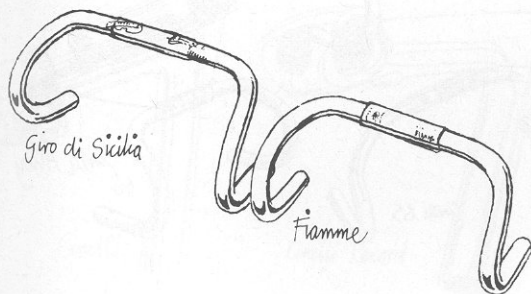
2.16

**BIRMALUX MAES.** A simple pattern bar in the classic style from a British specialist. Raised centre section. 16 x 4 x 5 3/4in deep.

1.85

**CINELLI ALLOY.** Continental favourites, led by the deep square Merckx No 66, 15.6in wide. No 65, more rounded and wide but not so deep is a favourite with six day men and testers. Giro d'Italia No 64 is similar, but narrower, favoured by Poulidor, De Vlaeminck and Maertens. Other squarer shape no 63. All have full-width centre serrations to fit new Cinelli Record stem, for non-slip positioning.

4.32



**GB.** British reinforced bends shaped in light alloy immensely popular here and on the Continent.

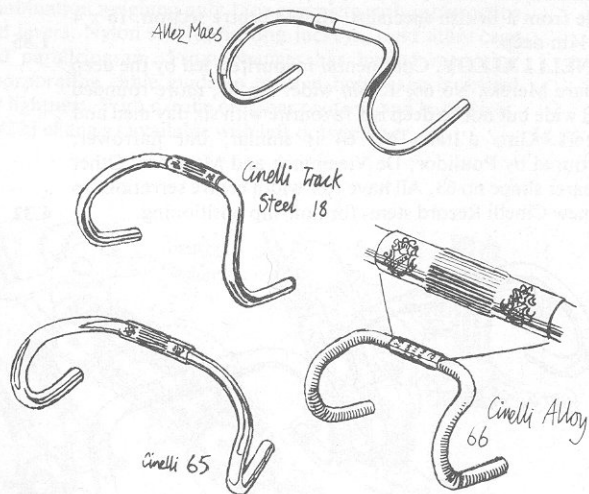
**Menton.** A new ultra-wide bar with a satin anodised finish, and centre section raised and engraved. Continental quality at a British price.  $17 \times 4 \frac{1}{8} \times 6 \frac{1}{2}$  in deep.

**Ventoux.** Popular roadman's bar.  $16 \times 4 \times 6 \frac{1}{8}$  in deep.

**Randonneur.** For the hard practised tourist with raised 'top' for comfort. Suitable for dual brake levers.

**All Rounder.** Plain in the flat style,  $23 \times 3 \times 1 \frac{1}{4}$  in deep.

**Mini Maes.** Shallow, just right for the beginner.



## HANDLEBAR STEMS

**IL PRIMO DI LUSSO.** A classic of design with a well-recessed Allen key tightening bolt. Machined from a solid forging with a wide clip which holds a recessed-head

3.8 bolt. 8, 9, 10, 11 or 12 cm.

3.8 **FIAMME MONTREAL.** An 11oz stem in the new 'streamlined' style but with an important innovation. The clip

2.2 grips the bar by means of an underslung recessed

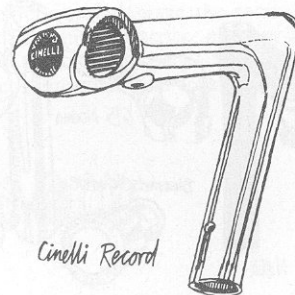
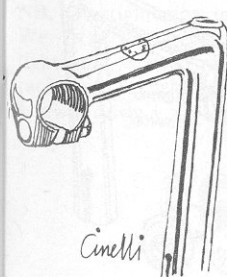
1.7 Allen key which takes the weight of the rider where it

2.1 matters. Tapered clip, Allen key tightening and highly-polished finish. 8 to 12 cm.

**FIAMME.** Similar to the Il Primo, a solid stem made by specialists which forms an extremely rigid mounting for the wide Fiamme bars. 8 to 12 cm.

**CINELLI RECORD.** A real advance in stem design which locks the new serrated Cinelli bars in position firmly. The elegant shape expands at the front to a heavy front which encloses a serrated wedge. This locks in position by a recessed underslung Allen key, holding the bars in a completely-circular clip. Yet the stem weighs only 10½oz, thanks to clever designing. Allen key stem tightening, anodised alloy finish.

**CINELLI.** Elegant streamlined stem with recessed Allen bolt holding the clip, and Allen key stem tightening. Anodised light alloy finish that will not corrode.



**GB BIBA.** A beautifully-made British anodised light alloy stem from one of the pioneers. Fashionably designed, its Allen key front fastening holds the clip with a D-headed sleeve bolt.

**GB NETA.** Elegant, now with Allen key draw bolt and flush back lap. Pinch-bolt hexagon head fits flat on clip and will not turn when tightening. In black anodised matt, or polished finish. 7, 9 or 11cm.

**GB NORMA.** Simpler and plainer version. Same sizes.

**GB NOVA.** Strong but competitively-priced in the girder section this firm made famous. 5, 7 and 9cm.

**CINELLI STEEL.** Superb, heavily-chromed stems with an extra-wide clip to hold track bars under sprint stresses. Smoothly brazed joints, hexagonal headed draw bolt. 7, 9, 10, 11, 12 and 13cm.

**CINELLI SACCHI.** A steeply-sloped stem for the pure sprinter. 9, 10, 11, 12 and 13cm.

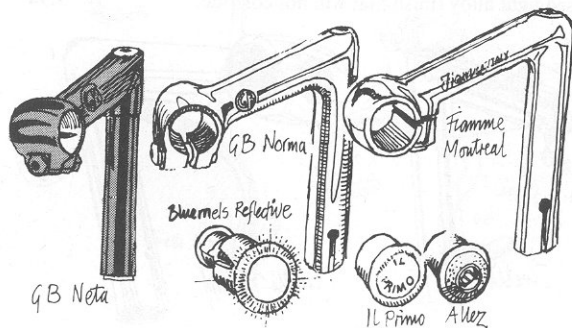
**SPARES**—available for all stems.

## HANDLEBAR PLUGS

**Il Primo.** Rubber end plugs, coloured, ribbed to stay put.

**Allez.** Plugs with neat recessed compression bolt.

**Bluemels.** With centre yellow reflector.



## HANDLEBAR TAPE

**IL PRIMO PLASTIC.** Embossed for non-slip use, with no adhesive to attract dirt. Wrap round first turn, tuck under handlebar plug to hold. Approx 4 metres  $\times$  2cm black, white, red, yellow, green, royal and light blue.

**ALLEZ TWILL.** Still favourite after years in use. Non-slip, absorbent, with adhesive that will not peel or run. Herringbone pattern, approx. 4m  $\times$  2cm, black, white, red and royal blue.

## HEAD SETS

**CAMPAGNOLO SUPER RECORD.** Once more titanium is used in the Super Record series to lighten still further the ultimate in bikes. Satin-finished cups of this wonder material hold steel bearing surfaces to provide a non-rust longlife headset. Screwed race and locking nut fit octagonal spanner.

**CAMPAGNOLO RECORD.** Road or Path models, of chromium-plated highly-polished and hardened steel, each individually-tested. Road has 3/16in balls in Campagnolo cage top and bottom, Path uses 26  $\times$  5/32in balls top and bottom. Screwed race and locking nut fit octagonal spanner. Extra column length required for Road set, Path should be fitted when replacing another make.

**NB.** Overtightening in assembly may damage the races. We DO NOT recommend common practice of overtightening screwed race and then turning back! Screwed race must be held in correct adjustment and locking nut screwed down.





**LEVIN.** A Japanese head set made from chromium-plated and polished hardened steel, yet weighing only 5½oz. At its price unequalled, and supplied complete with greased ball races.

**TDC ITALIA.** Cup and cone, with clean polished styling. Recessed D-pattern locking ring, slotted screwed race, 5/32in balls.

**TDC CONTINENTAL J.** Similar, but with knurled screwed race locking against D-ring and octagonal nut. 5/32in balls.

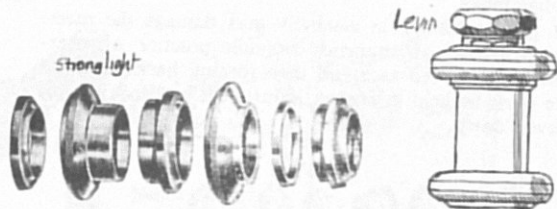
**TDC SUPER SET K.** For the bike with centre-pulls, a decagon screwed race locks against the hanger, held in place by an octagonal lock nut. The upper frame race is cup pattern. 5/32in balls.

**NYLFOR.** Specially hardened white nylon, ultra light in weight and available for English or French threads. 5/32in bearings.

**STRONGLIGHT COMPETITION V4.** Cup type lower races, serrated alloy locking ring.

**STRONGLIGHT P3.** Hardened steel cup and cone bearings.

**SRG.** Double cup bearings top and bottom, brightly chromed, with decagon screwed race, octagon locking nut. Standard 1in x 24 threads, or Raleigh 1in x 26tpi.



**GEOFF WILES**, 1976 British pro road champion, winning on Holdsworth-Campagnolo equipment, of course.

## CAMPAGNOLO HUBS

**RECORD STRADA.** Large flange, machined from solid alloy, flanges slotted to save weight with absolute rigidity. CAMPAGNOLO's original quick release, copied all over the world, provides firm locking with easy wheel removal. Sprung adjuster with bronze friction pads gives permanent set even when wheels are removed and used for spares. Bearing surfaces ground and polished, inserted in alloy behind dust caps, will last for years. Hubs single sided gear only, for five or six speeds (please specify) 40, 36, 32, 28 and 24 spokes.

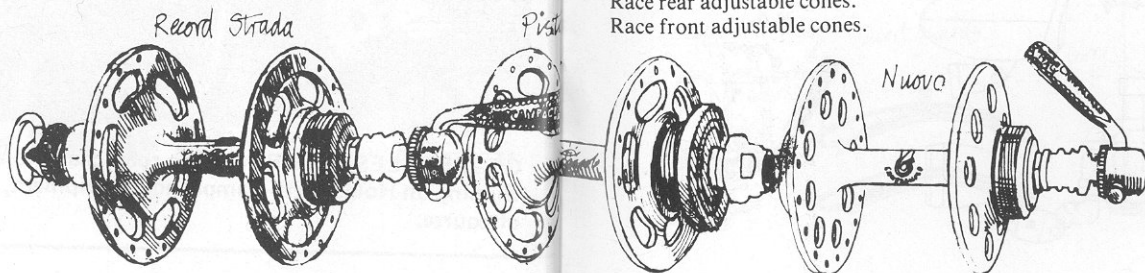
Front 12.15  
Rear 13.66

**RECORD STRADA.** Small flange hubs, the Continental roadman's favourite, identical in build but providing a more flexible wheel for the rigours of road racing.

Front 11.13  
Rear 12.58

**PISTA.** Large flange hubs of heavier construction to withstand steep bankings. Hold just about every known track record. Cut from solid shells, the front hub uses 7/32in balls and thicker spindle, as rear, special hardened nuts supplied. 40, 36, 32, 28, 24 spokes, single-sided only, with Campagnolo lock ring.

Front 10.37  
Rear 12.58



**NUOVO TIPO.** Large flange one piece alloy shells of similar construction to Record, but simplified to keep the price lower. CAMPAGNOLO quick release with nylon insert in adjusting nut. Single gear 36/36 only.

Front 8.48  
Rear 7.40

**NUOVO TIPO SMALL.** One piece flangeless shells, ideal for touring or racing. Easy running, long life at a moderate price. 36/36 only.

Front 8.48  
Rear 7.40

**SANSHIN.** Japanese hub, free running and neat, with solid alloy shell, large flanges. Quick release single gear 36/36 only 23oz pair.

6.80

## HUB SPARES

**SPROCKETS.** Offset fixed, 3/32in or 1/8in, 12-22T.

0.43

Offset fixed 1in x 3/16in.

0.49

**LOCKRINGS.** Standard.

0.10

For 12T sprockets.

0.13

**SPACERS.** For sprockets and freewheels.

0.06

**TRACK NUTS.** Campagnolo (special size) pair.

1.30

Standard 3/8in and 5/16in, serrated.

0.19

**LOCK NUTS.** Serrated and hardened, 3/8in and 5/16in.

0.11

Race rear derailleur spindles, complete.

0.31

Race front spindles, complete.

0.22

Race rear adjustable cones.

0.07

Race front adjustable cones.

0.06

**BLUEMELS SOUBITEZ.** Subtle use of plastics makes this 6-pole chromed French lighting unit weigh no more than battery lamps, 11oz, yet give a full 3W output at walking pace. Headlamps for mudguard or fork blade mounting. No 2, small square, No 3 round, No 4 large square.

## LAMP BRACKETS

**Peters.** Chromed heavy gauge wire, clamps to handlebars by wing nut and bolt, cannot shake loose.

**Terry.** Solid hinged and clamped plated fitting for 'bars.

Basket pattern, clips to bar, can be removed for safety.

**Fork boss.** Plated, complete with bolt for boss.

**Pletscher.** Fits rear of alloy carrier.

## LOCKS

**Boy.** Cable with simple locking attachment, two keys.

**Bikit.** Chain with integral combination lock, welded chain.

**Trelock.** Armoured cable with extra-effective combination.

## LUBRICATION

**Campagnolo** special white grease 100gm tins.

**Tecalemit** nipples.

## MISCELLANEOUS

**Mapholder.** Pletscher, alloy, attaches to expander bolt.

**Cyclometers.** Matex ultralightweight, 20, 24, 26 or 27in wheels.

5.74

0.49

0.40

0.24

0.25

0.20

0.90

1.47

2.00

0.84

0.03

1.17

0.81

**Racquet clip.** Terry's bolts onto fork blade, felt padded.

**Embrocation.** Bikit white 114ml flask.

Bikit clear 114ml flask.

**First Aid.** Bikit kit in pocket-sized plastic pouch.

**ACCOLADE.** Instant mix drink which helps replace body salts lost through perspiration. 200gm jar.

0.88

0.38

0.40

0.78

0.75

## MUDGUARDS

**WEINMANN.** Stainless steel, strong enough to support a medium saddle bag, and with non-rattle Continental fittings.

**WEINMANN FITTINGS.** Available separately for guards.

**WEINMANN.** Short guards, stainless, protect brakes and steering.

**RACELITE.** Stainless steel short guards.

**RACELITE.** Light alloy short guards.

**BIKIT.** Fittings for stays to hold metal guards.

Stainless brackets for mounting guards on eyeless forks.

Stays, chromed, to fit Bluemel or similar guards.

5.14

0.97

1.82

0.95

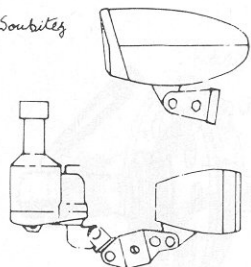
0.65

0.08

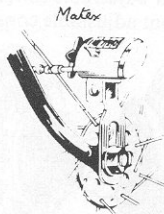
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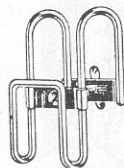
Soubitez



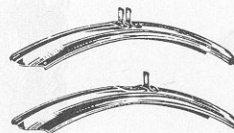
Matex



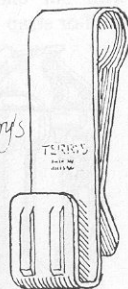
Peters



Short guards



Terry's



## CAMPAGNOLO PEDALS

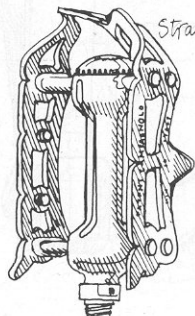
NO DOUBT the best pedals ever made, as evidenced by the number of copies. Self-sealing against dust and water by CAMPAGNOLO patent is a one-piece forged light alloy body which is common to the range. This holds hard chrome races of exceptional size and truth. Rapid oil groove and polished plastics dust cap seal out water. Clip and slot hold the toe-straps in place, preventing them slipping forward, pick-up projection makes for quick slip-in foot action. Polished hexagon CAMPAGNOLO studs screw into front plate to hold toe clip.

**SUPER RECORD STRADA No 4021.** The ultimate in pedals, with the light alloy body complemented by a spindle accurately ground and threaded from titanium, immensely tough, non-rusting, and light, with steel bearing surfaces. Black light alloy frame in quill pattern helps make this one of the lightest pedals ever made at 8oz a pair.

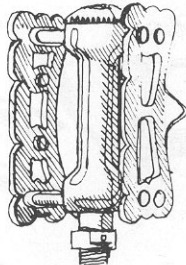
**SUPER RECORD PISTA No 4121.** The lightest of them all, with 3in black alloy plates, titanium spindle, but no quill or strap projections. 6½oz.

57.24

57.24



*Strada*



*Pista*

**STRADA XL No. 1037/A.** Campag's 'Black' pedals with a light alloy frame mounted on a spindle made from ground and polished nickel chrome steel accurately threaded and with bearings in hard chrome. For the rider who wants to watch the ounces and the pennies 11oz pair. 27.00

**PISTA XL 1038/A.** 'Black track', the pedal Merckx used to break the Hour Record, and a favourite with time trialists. Identical but for shorter 3in plates. 9½oz pair. 27.00

**STRADA No. 1037.** Campag's original pedal, unequalled by any copies, and phenomenally hard-wearing. Hard steel polished and ground spindle in light alloy, one piece body which is mounted on a heavily-chromed steel frame, which resists the hardest wear. Quill pattern, 15oz pair. 21.33

**PISTA No 1038.** Slightly lighter at 14oz with 3in plates. No quill or strap projections. 21.33

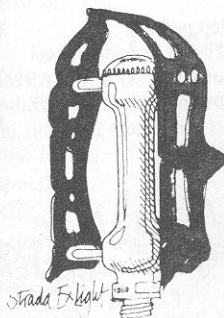
**CAMPAGNOLO SPARES.** All internals available.

Single pedals left or right

Frame only.

Spindle and cone only.

679 dust cap.



*Strada XL*



*Campag  
spindle*

## LYOTARD

FRANCE's most complete range of pedals for racing and touring, still the cheapest available. Spares readily obtained for all the range, which will suit the widest-shoed tourist as well as the weight-saving record-breaker.

**No 23 MARCEL BERTHET.** Unique platform pattern allows these 13oz pedals to fit any width shoe. Stainless plate on steel barrel with strap slots, shoe pickup and ridge for show plates. Slots match toe clips, replaceable bearings and spindles make this a very long-lived pedal.

4.59

**23L.** With long pedal thread for alloy cranks.

4.59

**45A.** Steel quill on the same barrel and bearings as the Berthet, 3½in wide, 13oz.

4.27

**45A AL.** With long thread for alloy cranks.

4.27

**45CA.** Same quill design, saving 2oz with alloy frame.

4.32

**45CA AL.** Long-threaded.

4.32

**45TER.** Lightest Lyotard, cheapest all-alloy quill, solid one piece alloy barrel and bars with serrated frame. 10oz.

5.67

**45TER AL.** Long-threaded.

5.67

**460D.** Full width doublesided all alloy pedal, 4in with strong centre support.

2.54

**460D AL.** Long-threaded.

2.70

**460A.** Simple practical steel double-sided pedals.

2.11

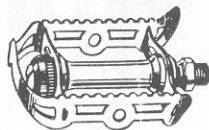
**462.** Clean single sided value, only 12½oz, chromed steel on tubular barrel. For use with or without clips.

2.05

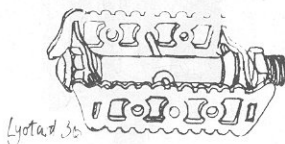
**36.** A straightforward all-round pedal for everyday use.

1.62

**LYOTARD SPARES.** All readily available.



45A



Lyotard 36

## PUMPS

**KINSMAN No. 2.** A must for team wagons, trackmen, following cars. A remarkable pump with a huge capacity which takes the effort out of pumping tyres up to racing pressures. It will pump up to 160psi. (11 atmos.) and will handle car tyres too. Unique action stores pressurised air, thus maintaining valve open, prolonging its life. Only 19in long with 24in Schrader quick release connector, it can be worked with only one hand. Schrader valve outlet from reserve chamber allows pressures to be checked without removing connector.

6.48

**HP ADAPTOR.** Press-fit into sprung Kinsman connector, screws onto tubular Presta valve.

0.76

**HP ADAPTOR.** Push fit on Presta valve.

0.86

**HOSE.** To fit Kinsman pump, 24in and connector.

1.62

With connector, but 36in hose.

1.78

**BLUEMELS-AFA.** Realistically-priced in light alloy for the clubman and racer, to fit the CAMPAGNOLO 1030 push-on connector. Polished, 18in, only 4½oz, with decorative hand-hold rings. Also 17in for smaller frames.

1.05

**921.** Racing pump and built-in push-on chromed connector. Milled-ribbed plastics handhold will not slip. Can be mounted top, down or seat tube, hemispherical clip provided.

3.49

## CONNECTORS

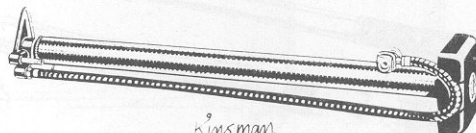
**CAMPAGNOLO.** Once again the name that sets the standard. Chromium plated with rubber washer (replaceable) that will stand any tyre pressure. Arms fit to frame joints. 1½oz.

2.59



Campagnolo

Connector



Kinsman



- 1030**—for English pumps and Bluemels AFA alloy.  
**1030/1**—for Italian pumps with large male thread.  
**1030/2**—for pumps with square boss fitting (eg Silca).  
**1030/3**—for French thread, fits Zefal (not Bluemels AFA).

**BLUEMELS.** Screw-on tubular connectors for all pumps and valves, rubber with fabric protection, metal ends.

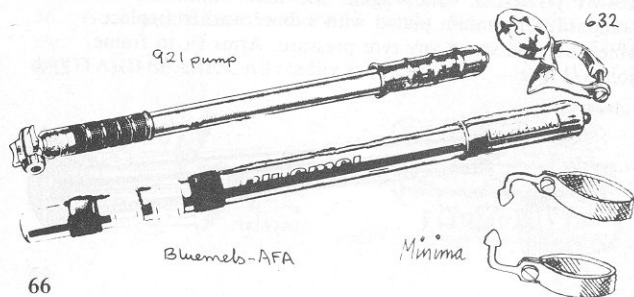
- 9A**—for Woods or HP valve. 0.21  
**P9**—reinforced for very high pressures. 0.22  
**9B**—fits Schrader valves. 0.21  
**9C**—Schrader (check type) for easier pumping. 0.26  
**Adaptor**—Schrader to Woods. 0.06

## PUMP CLIPS

- PYB MINIMA.** Clip on pegs that will not twist 1in for top tube, 1 1/8in for down tube, pair. 0.39  
**CYCLO.** Nosed pegs brazed into 1 1/8in chromed clips. 0.61  
**TERRY.** Strong spring push-on clips 1in x 7/8in chromed. 0.87  
**CAMPAGNOLO 632.** Portapompa cup type holder 1 1/8in clip. 1.73  
**647**—fits 1 1/8in clips to 1in top tube. 0.27  
**648**—peg only, 1 1/8in clip. 0.92

## PRESSURE GAUGES

- DUNLOP G/17.** For checking Presta valves 50-150lb. 1.00  
**4102.** For Schrader type valves 10-120lb with clip. 1.87

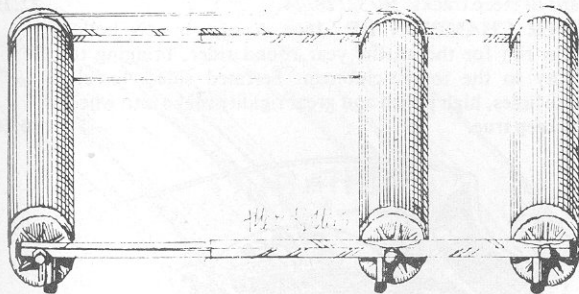


## HOME TRAINERS

OUR professional riders, like those on the Continent, obtain great benefit from using rollers. Regular use, particularly in the off-season, develops suppleness and balance. In combination with hard road training, this builds fitness and speed. Especially useful for the winter months when rain or snow make road riding unpleasant.

Allez rollers use sliding square tubing to obtain instant wheelbase adjustment. This also enables them to be packed away for storage or transport in a car. Large diameter plastics rollers mounted on ball races give a smooth and comparatively silent ride. Spare drive belts obtainable.

31.75



## RIMS

**SUPER CHAMPION RIMS.** For eight years since their first appearance on the British professional scene these French rims have gone from strength to strength. For road, track or time trial bikes appearance alone has justified many sales. Smooth moulding, high polish and carefully-positioned spoke ferrules have meant thousands of pairs of smart clean wheels. Serrated sides on the Competition Road rims make for clean braking. The tyre well, deep and round, is pre-roughened to make a key for cement. Three weights mean that any rider from a sprinter to a cyclo-cross man can be sure of maximum response and strength.

**COMPETITION ROAD 12¼oz.** Supreme rim for the roadman or when extra strength is needed as in a six-day. Rigid and responsive, ideal for distance time trials. 36/32/28/24 holes.

**ARC EN CIEL 11¼oz.** A superb light extrusion for those wheels for the special occasion, with strength to spare. 36/32/28/24.

**MEDAILLE D'OR 9¼oz.** As its name suggests, the Olympic track rim, of narrower section, lighter gauge. Smooth-sided pursuit and sprint special, not for rough roads or steep tracks. 36/32/28/24.

**SUPER CHAMPION HP. 16oz** A superb new hollow 17mm rim for the all the year round rider, bringing top quality to the tourist-clubman. Serrated sides, ferruled spoke holes, high polish and great rigidity make into wheels that keep true.

8.59

9.61

12.15

10.26



## FIAMME

**ITALIAN** rims from that country's leading light alloy specialists, fit for the toughest events. Extremely well made rims which will really last for years. Perfect for stage races, one pair will last a tour. Perfect also for the clubman who rides tubulars all the time.

**ERGAL.** A fresh approach to racing rims, deep, square, and highly-polished, in an amazingly strong new light alloy. 28 and 36 spokes only. 10½oz.

11.50

**SPRINT.** Longhi patent spoke seating spreads the load over both rim surfaces. Spoke nipples bed without washers at the correct angle, leaving an immensely rigid wheel. The Road rim is very strong, and popular with cyclocrossmen and hard tourists. The Track rim is narrower and lighter, ideal for time trialists and sprinters.

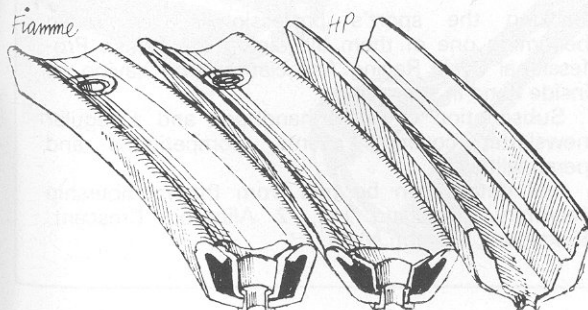
**Road 14oz—40/36/32/28**

**Track 12oz—36/32/28**

7.00

**HIGH PRESSURE 18oz.** Carefully rolled and with sides scoured for truth and left rough for grip. A square-sided deep-welled rim with ample strength for the heaviest rider. 40/36/32, 27in only.

5.51



## BIRMALUX

**HP 17oz.** A lighter but full inch-width extrusion with strength for the all-rounder where it matters. Carefully offset and countersunk spoke holes. 36 holes, 27in only. 4.49

## WEINMANN

**ALESA 19oz.** Classic hp rim, a favourite for years, and strong enough for everyday riding. Dimpled spoke holes seat nipples correctly, serrated sides. 27in, 40/36/32.

**ALESA 26in.** One of the few light alloy rims in this English size. Plain rim, no dimples, 40/36/32. 6.87

## VAN SCHOTHORST

**DUTCH.** Hp specials from the largest rim factory in Europe. Low price, but high quality truth and polish. Serrated sides 26 or 27in, 40/36/32. 3.60

**ENDRICK.** Wider rims in 26 or 27in  $\times$  1 1/4in and 26in  $\times$  1 3/8in, all drilled 40/36/32. 3.89

## JOIN THE PROS YOURSELF

Backing the sport's professionals can mean becoming one of them by joining the British Professional Cycle Racing Association, and having an inside hand in the racing.

Subscription covers a handbook and a regular newsletter covering events, competitions and personalities.

Full details can be had from the membership secretary.—Rowland Hill, 2 Alington Crescent, Kingsbury, London NW9.

## SADDLES

**BROOKS B17 PROFESSIONAL.** Classic leather racing saddle carefully shaped and cut away, made from prime butt leather. All surplus trimmed away, no bag loops, short neat appearance and held by large copper rivets to chromed frame. 10  $\times$  6  $\times$  3in, 25oz.

With saddle clip. 8.97

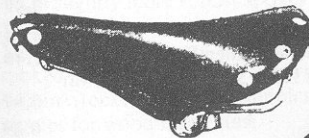
Without saddle clip. 8.10

**BROOKS B17 CHAMPION NARROW.** All-time great saddle made from heavy butt leather, with non-chafe saddle loops, chrome frame and clip. 11  $\times$  6  $\times$  3 1/8in, 26oz. 7.78

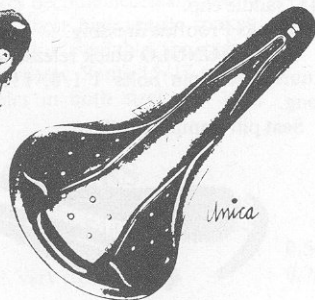
**WRIGHTS W3 SWALLOW.** For the fast pedaller, leather cut away to give thigh freedom. 11  $\times$  6  $\times$  3 1/8in, 25oz. 4.20

**YFC.** Nylon 11oz saddle, covered with seamless calf leather for comfort and sweat absorption. Chromed frame with tension adjuster moulded in. Less clip, no bag loops. 11  $\times$  6  $\times$  2 1/4in. 5.02

**MATEX.** Nylon saddle base covered with 3/4in of dense foam topped by stretch plastic for comfort for the tourist. Saddle loops, non-adjustable chromed-wire frame with clip. 10 1/2  $\times$  6  $\times$  3in, 21oz. 2.81



Brooks B17



W3

## UNICA-NITOR SADDLES

**NITOR STANDARD 55.** Perhaps the lightest of all saddles, from Italian nylon. One-piece moulding impervious to weather, temperature, on rivetless plated frame. Freely perforated for ventilation, black only less clip. 6¼ × 11in, 10oz.

4.05

**CAMPIONE DEL MONDO, TYPE 65/4.** Original leather-covered nylon, which needs no breaking-in. Permanent shape in all conditions, breathing leather eliminates perforations. 6 × 10¾in, 11½oz.

6.80

**CAMPIONE DEL MONDO 65/2.** Similar but chamois-covered to eliminate slide. 11¾oz.

6.80

**CAMPIONE DEL MONDO 65/3.** Covered with harder wearing Buffalo which wears into smooth satin finish. 6 × 10in, 12oz.

7.19

**TOUR DE FRANCE 75/4.** Nylon base covered with sponge rubber and topped with fine leather. 6 × 11in, 13oz.

9.45

**TOUR DE FRANCE 75/2.** Similar but with thick chamois over sponge rubber.

9.45

**TOUR DE FRANCE 75/3.** Buffalo hide makes this the ultimate in saddle comfort, covering sponge rubber over the nylon base. 13½oz.

9.85

## SADDLE ACCESSORIES

**B17** saddle clip.

0.89

**Brooks** Proofide dressing.

0.54

**CAMPAGNOLO** quick release and Allen Key seat bolts; knurled seat pin bolts 1 1/8, 1 ¼, 1 3/8, 1 ½ and 1 ¾in long.

0.97

Seat pin clamping collars.

0.29



## SEAT PINS

**CAMPAGNOLO.** Again the name that originated the micro-adjusting seat pin for perfect positioning of saddle and rider. Light alloy pins in five standard diameters, two frame widths. Adjustment by two 10mm hexagonal screws which clamp and raise or lower the saddle.

**SUPER RECORD.** Lightweight special with all surplus removed. Hollowed-out, fluted, the pin has been carefully engineered. Support cradles are made from titanium, saving precious ounces, matching the satin chrome clamps and bolts.

14.31

**GRAN SPORT.** Plain unfluted seat pin of light alloy with satin chromed clips and cradle, highly polished pivot and adjusting bolts. Five sizes and two frame widths. A superb mounting unequalled in precision.

8.80

**BIRMALUX.** British plain light alloy seat pins, 8in long, sizes 3, 4, 5.

0.53

## SPEEDOMETERS

**HURET.** French units to fit Moulton, RSW16, 20, 23, 24, 26 and 27in wheels. Choppers extra.

5.60

## SPOKES

**BERG-UNION.** As spoke numbers decrease down to 24, so do slightly more robust spokes become necessary. 14/16 gauge have become the norm in these high tensile spokes. The heavier 14 gauge plain is also available for radial-spoked testing wheels or track wheels. Some 15/17 spokes still in stock, as well as nipples in both sizes and long nipples for wood-insert rims.

## SPRINT CARRIERS

**CLIFF PETERS.** Light alloy, with open slots for easy removal when carrying light wheels. Suitable for quick release hubs.

0.54

**CYCLO-ROSA.** Chromed steel, very rigid.

0.76

## TOE CLIPS

## TOE STRAPS

**CHRISTOPHE.** Top quality chromed spring steel, the classic French standard. Short, medium and long.

1.35

**G.B. PROFESSIONAL.** Stainless sprung steel, onelength.

0.95

**BROOKS.** Chromed spring steel, medium, long.

1.00

**CHRISTOPHE.** Chrome leather, chromed buckle with milled brass roller, white only.

0.98

**ALLEZ CORSA.** Chrome leather with plated clip and roller, natural red or black. Quick release clip, soft non-stretch leather, self-stop foldover.

0.79

**BINDA.** Chrome leather with plated clip and milled brass roller on quick release which will not jam in wet weather.

1.04

**BINDA EXTRA.** Super straps with extra strength from a unique patented nylon insert that gives flexibility with strength. Natural finish.

2.49

**MARCEL.** Extra-thick at a keen price.

0.37

## TOOLS

**CAMPAGNOLO.** A complete range of bicycle tools, spanners, Allen keys, freewheel removers, extractors, for hubs, brakes, chainsets, headsets and saddles.

**BROOKS.** Nipple key, peg/cone spanner, head-bracket spanner and four and six-way flat spanners.

**CYCLO.** Nipple keys, freewheel remover, sprocket remover, pedal spanner and tap, spoke threader.

**VARIOUS.** TA Allen key and bracket tools; Weinmann brake spanners and clamp; Huret socket spanner set; Inox bronze eight-way spanner; Cinelli headstem Allen key; Stronglight b/b set.

**REGINA.** Freewheel removers solid block, fit by heavy dogs to freewheel notches. Flats fit vice or spanner. Centre hole clears hub nuts and cones. Case hardened.

**LINK REMOVERS.** Fifon hard steel punch revolving in bronze body: will replace links. Replacement pin and screw available.

**Cyclo Rivoli,** hard revolving peg. Pin and screw or pin only may be replaced.

## A WORKSHOP IN A SUITCASE

MANY riders think nothing of owning machines worth hundreds of pounds, yet use the same old worn chipped screwdrivers, rounded and loose spanners. Worse, when clubs provide a service wagon for a race these old warhorses are dragged out again—to be used on someone else's expensive racing machine.

CAMPAGNOLO's own suitcase workshops answer every problem of bike maintenance short of frame breakage.

- \* bottom bracket—alignment, tapping, fitting
- \* headset—milling, facing, fitting
- \* fork ends—realignment after crashes, squaring
- \* saddle—straightening, tightening
- \* pedals—alignment, removal, service
- \* brakes—stripping, repairs, alignment

CAMPAGNOLO tools make bike service a child's play. There are two cases of tools, the full workshop kit, and the race-mechanic's head and bottom bracket service kit. For your lifetime's sport and pleasure they'd be an investment.

**ASK YOUR DEALER—HE PROBABLY USES THESE KITS HIMSELF!**



## TUBULARS—CANETTI

A SUPERB range of tubulars, French-made in fine 100 threads per inch cotton and suitable for all types of racing. All with heavy cotton base tape, rubberised.

**OLYMPIC SILK 6oz.** Fine rib and file tread for criteriums or fast time trials. 10.64

**TOUR DE FRANCE 7½oz.** Silk road tyre fast and resilient enough for poor surfaces, puncture-proof band. Best of the bunch. 11.99

**PISTE 158 6½oz.** Light smooth-moulded band tyre, track or time trials, rubberised base tape. 9.67

**PARIS-NICE 8½oz.** Tough cotton tyre, narrow with a prominent file tread in a good round shape. 9.67

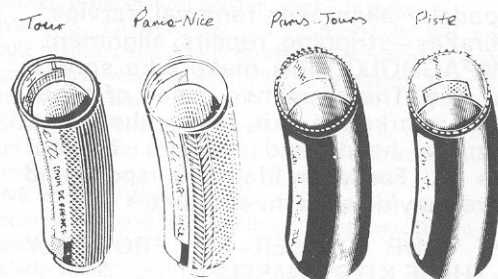
**PARIS-TOURS 8¾oz.** TT with matt black tread or with file tread (please specify). Ideal for longer time trials. 8.80

**PARIS-ROUBAIX 9oz.** A tyre for the heavier rider with a sturdier base tape to withstand shocks. Fast ribbed black tread with puncture-proof band, open sides. 10.42

**CANETTI 100 12oz.** Knockabout tyre. 5.24

**CANETTI SPORT, 12oz.** Specially-made for the club-man. 5.24

**CROSS 160 13oz.** Heavy construction with super knobbly tread ideal for cyclo-cross. 6.48



## D'ALESSANDRO

NO OTHER name has quite the prestige of this Italian firm's superlative products.

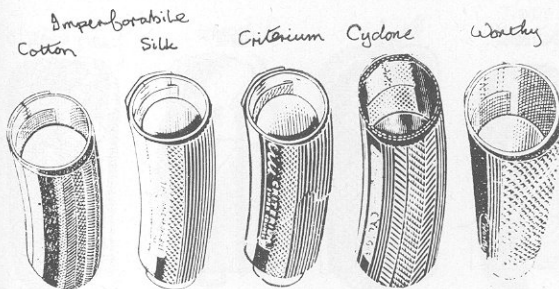
**SILK IMPERFORABILE 7½oz.** With file/rib tread hand laid on an amber band reinforced by a canvas breaker strip. Paper thin tube in super-resilient silk pocket. 11.61

**COTTON IMPERF 9¾oz.** Sea Island cotton pocket carrying hard rubber file black tread on the Imperf amber base and breaker strip. Ideal for wet rides. 10.64

**CRITERIUM 7oz.** New generation tyre in super light tough Tergal with carefully-moulded file/rib tread. Rounded shape gives smooth cornering ideal for criteriums. 9.72

**CYCLONE 10½oz.** Hard-rider's tyre ideal for beginners. Light tread on heavier pocket, but narrow. Very reliable. 6.16

**WORTHY 15½oz.** All rubber wear which supersede hp's. Ignore water; bold rib/diamond 1½in tread on oversize pocket with heavy linen and cotton base tape. 6.59



## KOWALIT

FROM East Germany, specially built for Peace Race conditions. They offer special value with medium weight pockets, double sewn chafing tapes, latexed walls. Weights plainly marked.

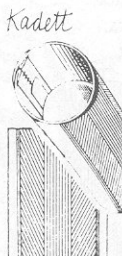
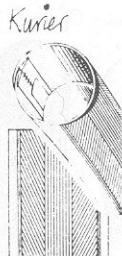
**KOMETT 11.6oz.** Narrow fine ribbed tread with a tough pocket and tube, full  $\frac{3}{4}$ in base tape. Sides latexed. 4.86

**KURIER 9.6oz.** Mixed roadman's tread on light pocket. 4.86

**KADETT 13.4oz.** Unbeatable at the price. Ideal for school-boy racing a sturdy rib/diagonal knockabout. 4.50

## NUOVO ALBERTO

A TYRE for the British winter, specially made for the Holdsworth Company by Pneumatici Clement. Close clearance, but heavy cotton with linen cover stitching which prevents concussion fractures. Canvas breaker strip. 4.97



## CLEMENT

A SELECTION of the tubulars most suited to British conditions from Clement's tremendous range, tops in road races, tests and track races.

**No 1 Seta Extra 5oz.** Sprinter's silks, featherlight yet enough for a fast '10'. 17.71

**No 1 Bis Seta Extra 7oz.** Supreme silk tyre, linen pattern. 17.71

**Nuovo Super Seta Ex. 6oz.** New, dimple tread on feather pocket, will dominate criteriums. Superfast tyre. 19.39

**No 3 Seta 6 $\frac{3}{4}$ oz.** Silk, supreme up to 25 miles. 15.50

**No 6 Criterium Seta 7 $\frac{3}{4}$ oz.** Latexed silk, matt tread. 15.50

**No 8 Sei Giorni. 6 $\frac{3}{4}$ oz.** Cotton six day special. 15.50

**No 9 7oz.** Cotton, track and time trials, smooth tread. 12.42

**No 10 8oz.** Wider matt band tread on heavier pocket. 12.42

**No 12 Bis Strada 66 8 $\frac{1}{4}$ oz.** Cotton file pattern road. 12.42

**No 12 Bis Crit. 9 $\frac{1}{4}$ oz.** Heavier herringbone tread. 12.42

**No 13 Camp. del Mondo Seta 10 $\frac{1}{4}$ oz.** Fat silk road super. 15.50

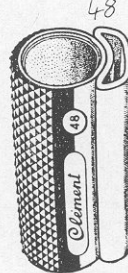
**No 18 Campestre 12oz.** Top 'cross tyre, a beauty. 7.07

**No 19 Clement 50 10 $\frac{1}{4}$ oz.** All round cotton, ribbed. 7.00

**No 20 Clement 48 Diamante 13oz.** Really solid training/touring tyre, prominent diamond pattern. 5.94

**No 24 Elvezia 75 13oz.** Similar but with narrow ribbing. 5.08

**MEC 13 $\frac{1}{2}$ oz.** Ribbed cotton, for winter training. 5.08



## TUBULAR SUNDRIES

**D'ALESSANDRO.** Double-sided tacky tapes, needles, thread, rim cement, pockets, treads, tubes as available.

**BIKIT.** Thread, stopping, fabric, patches, light patches, solution, track and road cement, proofing solution, chalk, cleaning solvent, repair outfit.

**CLEMENT.** Mastic cement in tube, rubberised base tape, repair outfit, valves.

**JANTEX '76.** New double-sided rim tape, much stronger adhesion.

**DUNLOP.** Rim cement and pressure gauges.

**CARRIERS.** Fulmine quick release, bolts to saddle, elastic cords hold spare tub.

**TYRE SAVERS.** Allez stainless wire-on lazy plastic mounts protect from flints and cuts. Mountings for racing frame or touring mudguards.

**WHEEL COVERS.** Holdsworth/Campagnolo team colours, or plain or printed to order. Proofed cloth, reinforced tread.

**CLEMENT.** Wheel covers in vulcanised rubber.

0.92

1.35

0.11

2.59

4.86

**Protect your tyres with  
tyresavers by . . .**



*Stainless Steel  
blade set to skim  
tyre closely will  
remove most sharp  
objects before outer  
casing can be penetrated.*



Ad Gevers, world champion on an Alan frame.



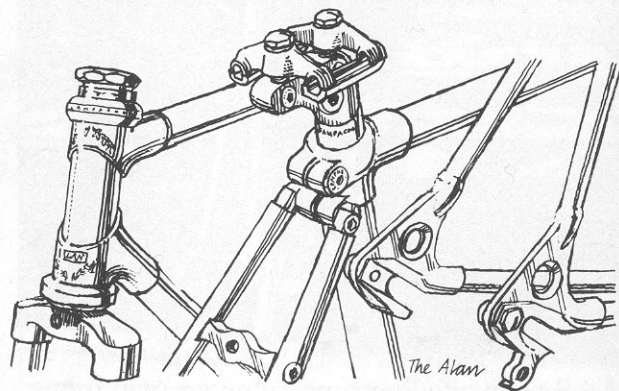
## ALAN'S ALLOY ARTISTRY

BICYCLES have been manufactured for 150 years, of all types of material, and breakthroughs in construction are rare. But Italian design artistry and skill in the manipulation of light alloys have produced a gem.

Using a unique new process of frame-building, Ing. Falconi has made a frame of unparalleled rigidity, yet reasonable racing weight. This system is as remarkable as it is simple, using ideas originating in the aircraft industry. The result has been, for the first time, an all-aluminium alloy frame strong enough to race on.

Alan alloy frames, in a few years, have moved from being just a new idea to winning three world championships in one season. In the demanding field of cyclo-cross, these frames are being chosen for their riding qualities and toughness.

Klaus-Peter Thaler, the 1976 amateur world cyclo-cross champion, and Albert Zweifel, who won the professional title on the same circuit, both won on Alan frames. While they found the strength of the frames ideal for cyclo-cross, Adri Gevers, the



giant Dutch world amateur road champion chose an Alan for its riding qualities and balance.

When he went to Mexico for the weather-ruined attempt on the world hour record last year, he specially asked for a track frame to be made by Ing Falconi, as the most responsive of all frames.

Holdsworthy has the exclusive agency for these unique frames in the United Kingdom.

The tubes are made from heavy gauge rustproof aluminium alloy, which is immensely rigid. Ing Falconi aimed at providing tubes which were as light as the best steels, but much stronger. A common demonstration is to put such a tube across a kerbstone and jump on it. The Alan tubes are so strong that they remain completely unaffected and as true as before.

Aluminium alloy lugs are cast, and then machined in the Alan works. A centre spigot protrudes from each tube-entry, and a fine aircraft thread is cut on these spigots. Matching threads are tapped in the tubes, and these are screwed into the lugs and fork ends, the joint being bonded with aircraft industry resins for complete solidity.

The whole frame is then anodised—either gold or silver—providing a hard, polished, virtually chip-proof finish.

Because the tubes have the same outside diameter, but are heavy gauge metal, a special Campagnolo saddle stem is fitted, and Alan frames have Campagnolo head sets and bottom bracket sets as standard.

On this close-clearance frame the dropouts are not fitted with mudguard eyes. The rear ends incorporate a gear hanger drilled to accept a Campagnolo Nuovo Record gear, which is the type recommended for the frame. They also have sliding lockable plates for accurate wheel alignment.

The saddle cluster incorporates an Allen-key, and the brake bridge and drillings are squared for real rigidity.

**Your Holdsworthy dealer's got an Alan in stock, get him to show you the virtues of the most modern bicycle in production**

CHAINWHEEL SIZE

## GEAR TABLE 27" WHEELS

CHAINWHEEL SIZE

COG SIZE	36	38	40	42	44	45	46	47	48	49	50	51	52	53	54	55	56	57
12	81.0	85.5	90.0	94.5	99.0	101.2	103.5	105.8	108.0	110.2	112.5	114.7	117.0	119.2	121.5	123.7	126.0	128.1
13	74.8	78.9	83.1	87.2	91.4	93.4	95.5	97.6	99.7	101.8	103.9	105.9	108.0	110.0	112.1	114.2	116.3	118.3
14	69.5	73.3	77.1	81.0	84.9	86.8	88.7	90.6	92.6	94.5	96.4	98.3	100.3	102.2	104.1	106.0	108.0	109.9
15	64.8	68.4	72.0	75.6	79.2	81.0	82.8	84.6	86.4	88.2	90.0	91.8	93.6	95.4	97.2	99.0	100.8	102.6
16	60.8	64.2	67.5	70.9	74.3	75.9	77.6	79.3	81.0	82.7	84.4	86.0	87.8	89.4	91.1	92.8	94.5	96.1
17	57.2	60.4	63.6	66.7	69.9	71.5	73.1	74.6	76.2	77.8	79.4	81.0	82.6	84.2	85.7	87.3	88.9	90.5
18	54.0	57.0	60.0	63.0	66.0	67.5	69.0	70.5	72.0	73.5	75.0	76.5	78.0	79.5	81.0	82.5	84.0	85.5
19	51.2	54.0	56.8	59.7	62.5	64.0	65.4	66.8	68.2	69.6	71.1	72.4	73.9	75.3	76.7	78.2	79.5	81.0
20	48.6	51.3	54.0	56.7	59.4	60.7	62.1	63.4	64.8	66.2	67.5	68.8	70.2	71.5	72.9	74.2	75.6	76.9
21	46.3	48.9	51.4	54.0	56.6	57.8	59.2	60.4	61.7	63.0	64.3	65.5	66.9	68.2	69.4	70.7	72.0	73.3
22	44.2	46.6	49.1	51.5	54.0	55.2	56.5	57.6	58.9	60.1	61.4	62.6	63.8	65.0	66.2	67.5	68.7	69.9
23	42.3	44.6	47.0	49.3	51.6	52.8	54.0	55.2	56.3	57.5	58.7	59.8	61.0	62.2	63.4	64.5	65.7	66.9
24	40.5	42.7	45.0	47.3	49.5	50.6	51.8	52.9	54.0	55.1	56.3	57.3	58.5	59.6	60.7	61.8	63.0	64.1
25	38.9	41.1	43.2	45.4	47.5	48.6	49.7	50.8	51.8	52.9	54.0	55.1	56.2	57.2	58.3	59.4	60.4	61.6
26	37.4	39.5	41.5	43.6	45.7	46.7	47.8	48.8	49.9	50.9	51.9	53.0	54.0	55.0	56.1	57.2	58.1	59.2
27	36.0	38.0	40.0	42.0	44.0	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0	54.0	55.0	56.0	57.0
28	34.8	36.6	38.6	40.5	42.4	43.4	44.4	45.3	46.3	47.2	48.2	49.2	50.1	51.1	52.0	53.0	54.0	55.0
29	33.5	35.4	37.2	39.1	41.0	41.9	42.8	43.7	44.7	45.6	46.5	47.5	48.4	49.4	50.3	51.2	52.1	53.1
30	32.4	34.2	36.0	37.8	39.6	40.5	41.4	42.2	43.2	44.1	45.0	45.9	46.8	47.7	48.6	49.5	50.4	51.3
31	31.3	33.1	34.8	36.6	38.4	39.2	40.1	40.9	41.8	42.7	43.6	44.4	45.3	46.2	47.0	47.9	48.8	49.7