

HADEN[®] ENGLAND

RACING LUGS



Westley Street, Birmingham B9 4ES, England, U.K.

We have been manufacturing frame lugs for cycles since 1869 – lugs for every type of cycle from junior sidewalk to professional racing models.

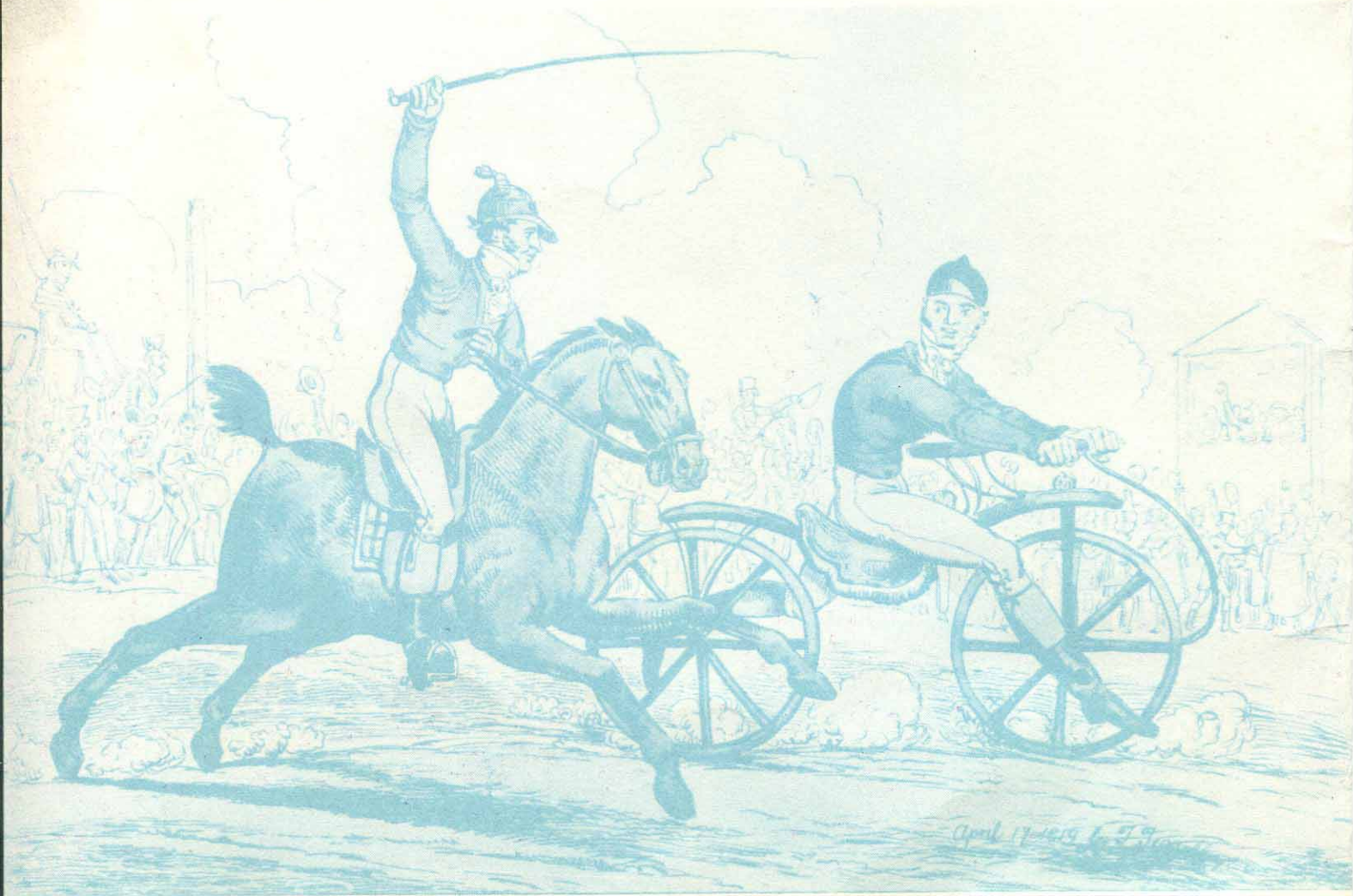
We have come a long way from those early years in the 1860's and over a period of 107 years we have continually evolved new ideas so that today we can still claim to hold our position as one of the World's leading manufacturers of frame components.

Today with modern production methods, modern technology, modern materials and modern design we offer the widest and most comprehensive range of frame lugs and we supply to most of the World's principal cycle manufacturers.

But some of our basic ideas, the ones we started with, still haven't changed – we still take the time to design and manufacture our components so that they are accurately made, easy to use and good to look at – just what the discerning frame builder requires to make a fine quality frame with custom built style and appearance.

It is our sports/racing lugs that we feature in this catalogue – lugs developed in consultation with leading specialist frame builders, tried, tested and proved in racing competitions throughout the world.

So whether you are building a few hand crafted frames a week or manufacturing several thousand a day you will find lugs in our range that perfectly meet your requirements.

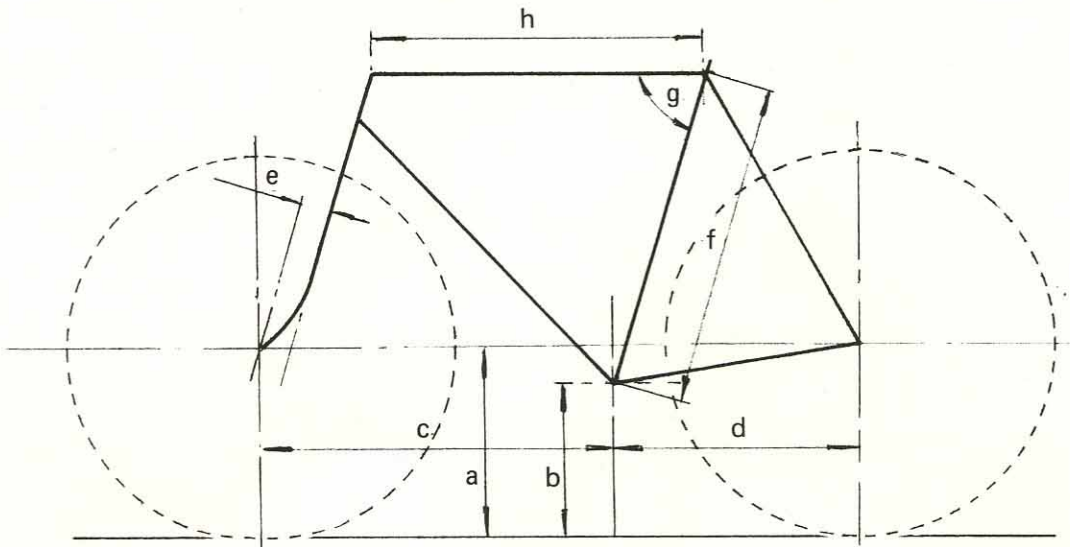


Index

	Page No.
Introduction	1
Index	2
Frame design	3/4
Polaris lug sets P101, P102, P103.	5
Polaris lug sets P201, P202, P203.	6
Concorde lug sets C301, C302, C303.	7
Specialist lug sets S401, S402, S403.	8
Olympic lug sets L501, L502, L503.	9
Olympic lug sets L504, L505, L506.	10
Olympic lug sets L601, L602, L603.	11
Olympic lug sets L604, L605, L606.	12
Olympic lug sets L701, L702, L703.	13
Speed lug sets H801, H802, H803, and H804.	14
Sports Bottom Brackets	15
Fork Crowns	16
A few useful items	17
Technical Data	18

We ask customers to please note that orders are accepted subject to price ruling at date of despatch and strictly in accordance with our standard terms and conditions, copies of which are available on request. We reserve the right to change designs in this catalogue without notice.

FRAME DESIGN



An accurately dimensioned frame is fundamental to a good bicycle and in an age when consumers are becoming more knowledgeable, more critical and more demanding it is absolutely essential that cycle manufacturers give the most detailed consideration to frame design.

In the field of sport, as cycle racing becomes more and more competitive, amateur enthusiasts are more and more demanding custom built frames. It is with these thoughts in mind that we review, particularly for the benefit of newcomers to frame building, some of the basic principles and concepts of frame design.

Before work on the drawing board begins the designer must remind himself that a cycle has only two basic functions:-

- 1) to carry the rider in a comfortable position where he can transmit his power through the pedals and chain to the rear wheel with minimum loss of efficiency.
- 2) to handle well and be safe to ride.

From a commercial point of view the cycle should also be:-

- 1) aesthetically correct, attractive and pleasing to the eye.
- 2) designed with production costs in mind so as to be a viable selling proposition.

BASIC DESIGN AND MATERIALS.

There have been many attempts in recent years to re-design the basic cycle frame and in particular to introduce new materials such as aluminium, titanium, carbon fibre etc. All these innovations have caused a great deal of interest and inspired many designers to question the whole concept of cycle design. Many European utility/shopping cycles are now made with large tubes, open frames and small wheels – a complete breakaway from the traditional diamond frame. However for touring/sports/racing cycles the diamond frame has proved unbeatable and from a commercial point of view the basic method of construction – steel tubes and frame lugs – remains unquestionably superior.

This is not to say that new materials have not been successful – some very fine frames have been built in materials other than steel. However unfortunately all these materials have particular associated problems and none of them have yet been proved to be viable for anything other than small quantity hand crafted production. It should be remembered that improvements have also been made in the properties of steel tubing and with materials such as Reynolds 753 tubing now available a really stiff lugged racing frame can be built weighing less than 2 kilograms (including fork).

Having considered these points the designer will require to know the purpose of the frame – whether for touring, road racing or track and he will need to have details of certain accessories to be fitted later, so as to allow for correct clearances etc.

Considerations of fashion cannot always be ignored, but these should not be allowed to take precedence over other more important criteria.

FRAME DIMENSIONS.

Before preparing a frame drawing the designer will have to consider carefully the following principal dimensions:-

- a) wheel size – it is necessary to know the distance from the wheel axle to the ground.
- b) distance between bottom bracket centre and ground – The most popular sizes are:-
 - track and cyclo-cross – 280mm.
 - time trial and criterium – 273mm.
 - general sports/touring – 270mm.
 - road racing – 267mm.
- c) distance between bottom bracket centre and front wheel centre – this is not a critical dimension but should be between 585mm. and 600mm. for road use.
- d) distance between bottom bracket centre and rear wheel centre – for general road use 410mm is about right but for track use this dimension can be reduced.

- e) fork rake – the ideal size will vary with the head angle and purpose of frame but in practice 40mm is the most commonly used size. For short distance time trials and track bikes 25 or 30mm can be used.
- f) length of seat tube – this is the most fundamental dimension and is sometimes referred to as the “height of the frame” or the “frame size”. Most builders consider this size as the distance from the centre of the bottom bracket to the top of the seat tube (the top of the seat lug). However, when preparing an engineering drawing, it is easier to consider the size from the centre of the bottom bracket to the intersection of the seat tube centre line and top tube centre line. This dimension is related to the size of the rider and is usually calculated by deducting 250mm. from his inside leg measurement.
- g) angle of seat tube – for sports/touring 72° or 73° are universal. For track competitions 74° is preferred. It is usual to have the head tube and seat tube parallel but for short adult or juvenile sports/touring frames a 73° or 74° seat with 72° head is quite acceptable.
- h) length of top tube – this is not particularly critical because handlebar stems of varying lengths can be obtained. The usual size is between 530mm and 570mm.
- i) clearance between fork crown and tyre – the designer will have to consider the purpose of the frame and size of mudguards (if fitted) etc. For road racing cycles the distance from the front wheel axle centre to the underside of the crown race seating is usually 360mm.
- j) total height of the bottom head cup assembly – the type of head set to be used must be considered so that the designer can calculate the length of head tube and the point where the top tube and head tube intersect. It is normal to arrange this so that the top tube is parallel to the ground.

FRAME ANGLES.

Having considered general dimensions the designer will now have enough information to prepare a full frame drawing. Angles can be calculated or measured from this drawing. As a cross check we list here the angles most generally used:-

	Sports/Touring	Road Racing	Track
Top lug	72 or 72	72 or 73	73
Bottom lug	61 60	60 59	59
Seat lug	72 72	72 73	74

It should be noted that the angle between the seat tube and the chainstays will vary with the bottom bracket height. For medium/high brackets this angle is generally 64°. For low brackets 61° is usual. The angle between the bottom tube and the seat tube will be the same as the bottom head lug angle assuming that head tube and seat tube are parallel.

SEAT STAY CONNECTION.

Various methods are used and a few typical examples are illustrated at the bottom of this page.

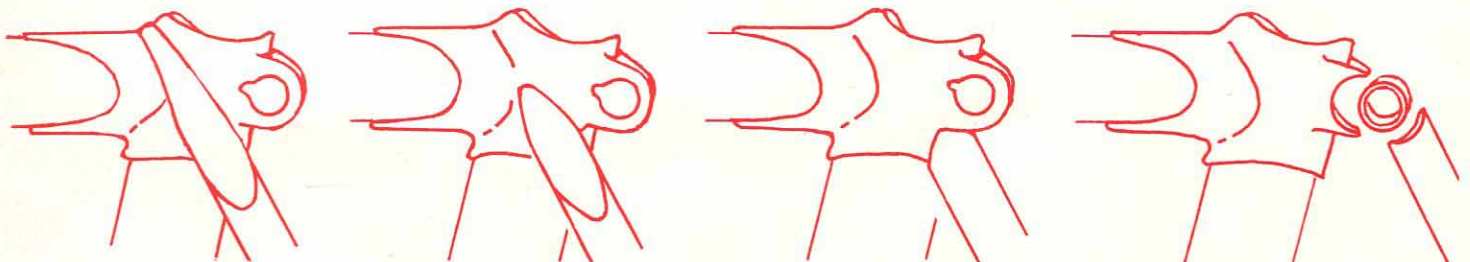
CHOICE OF FRAME COMPONENTS

Choice of lug design is very much a matter of personal preference, however account should be taken of the brazing method to be used and cleaning facilities etc. Generally speaking the plain simple lug designs such as our Olympic L.501 are better suited for mass production than some of the more ornate designs. This is because a simple design presents less cleaning problems after brazing.

Choice of fork crown will depend on the type of cycle. We offer a range of pressed oval crowns for general sports/touring use. For the ‘top of the range’ cycle and custom built racing models our new Europa crown is recommended. For track cycles we offer a special lightweight steel crown that accepts round fork blades.

All our bottom brackets are now made from steel tube and offer a unique combination of strength with lightness. These are available also with three slots cut out of the underside to provide extra lightness.

We hope that the information given here will be of interest to all concerned with frame building and design. It has always been our policy to offer every assistance, particularly to those embarking on frame building for the first time.

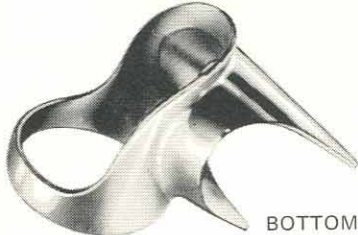
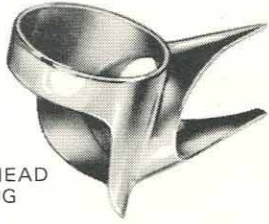


POLARIS Lug Sets

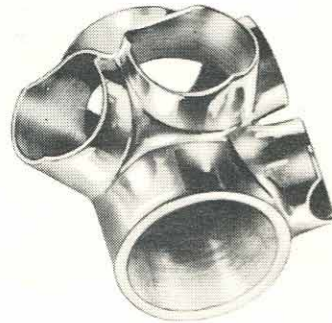
The ultimately simple classical design

POLARIS design P101

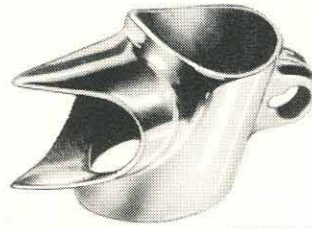
TOP HEAD LUG



BOTTOM HEAD LUG



BOTTOM BRACKET

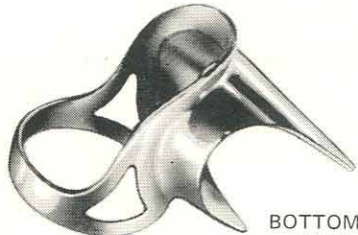


SEAT LUG

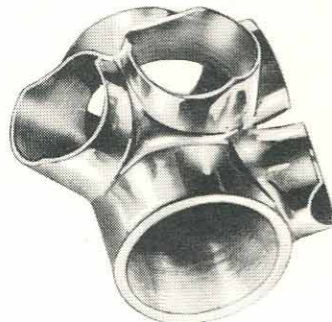
Special design features.
Clean Simple Line

POLARIS design P102

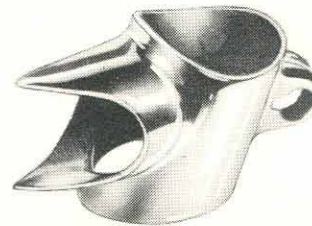
TOP HEAD LUG



BOTTOM HEAD LUG



BOTTOM BRACKET

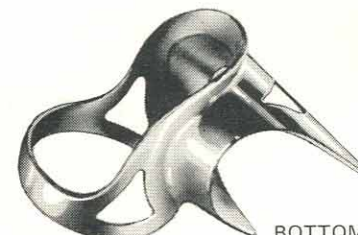


SEAT LUG

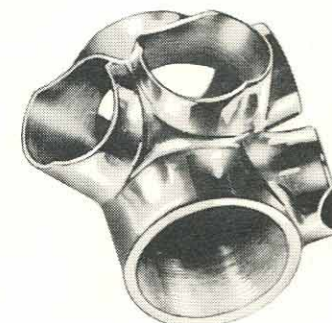
Special design features.
As P101 but incorporating triangular cut outs in body

POLARIS design P103

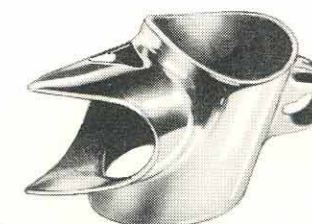
TOP HEAD LUG



BOTTOM HEAD LUG



BOTTOM BRACKET



SEAT LUG

Special design features.
As P102 but incorporating triangular cut outs in top of pipes.

Components illustrated above are available to the following Specifications

ITEM	INSIDE DIAMETERS	ANGLES AVAILABLE			
TOP HEAD LUG	31.8mm x 25.4mm	72	72	73	73
BOTTOM HEAD LUG	31.8mm x 28.6mm	60	61	59	59
SEAT LUG	28.6mm x 25.4mm	72	72	73	74
BOTTOM BRACKET	28.6 x 28.6 x 22.2mm	Various Types available see page 15			
FORK CROWN	25.4mm	Various Types available see page 16			

All Lugs are fully machined to ensure accurate angles and bore sizes

When ordering Lugs and Bottom Brackets please state carefully the angles required. Lugs can be ordered as separate items or in sets.

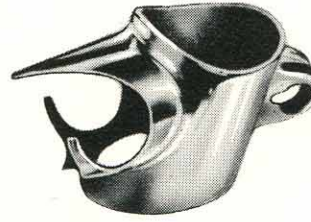
POLARIS Lug Sets

A sophisticated clean design for the highest quality frames

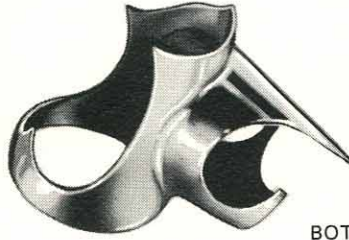


TOP HEAD LUG

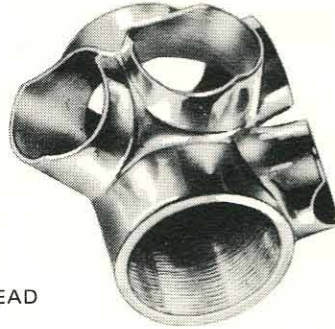
POLARIS design P201



SEAT LUG

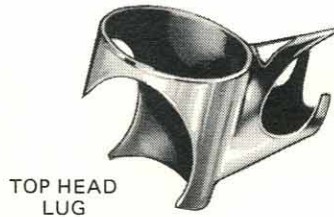


BOTTOM HEAD LUG



BOTTOM BRACKET

Special design features.
Cut away front and pipes

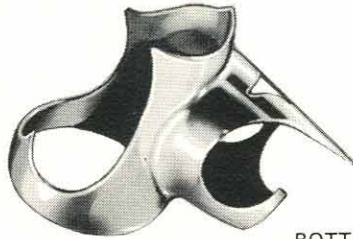


TOP HEAD LUG

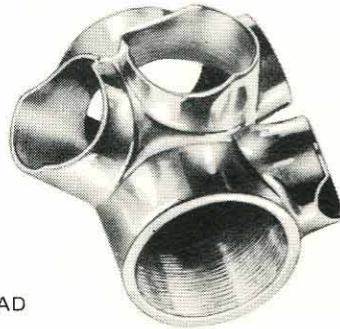
POLARIS design P202



SEAT LUG

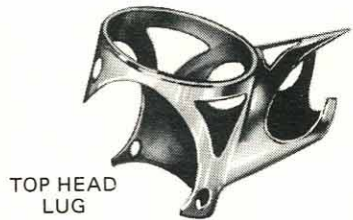


BOTTOM HEAD LUG



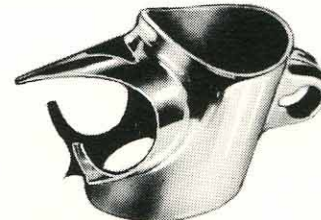
BOTTOM BRACKET

Special design features.
As P201 but incorporating triangular cut out in top of pipes.

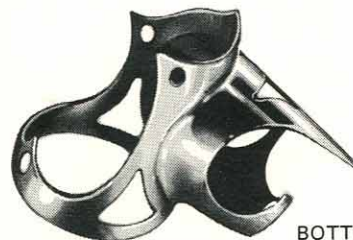


TOP HEAD LUG

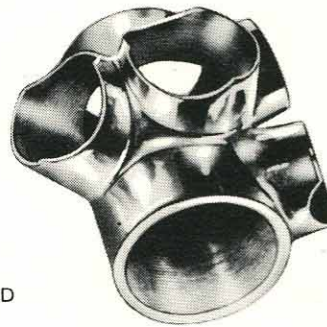
POLARIS design P203



SEAT LUG



BOTTOM HEAD LUG



BOTTOM BRACKET

Special design features.
As P202 but incorporating triangular cut outs in body and decorative holes.

Components illustrated above are available to the following Specifications

ITEM	INSIDE DIAMETERS	ANGLES AVAILABLE			
TOP HEAD LUG	31.8mm x 25.4mm	72	72	73	73
BOTTOM HEAD LUG	31.8mm x 28.6mm	60	61	59	59
SEAT LUG	28.6mm x 25.4mm	72	72	73	74
BOTTOM BRACKET	28.6 x 28.6 x 22.2mm	Various Types available see page 15			
FORK CROWN	25.4mm	Various Types available see page 16			

All Lugs are fully machined to ensure accurate angles and bore sizes

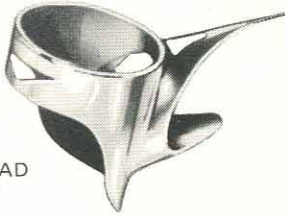
When ordering Lugs and Bottom Brackets please state carefully the angles required. Lugs can be ordered as separate items or in sets.

Concorde Lug Sets

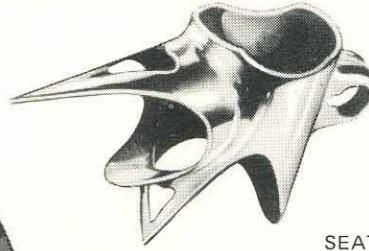
Custom built style and appearance

CONCORDE design C301

TOP HEAD LUG

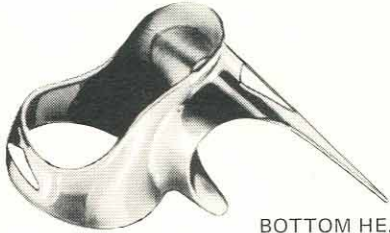


SEAT LUG

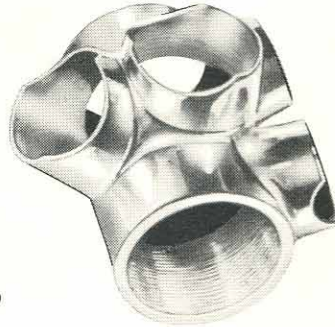


Special design features.
Extra long points with triangular cut outs in top of pipes and body front.

BOTTOM HEAD LUG

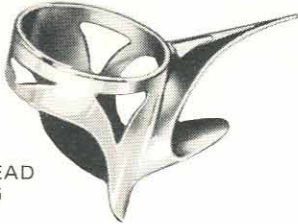


BOTTOM BRACKET

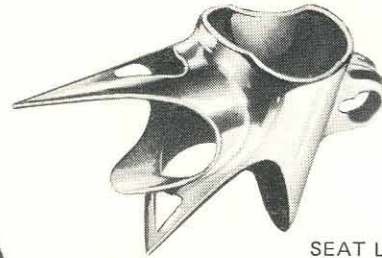


CONCORDE design C302

TOP HEAD LUG

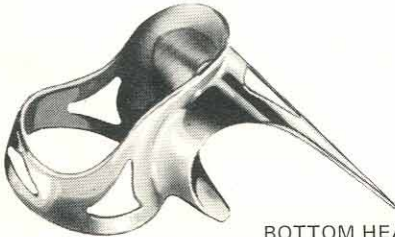


SEAT LUG

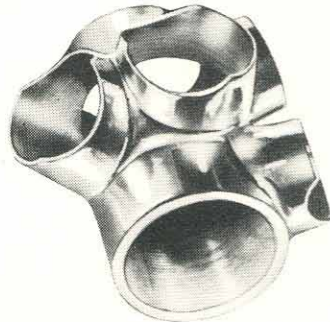


Special design features.
as C301 but incorporating triangular cut outs in body

BOTTOM HEAD LUG

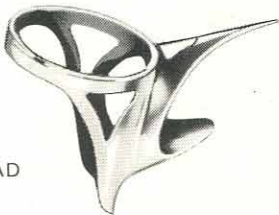


BOTTOM BRACKET

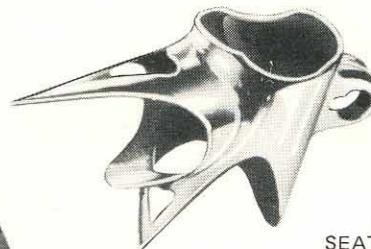


CONCORDE design C303

TOP HEAD LUG

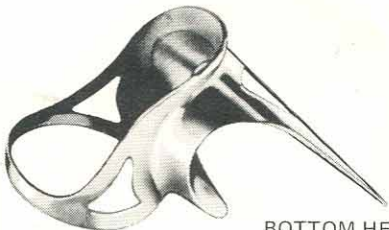


SEAT LUG

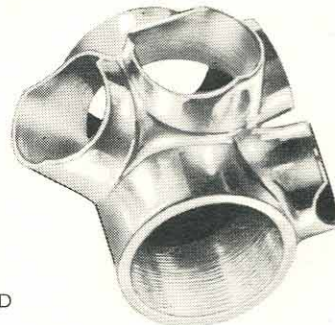


Special design features.
Special Super lightweight cut away version of Concorde lug.

BOTTOM HEAD LUG



BOTTOM BRACKET



Components illustrated above are available to the following Specifications

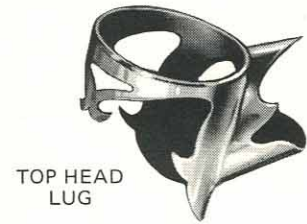
ITEM	INSIDE DIAMETERS	ANGLES AVAILABLE
TOP HEAD LUG	31.8mm x 25.4mm	73
BOTTOM HEAD LUG	31.8mm x 28.6mm	59
SEAT LUG	28.6mm x 25.4mm	73
BOTTOM BRACKET	28.6 x 28.6 x 22.2mm	Various Types available see page 15
FORK CROWN	25.4mm	Various Types available see page 16

All Lugs are fully machined to ensure accurate angles and bore sizes

When ordering Lugs and Bottom Brackets please state carefully the angles required. Lugs can be ordered as separate items or in sets.

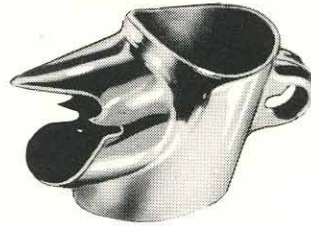
SPECIALIST Lug Sets

Intricate design in the French style

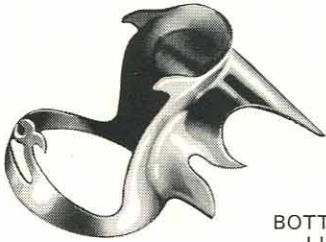


TOP HEAD LUG

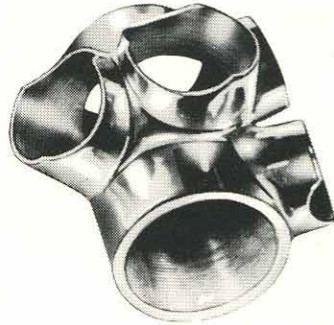
SPECIALIST design S401



SEAT LUG



BOTTOM HEAD LUG



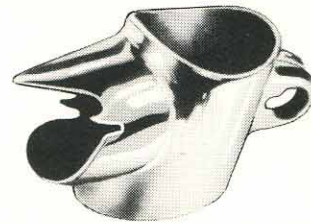
BOTTOM BRACKET

Special design features.
Intricate cut away design.

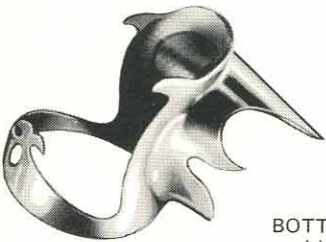


TOP HEAD LUG

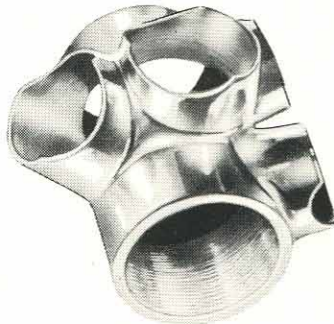
SPECIALIST design S402



SEAT LUG



BOTTOM HEAD LUG



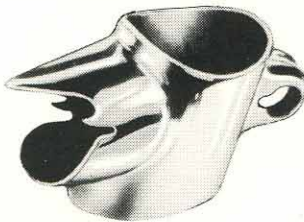
BOTTOM BRACKET

Special design features.
As S401 but with round hole in front in place of triangular cut out.

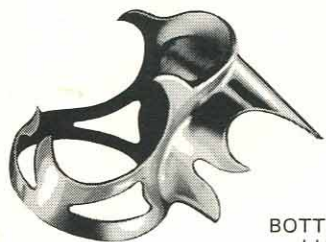


TOP HEAD LUG

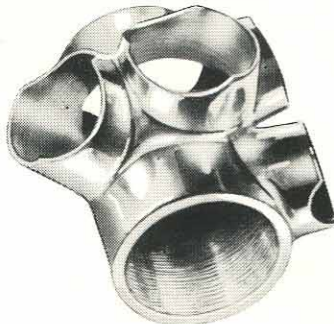
SPECIALIST design S403



SEAT LUG



BOTTOM HEAD LUG



BOTTOM BRACKET

Special design features.
triangular cut outs in side of body.

Components illustrated above are available to the following Specifications

ITEM	INSIDE DIAMETERS	ANGLES AVAILABLE			
TOP HEAD LUG	31.8mm x 25.4mm	72	72	73	73
BOTTOM HEAD LUG	31.8mm x 28.6mm	60	61	59	59
SEAT LUG	28.6mm x 25.4mm	72	72	73	74
BOTTOM BRACKET	28.6 x 28.6 x 22.2mm	Various Types available see page 15			
FORK CROWN	25.4mm	Various Types available see page 16			

All Lugs are fully machined to ensure accurate angles and bore sizes

When ordering Lugs and Bottom Brackets please state carefully the angles required. Lugs can be ordered as separate items or in sets.

OLYMPIC Lug Sets

The universally accepted classical line

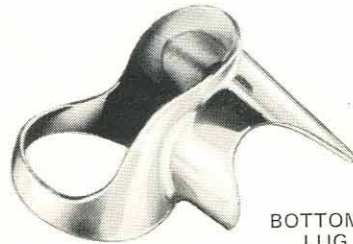


TOP HEAD LUG

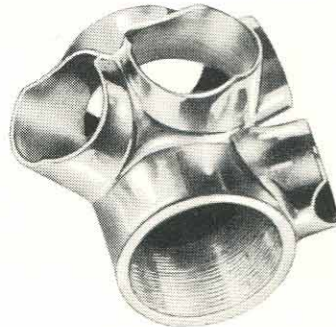
OLYMPIC design L501



SEAT LUG



BOTTOM HEAD LUG



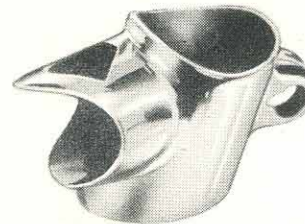
BOTTOM BRACKET

Special design features.
Clean simple design

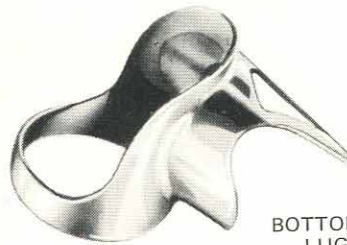


TOP HEAD LUG

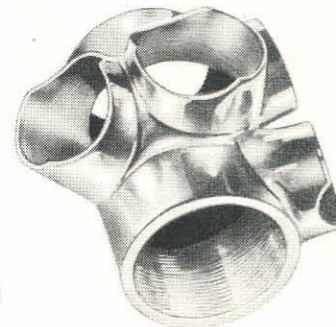
OLYMPIC design L502



SEAT LUG



BOTTOM HEAD LUG



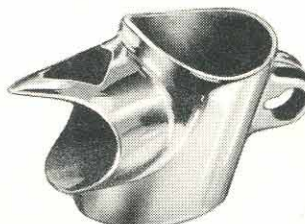
BOTTOM BRACKET

Special design features.
As L501 but incorporating 'Diamond' cut outs in top of pipes.

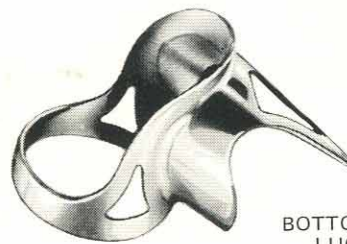


TOP HEAD LUG

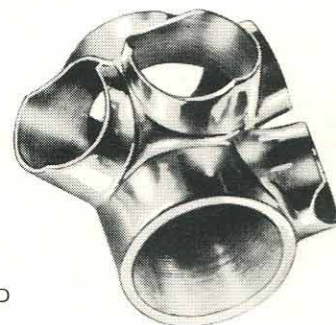
OLYMPIC design L503



SEAT LUG



BOTTOM HEAD LUG



BOTTOM BRACKET

Special design features.
As L502 but incorporating triangular cut outs in body

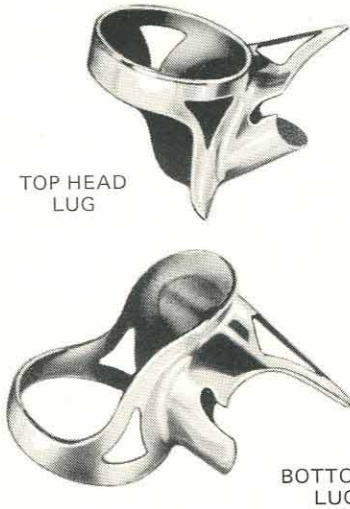
Components illustrated above are available to the following Specifications					
ITEM	INSIDE DIAMETERS	ANGLES AVAILABLE			
TOP HEAD LUG	31.8mm x 25.4mm	72	72	73	73
BOTTOM HEAD LUG	31.8mm x 28.6mm	60	61	59	59
SEAT LUG	28.6mm x 25.4mm	72	72	73	74
BOTTOM BRACKET	28.6 x 28.6 x 22.2mm	Various Types available see page 15			
FORK CROWN	25.4mm	Various Types available see page 16			

All Lugs are fully machined to ensure accurate angles and bore sizes

When ordering Lugs and Bottom Brackets please state carefully the angles required. Lugs can be ordered as separate items or in sets.

OLYMPIC Lug Sets

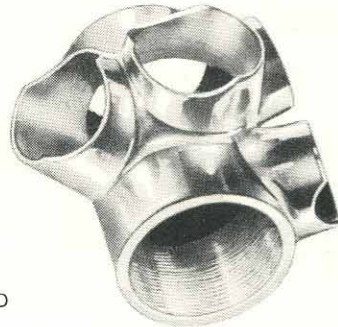
The universally accepted classical line



OLYMPIC design L504

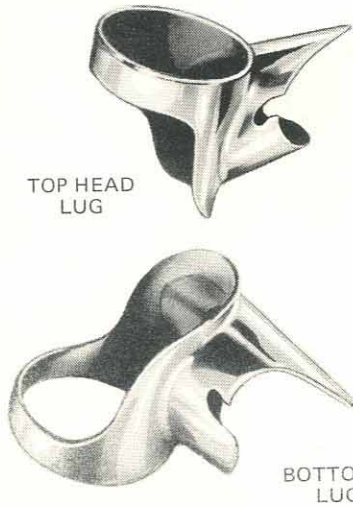


SEAT LUG



BOTTOM BRACKET

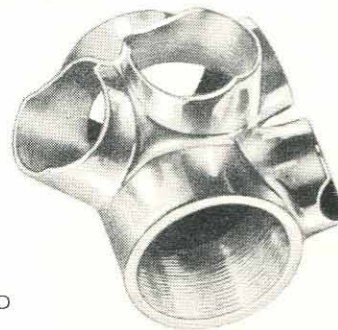
Special design features. As L503 but incorporating side cuts in pipes



OLYMPIC design L505

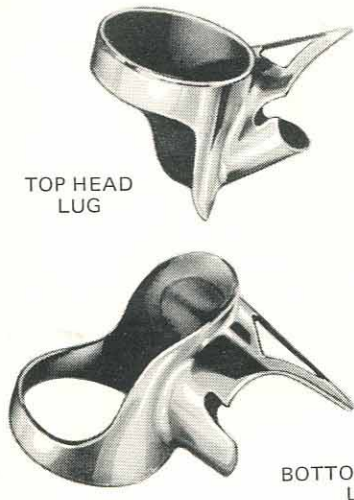


SEAT LUG

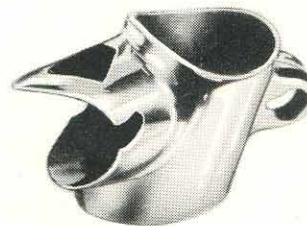


BOTTOM BRACKET

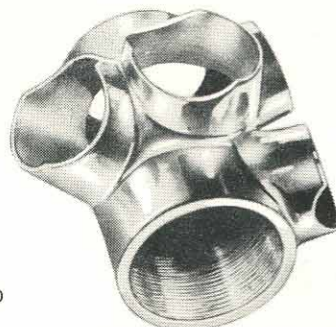
Special design features. As L501 but incorporating side cuts in pipes



OLYMPIC design L506



SEAT LUG



BOTTOM BRACKET

Special design features. As L505 but incorporating 'Diamond' cut outs in top of pipes.

Components illustrated above are available to the following Specifications				
ITEM	INSIDE DIAMETERS	ANGLES AVAILABLE		
TOP HEAD LUG	31.8mm x 25.4mm	72	72	73 73
BOTTOM HEAD LUG	31.8mm x 28.6mm	60	61	59 59
SEAT LUG	28.6mm x 25.4mm	72	72	73 74
BOTTOM BRACKET	28.6 x 28.6 x 22.2mm	Various Types available see page 15		
FORK CROWN	25.4mm	Various Types available see page 16		

All Lugs are fully machined to ensure accurate angles and bore sizes

When ordering Lugs and Bottom Brackets please state carefully the angles required. Lugs can be ordered as separate items or in sets.

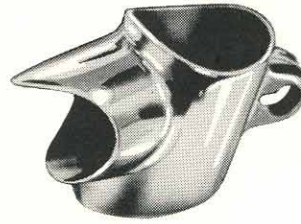
OLYMPIC Lug Sets

Attractive European Style

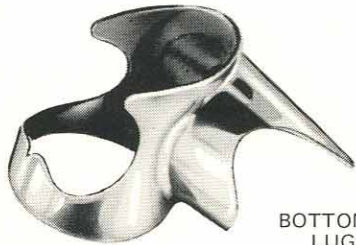


TOP HEAD LUG

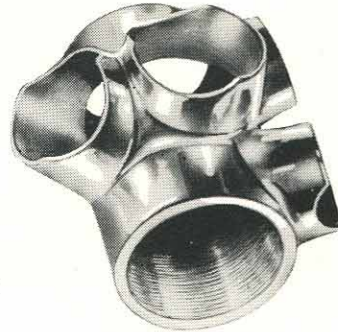
OLYMPIC design L601



SEAT LUG



BOTTOM HEAD LUG



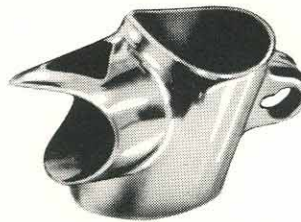
BOTTOM BRACKET

Special design features. decorative curved front

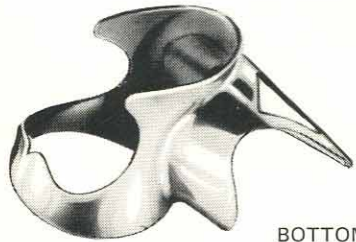


TOP HEAD LUG

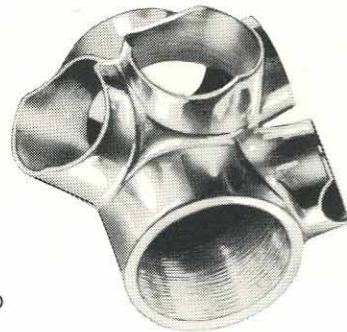
OLYMPIC design L602



SEAT LUG

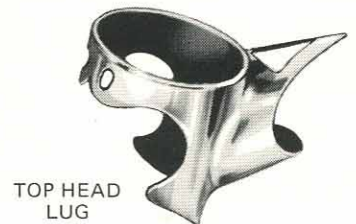


BOTTOM HEAD LUG



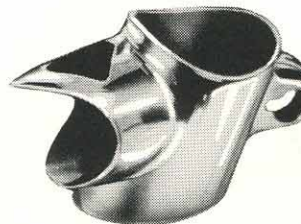
BOTTOM BRACKET

Special design features. As L601 but incorporating 'Diamond' cut outs in top of pipes.

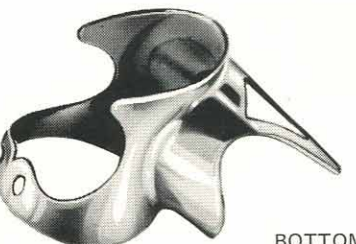


TOP HEAD LUG

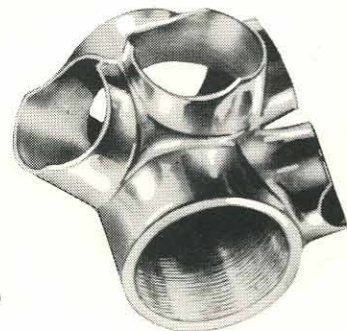
OLYMPIC design L603



SEAT LUG



BOTTOM HEAD LUG



BOTTOM BRACKET

Special design features. As L602 but incorporating two decorative holes in front of body.

Components illustrated above are available to the following Specifications

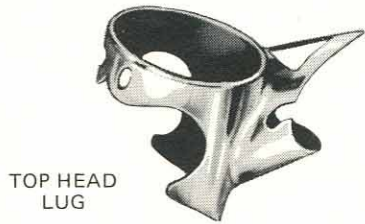
ITEM	INSIDE DIAMETERS	ANGLES AVAILABLE			
TOP HEAD LUG	31.8mm x 25.4mm	72	72	73	73
BOTTOM HEAD LUG	31.8mm x 28.6mm	60	61	59	59
SEAT LUG	28.6mm x 25.4mm	72	72	73	74
BOTTOM BRACKET	28.6 x 28.6 x 22.2mm	Various Types available see page 15			
FORK CROWN	25.4mm	Various Types available see page 16			

All Lugs are fully machined to ensure accurate angles and bore sizes

When ordering Lugs and Bottom Brackets please state carefully the angles required. Lugs can be ordered as separate items or in sets.

OLYMPIC Lug Sets

Attractive European Style



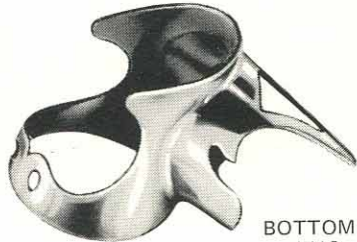
TOP HEAD LUG

OLYMPIC design L604

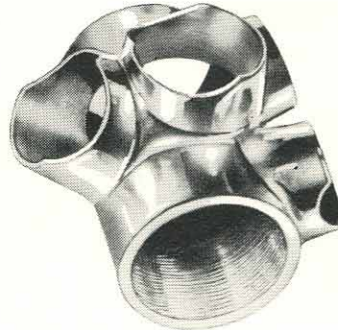


SEAT LUG

Special design features.
As L603 but incorporating side cuts in pipes.



BOTTOM HEAD LUG

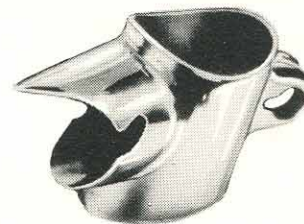


BOTTOM BRACKET



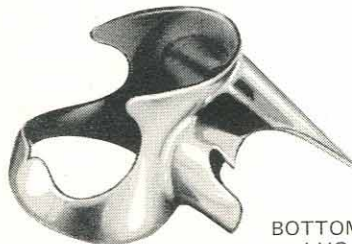
TOP HEAD LUG

OLYMPIC design L605

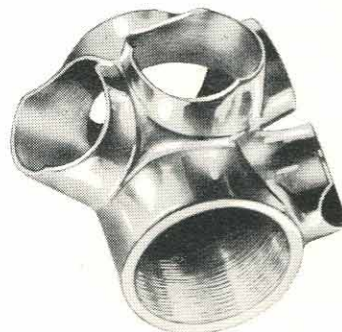


SEAT LUG

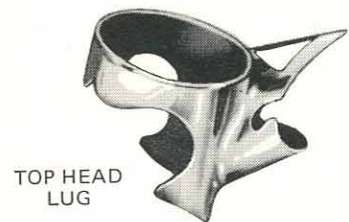
Special design features.
As L601 but incorporating side cuts in pipes.



BOTTOM HEAD LUG

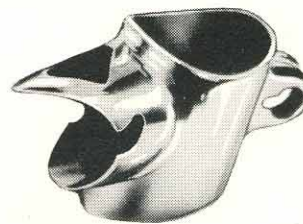


BOTTOM BRACKET



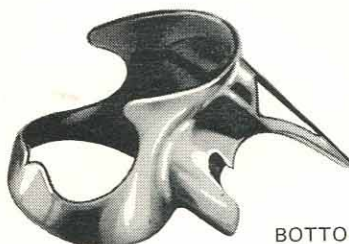
TOP HEAD LUG

OLYMPIC design L606

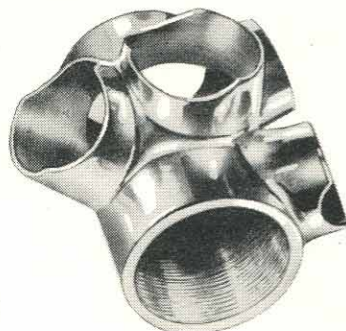


SEAT LUG

Special design features.
As L605 but incorporating 'Diamond' cut outs in top of pipes.



BOTTOM HEAD LUG



BOTTOM BRACKET

Components illustrated above are available to the following Specifications

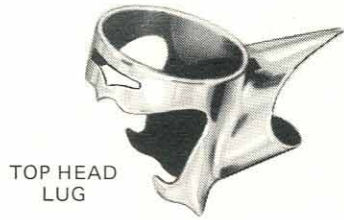
ITEM	INSIDE DIAMETERS	ANGLES AVAILABLE			
TOP HEAD LUG	31.8mm x 25.4mm	72	72	73	73
BOTTOM HEAD LUG	31.8mm x 28.6mm	60	61	59	59
SEAT LUG	28.6mm x 25.4mm	72	72	73	74
BOTTOM BRACKET	28.6 x 28.6 x 22.2mm	Various Types available see page 15			
FORK CROWN	25.4mm	Various Types available see page 16			

All Lugs are fully machined to ensure accurate angles and bore sizes

When ordering Lugs and Bottom Brackets please state carefully the angles required. Lugs can be ordered as separate items or in sets.

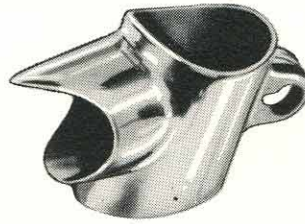
OLYMPIC Lug Sets

Thoroughbred design with intricate cut outs

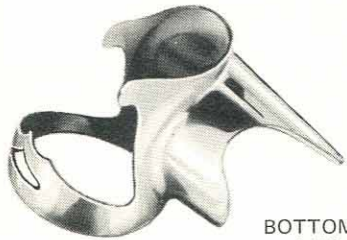


TOP HEAD LUG

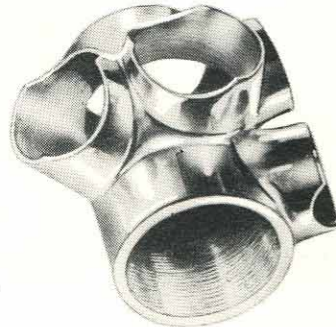
OLYMPIC design L701



SEAT LUG

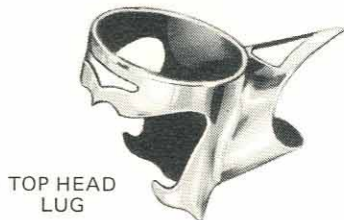


BOTTOM HEAD LUG



BOTTOM BRACKET

Special design features.
Intricate cut away design.

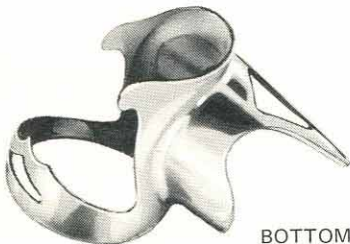


TOP HEAD LUG

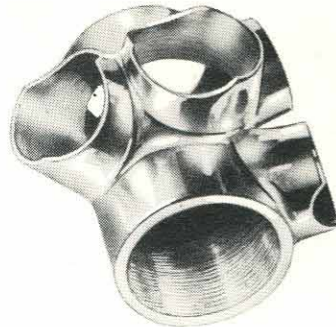
OLYMPIC design L702



SEAT LUG



BOTTOM HEAD LUG



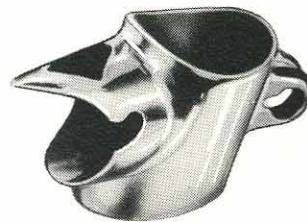
BOTTOM BRACKET

Special design features.
As L701 but incorporating 'Diamond' cut outs in top of pipes.

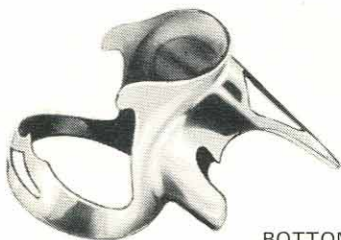


TOP HEAD LUG

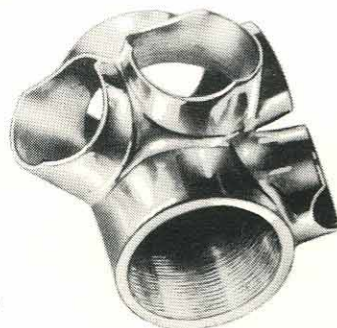
OLYMPIC design L703



SEAT LUG



BOTTOM HEAD LUG



BOTTOM BRACKET

Special design features.
As L702 but incorporating side cuts in pipes.

Components illustrated above are available to the following Specifications

ITEM	INSIDE DIAMETERS	ANGLES AVAILABLE			
TOP HEAD LUG	31.8mm x 25.4mm	72	72	73	73
BOTTOM HEAD LUG	31.8mm x 28.6mm	60	61	59	59
SEAT LUG	28.6mm x 25.4mm	72	72	73	74
BOTTOM BRACKET	28.6 x 28.6 x 22.2mm	Various Types available see page 15			
FORK CROWN	25.4mm	Various Types available see page 16			

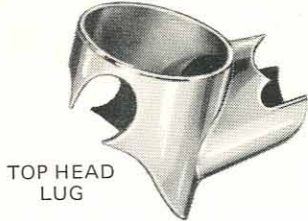
All Lugs are fully machined to ensure accurate angles and bore sizes

When ordering Lugs and Bottom Brackets please state carefully the angles required. Lugs can be ordered as separate items or in sets.

SPEED Lug Sets

Traditional popular design for sports/touring frames

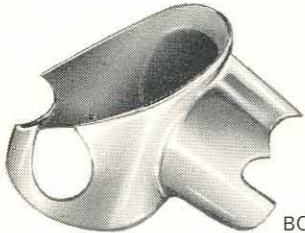
SPEED design H801



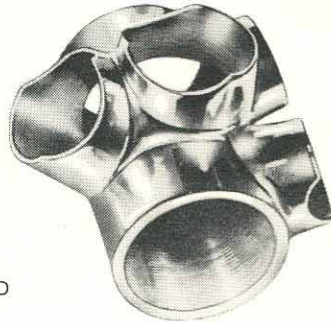
TOP HEAD LUG



SEAT LUG



BOTTOM HEAD LUG



BOTTOM BRACKET

Special design features.
Cut away front and pipes.

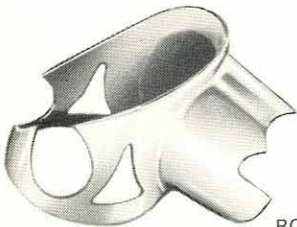
SPEED design H802



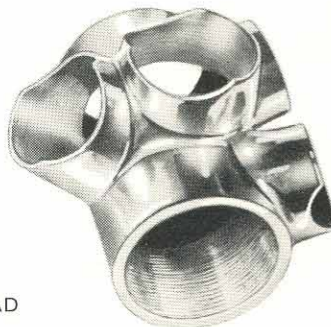
TOP HEAD LUG



SEAT LUG



BOTTOM HEAD LUG

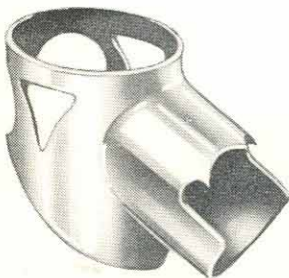


BOTTOM BRACKET

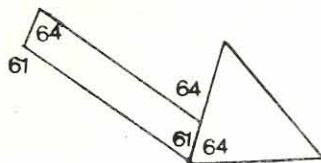
Special design features.
As S801 but incorporating
triangular cut outs in body.

COMPONENTS FOR LADY'S FRAMES

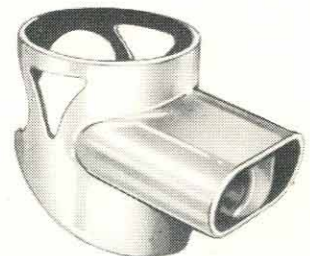
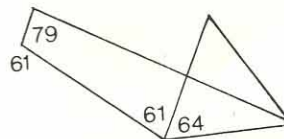
SPEED CUTAWAY DESIGN



FOR DIAGONAL FRAME
H803



FOR MIXTRE FRAME
H804



LADY'S TOP HEAD LUG
BOTTOM HEAD LUG
LOOP LUG
LADY'S SEAT LUG
BOTTOM BRACKET

64° 31.8mm x 25.4mm
61° 31.8mm x 28.6mm
64° 28.6mm x 25.4mm
28.6mm
61° x 64° 'V' SPORTS

LADY'S TOP HEAD LUG
BOTTOM HEAD LUG
LADY'S SEAT LUG
BOTTOM BRACKET

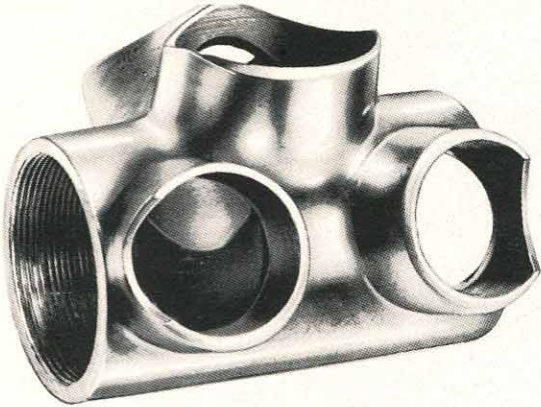
79° 31.8mm with 2 sockets 12.7mm
61° 31.8mm x 28.6mm
28.6mm
61° x 64° 'V' SPORTS

Components illustrated above are available to the following Specifications		
ITEM	INSIDE DIAMETERS	ANGLES AVAILABLE
TOP HEAD LUG	31.8mm x 25.4mm	GENTS 72 72 73 73
BOTTOM HEAD LUG	31.8mm x 28.6mm	GENTS 60 61 59 59
SEAT LUG	28.6mm x 25.4mm	GENTS 72 72 73 74
BOTTOM BRACKET	28.6 x 28.6 x 22.2mm	Various Types available see page 15
FORK CROWN	25.4mm	Various Types available see page 16

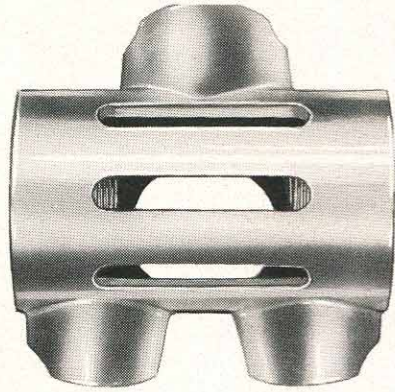
All Lugs are fully machined to ensure accurate angles and bore sizes

When ordering Lugs and Bottom Brackets please state carefully the angles required. Lugs can be ordered as separate items or in sets.

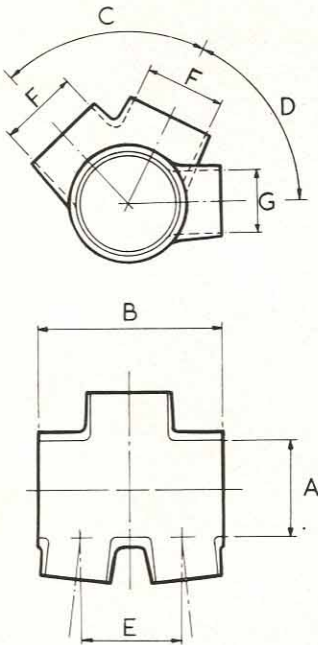
HADEN STEEL BOTTOM BRACKETS



HADEN SPORTS BOTTOM BRACKET
V. Pattern (for straight stays)

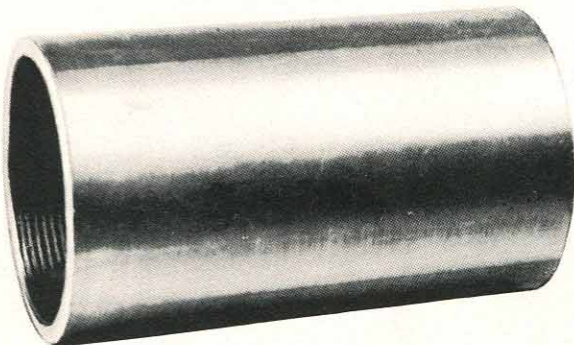


If required brackets can be supplied with three weight saving slots cut in the underside.

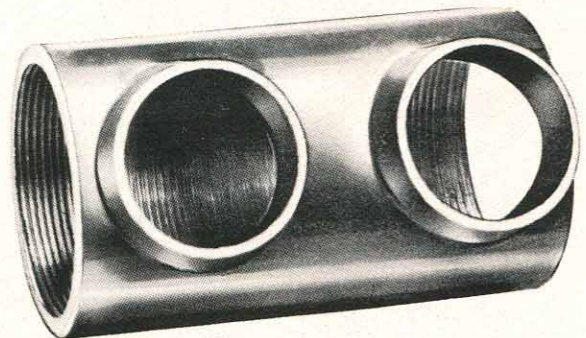


Catalogue Reference	Thread for Cup A	Width B	Angle C	Angle D	E	F	G
VBS5964	1.370" x 24 TPI	68	59°	64°	38	28.6	22.2
VBS6061	1.370" x 24 TPI	68	60°	61°	38	28.6	22.2
VBS6162	1.370" x 24 TPI	68	61°	62°	38	28.6	22.2
VBS6164	1.370" x 24 TPI	68	61°	64°	38	28.6	22.2
VBS6262	1.370" x 24 TPI	68	62°	62°	38	28.6	22.2
VBS6363	1.370" x 24 TPI	68	63°	63°	38	28.6	22.2
VBS6461	1.370" x 24 TPI	68	64°	61°	38	28.6	22.2
VBS6462	1.370" x 24 TPI	68	64°	62°	38	28.6	22.2

Extension Tips for welding onto pipes are available if required — see page 17



Type HM1 for welded frames
1.370" x 24 TPI BSC Thread
68mm wide 3 mm wall thickness.



Type HM2 for welded frame
1.370 x 24 TPI BSC Thread
68mm wide.
Chainstay pipes 22.2mm I/D
38mm between centres.

HADEN FORK CROWNS

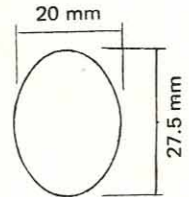
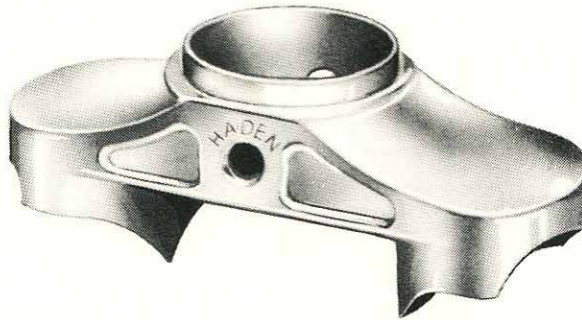
EUROPA

This crown is a precision made component accurately machined from a high Quality Steel Investment casting.

Separate extension tangs are available if required. See page 17.

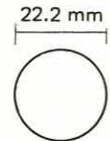
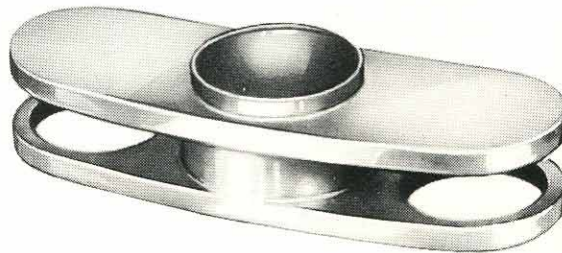
This crown has been specially designed for use with Reynolds New Continental oval section blades.

It is also suitable for Columbus Italian oval and Super Vitus European oval fork blades.



TRACK

This is a sturdy ultra lightweight steel fork crown for round section track fork blades.



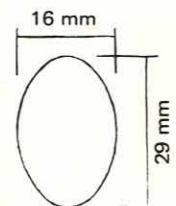
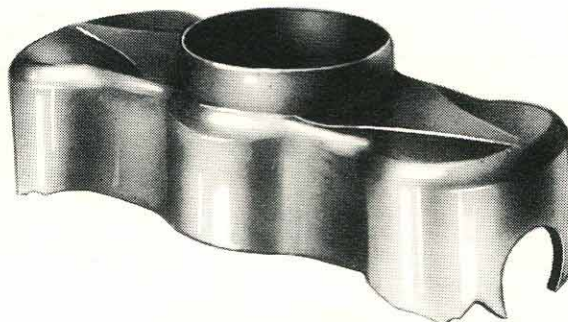
CROWN
ref HTC222

OVAL SPORTS

Attractive pressed steel fork crown to suit most normal requirements.

A choice of cut-out designs are available as illustrated.

This Crown is accurately sized to accept standard European fork blades 16 x 29mm oval section.



HCN.7S



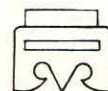
HCN.8



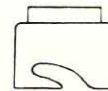
HCN.9



HCN.10



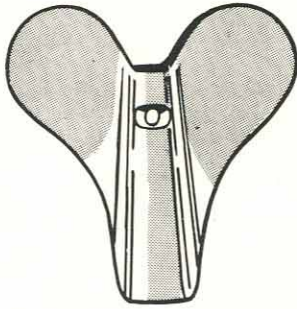
HCN.11



HCN.12

Matching Chromium plated fork crown covers or Top Plates are available to suit, if required.

A FEW USEFUL ITEMS



Fits standard nipples for 14 swg & 15 swg spokes.

SPOKE NIPPLE KEY

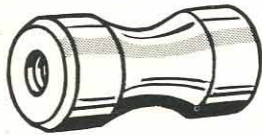


For fork crowns and Bottom Brackets

EXTENSION TANG 80mm LONG

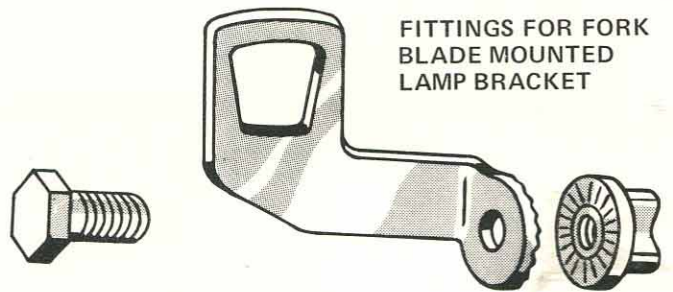


SBL1 Accepts standard 5/16" BSC Nibbed Seat bolt and nut.



SSHI Screwed 5/16" BSF one end. Accepts 5/16" socket cap head screw.

SEAT PIN HOLDERS

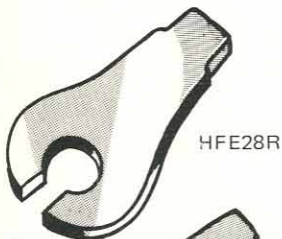


FITTINGS FOR FORK BLADE MOUNTED LAMP BRACKET

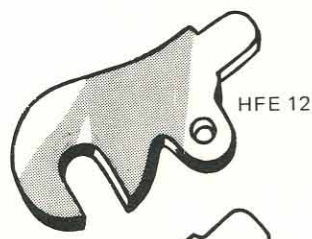
Screw
HLB 13
Chrome Plated

LH or RH Bracket
HLB 14
Chrome Plated

BOSS
HLB 12
Self colour



HFE28R



HFE 12

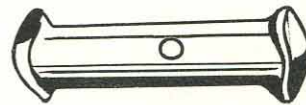


HFE 10

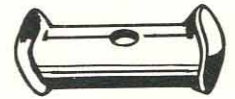


HFE26RS

FORK ENDS 8SWG (4mm)



With Flanges



With Flanges



Flangeless

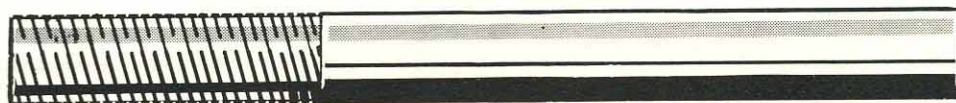


Flangeless

SEAT STAY BRIDGE

CHAINSTAY BRIDGE

A full variety of sizes are available.
Details can be supplied on application.



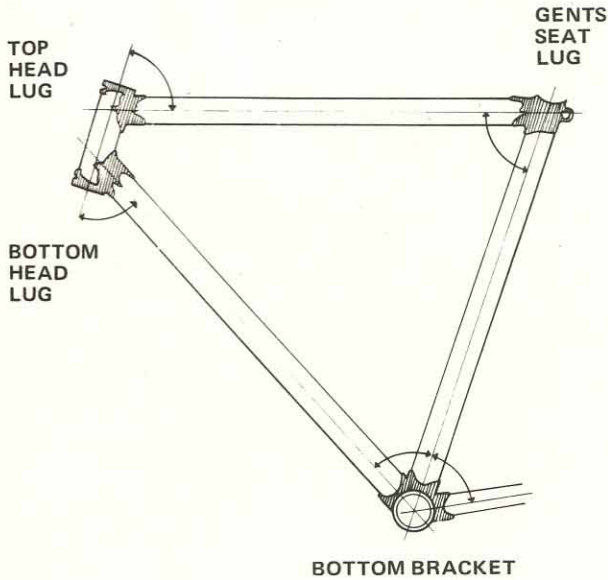
FORK STEERING COLUMN 250mm LONG

Butted Steel Tube. Screwed 90mm down. Thread 1" x 24 TPI BSC.

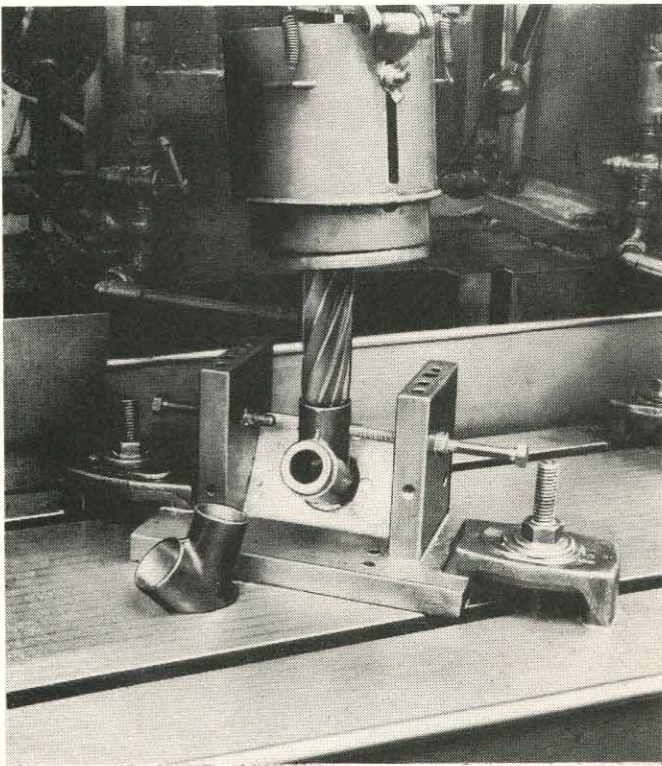
Accepts standard handlebar stem 22.2mm diameter.

Technical Data

Measuring Frame and Lug angles:



All items in this catalogue are normally supplied in Standard English Sizes to suit nominal size Imperial dimension tubing. However, for convenience, all specifications are stated in the equivalent exact metric size.



All Frame Lugs are fully machined inside to ensure accurate angles and a positive brazing fit.

Metric Conversion – Frame Tubes

Chainstays	7/8" = 0.875" = 22.2mm
Top Tube	1" = 1.000" = 25.4mm
Seat and Bottom Tube	1.1/8" = 1.125" = 28.6mm
Head Tube	1.1/4" = 1.250" = 31.8mm

Metric Conversion – Millimetres into Inches

mm	inches	mm	inches
1	0.0394	51	2.0079
2	0.0787	52	2.0472
3	0.1181	53	2.0866
4	0.1575	54	2.1260
5	0.1969	55	2.1654
6	0.2362	56	2.2047
7	0.2756	57	2.2441
8	0.3150	58	2.2835
9	0.3543	59	2.3228
10	0.3937	60	2.3622
11	0.4331	61	2.4016
12	0.4724	62	2.4409
13	0.5118	63	2.4803
14	0.5512	64	2.5197
15	0.5906	65	2.5591
16	0.6299	66	2.5984
17	0.6693	67	2.6378
18	0.7087	68	2.6772
19	0.7480	69	2.7165
20	0.7874	70	2.7559
21	0.8268	71	2.7953
22	0.8661	72	2.8346
23	0.9055	73	2.8740
24	0.9449	74	2.9134
25	0.9843	75	2.9528
26	1.0236	76	2.9921
27	1.0630	77	3.0315
28	1.1024	78	3.0709
29	1.1417	79	3.1102
30	1.1811	80	3.1496
31	1.2205	81	3.1890
32	1.2598	82	3.2283
33	1.2992	83	3.2677
34	1.3386	84	3.3071
35	1.3780	85	3.3465
36	1.4173	86	3.3858
37	1.4567	87	3.4252
38	1.4961	88	3.4646
39	1.5354	89	3.5039
40	1.5748	90	3.5433
41	1.6142	91	3.5827
42	1.6535	92	3.6220
43	1.6929	93	3.6614
44	1.7323	94	3.7008
45	1.7717	95	3.7402
46	1.8110	96	3.7795
47	1.8504	97	3.8189
48	1.8898	98	3.8583
49	1.9291	99	3.8976
50	1.9685	100	3.9370

HADEN BROS. LIMITED

WESTLEY STREET BIRMINGHAM B9 4ES
ENGLAND U.K.

TEL NO. 021-772 0461

CABLES – HADENBRO BIRMINGHAM

Building a cycle frame is like building a house – in the long run it is the quality of the foundations that counts. Haden lugs combined with good quality tubing are the best foundation for a real thoroughbred frame.

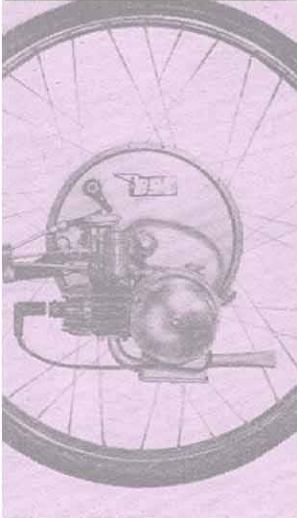


For frames built with Haden racing lugs we are pleased to supply decals at no extra charge.

In addition to the sports/racing lugs illustrated in this catalogue we also manufacture a full range of lugs for Tourist, Roadster and juvenile frames. Fully illustrated catalogues are available on request.



IceniCAM Information Service



www.icenicam.org.uk