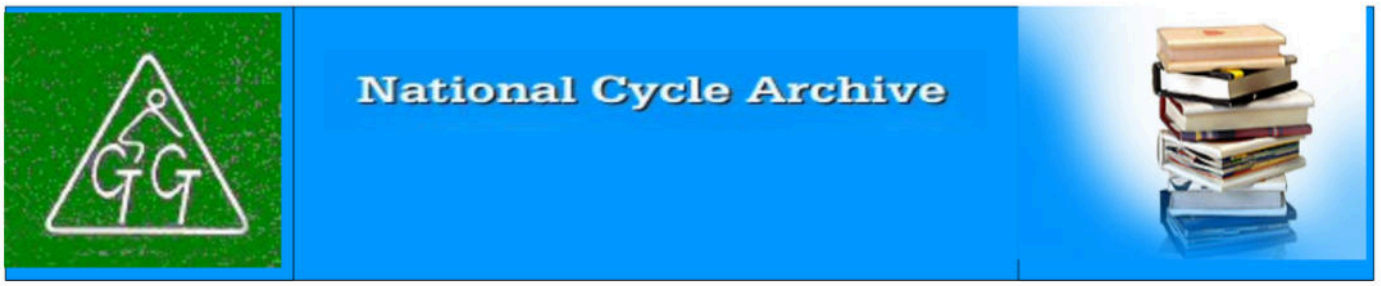
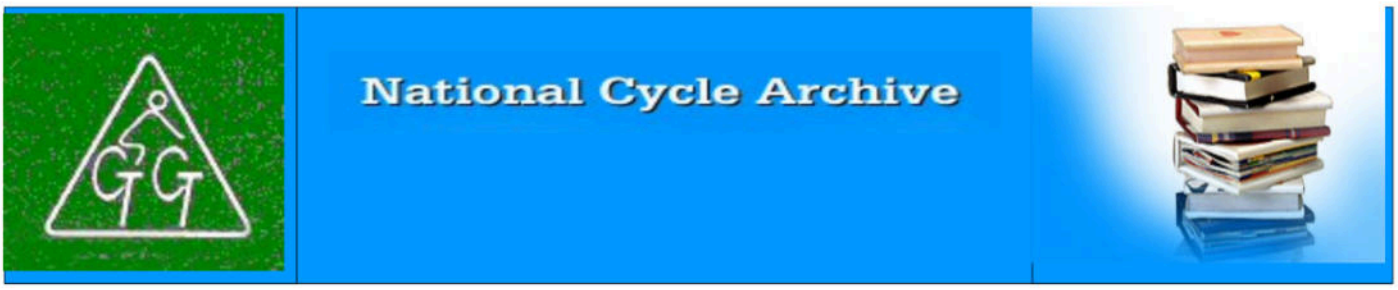
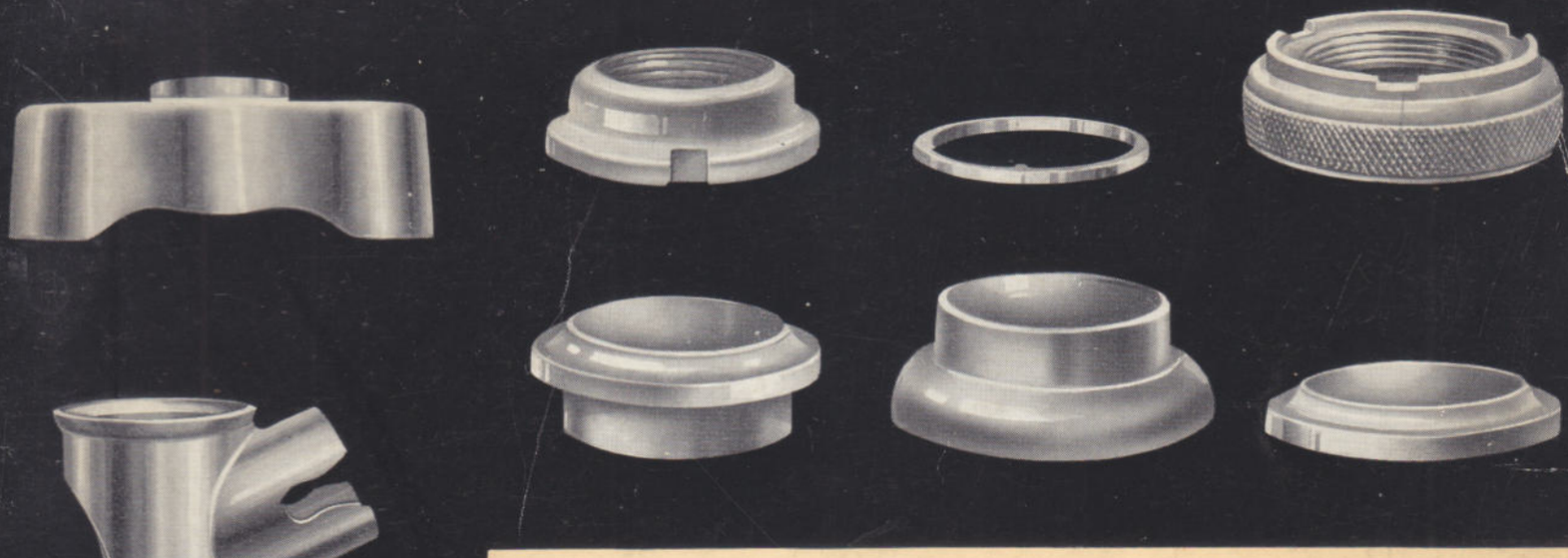


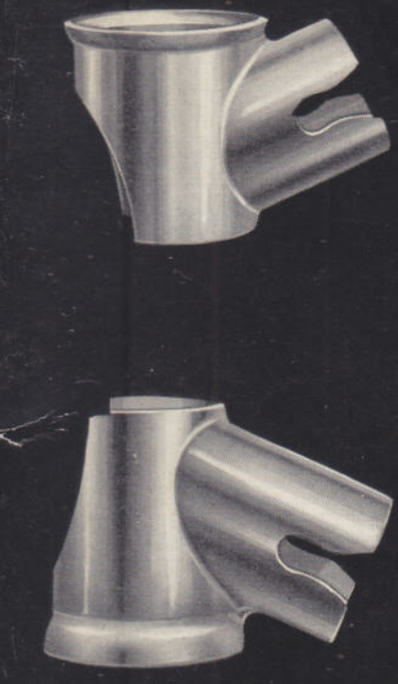


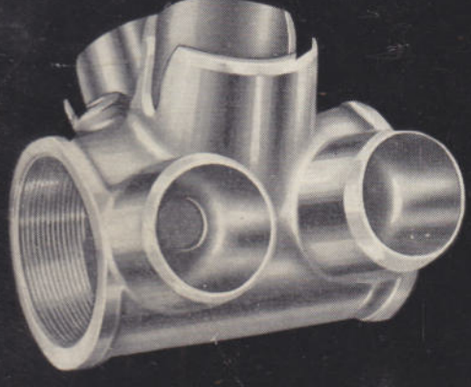


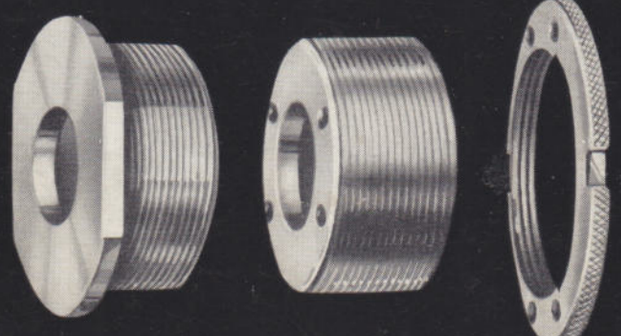
W&B

WALTON & BROWN LTD

CYCLE FITTINGS AND "WALTONIA" SPECIALITIES







WALTON AND BROWN LIMITED

A TI COMPANY

THE HANDBOOK OF THE TRADE

CATALOGUE

CYCLE FITTINGS AND "WALTONIA" SPECIALITIES

PHOENIX WORKS . DOWNING STREET . HANDSWORTH . BIRMINGHAM

PRELIMINARY

Walton & Brown Ltd. have pleasure in submitting to their many customers in the Cycle and allied trades this new post-war catalogue. Our valuable war-time experience enables us to provide a still higher standard of fittings, and it is our aim to supply the trade with a comprehensive range of components of satisfactory quality and quantity—promptly and at economic prices.

This is an interim catalogue and will be followed, as soon as conditions permit, by an enlarged edition which will show fuller examples of our continuing development work.

ORDERING: Our SCHEME OF PATTERN NUMBERS, as shown in W. & B. List No. F.C.39, has enabled customers to specify their requirements so successfully that we feel its repetition in this catalogue is justified. This scheme includes the use of symbol letters and numbers, and two examples are given below to illustrate the method adopted :—

On page 4 will be found a lug, the reference number for which is PTL 001, built up as follows :—
P—Pressed, T—Top, L—Lug, 1—the old list number preceded by two cyphers to form three figures. Thus PTL 001 is the product number for a gent's plain top head lug $1\frac{1}{4}'' \times 1'' \times 68°$ with race (fixed race seating).

On page 25 will be found a malleable bracket shell, the reference number for which is MBS 040, built up as follows :—
M—Malleable, B—Bracket, S—Shell, 40—the old list number preceded by one cypher to form three figures. Thus MBS 040 is the products number for a malleable bracket shell $1\frac{1}{8}'' \times 1\frac{1}{8}'' \times \frac{7}{8} \times 67° \times 62\frac{3}{4}°$, cotterless type.

GENERAL INFORMATION : The inclusion in this catalogue of Standardisation Sheets, Tube Chart, Dictionary of cycle terms, Shipping Weights, Gear Tables, and notes on cycle design as well as other technical data, will, we trust, be appreciated by our many customers and have the effect of constituting this issue a useful book of reference.

ENQUIRIES : Enquiries and orders are invited for W. & B. products and will receive prompt and careful attention. For our terms and conditions of business see page 3 of cover.

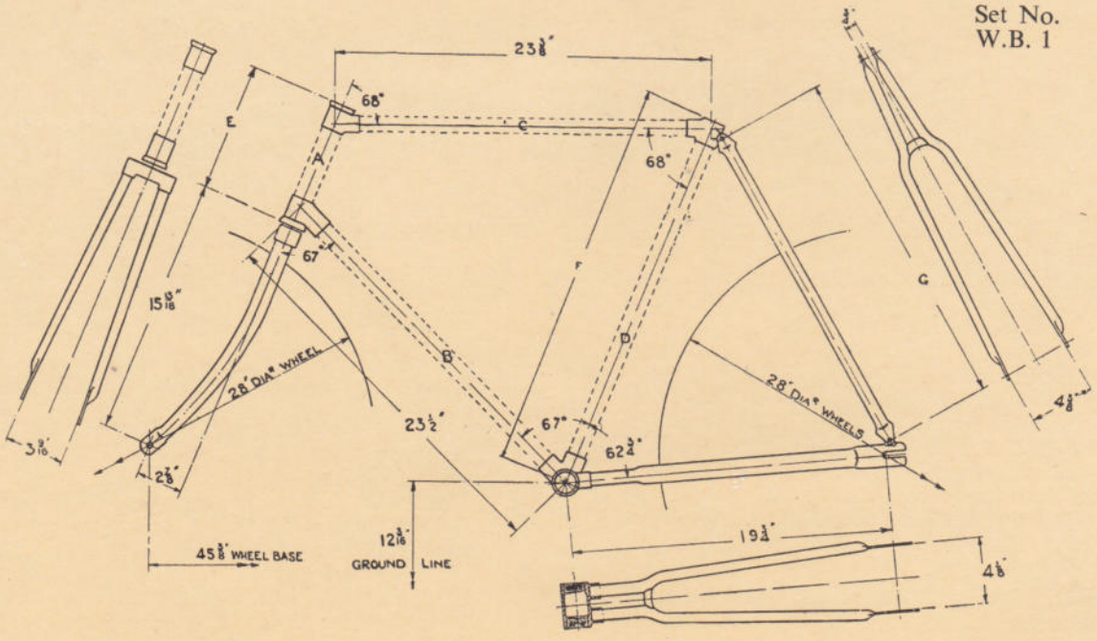
NOTE : The weights given in this catalogue are approximate only and are intended as a guide for calculation of rail and sea freight or postal charges.

CANCELLATION : This catalogue cancels all previous issues.

GENERAL INDEX

NOTE.—For comprehensive list of pressed steel and malleable lugs and angles see pages 24 and 25.

Set No.
W.B. 1

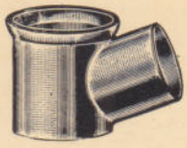


FITTINGS FOR ROADSTER CYCLES

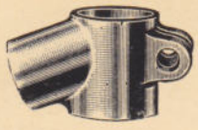
GENT'S PARALLEL FRAME FOR 28" WHEELS

FRAME SIZE	TUBE LENGTHS With allowances for mitreing				CENTRES			BRIDGES			
	A	B	C	D	E	F	G	Seat stay flanged	Chain stay flanged	Seat stay unflanged	Chain stay unflanged
22 inch ..	5½"	22 11/32"	22½"	21¼"	6"	22"	20¼"	PBP 111	PBP 089	PBP 034	PBP 004
24 inch ..	7½"	22 11/32"	22½"	23¼"	8"	24"	21½"	PBP 111	PBP 089	PBP 034	PBP 004
26 inch ..	9½"	22 11/32"	22½"	25¼"	10"	26"	22¾"	PBP 111	PBP 089	PBP 034	PBP 004
Tube sizes ..	1¼" × 20g	1⅛" × 18g	1" × 20g	1⅛" × 20g							

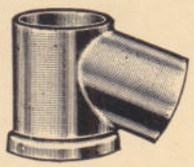
SET No. 1



PTL 001
Top head lug.
1¼" × 1" × 68°

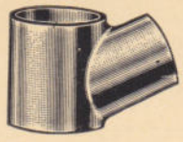


PSL 001
Seat lug.
1⅛" × 1" × 68°

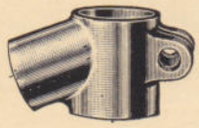


PBL 001
Bottom head lug.
1¼" × 1⅛" × 67°

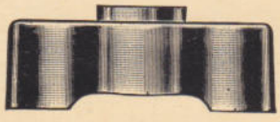
SET No. 6



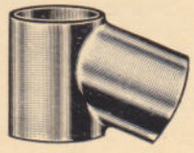
PTL 006
Top head lug.
1¼" × 1" × 68°



PSL 001
Seat lug.
1⅛" × 1" × 68°

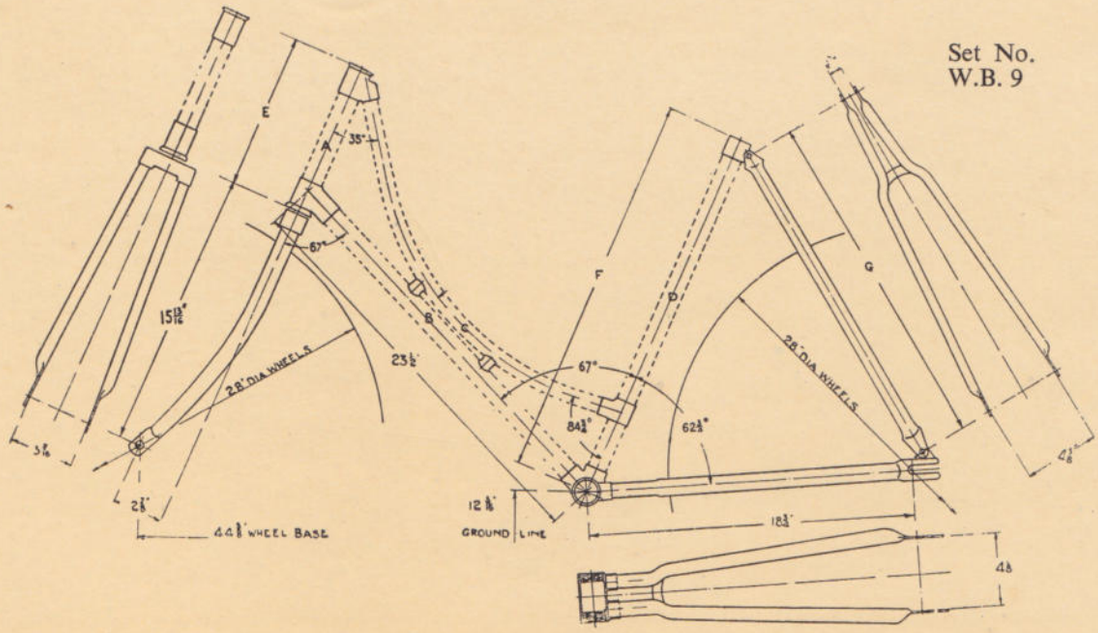


PCN 051 Fork crown.



PBL 006
Bottom head lug.
1¼" × 1⅛" × 67°

Numbers for Fish-tailed and Cut-away Lugs are detailed on Page 24



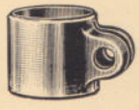
FITTINGS FOR ROADSTER CYCLES

LADIES' LOOP FRAME FOR 28″ WHEELS

FRAME SIZE	TUBE LENGTHS With allowances for mitreing				CENTRES			BRIDGES			
	A	B	C	D	E	F	G	Seat stay flanged	Chain stay flanged	Seat stay unflanged	Chain stay unflanged
22 inch ..	8½″	22 11/32″	25⅛″	21¼″	9″	22″	20¼″	PBP 111	PBP 089	PBP 034	PBP 004
24 inch ..	10½″	22 11/32″	26⅜″	23¼″	11″	24″	21½″	PBP 111	PBP 089	PBP 034	PBP 004
26 inch ..	12½″	22 11/32″	27¾″	25¼″	13″	26″	22¾″	PBP 111	PBP 089	PBP 034	PBP 004
Tube sizes.	1¼″×20g	1⅛″×18g	⅞″×20g	1⅛″×20g							

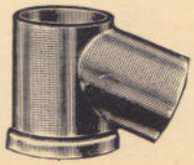
SET No. 9

PTL 009
Top head lug.
1¼″×⅞″×35°

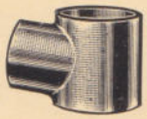


PSL 009
Seat lug.
1⅛″

PST 079
Loop strut.



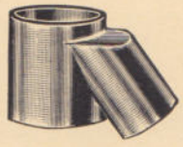
PBL 001
Bottom head lug.
1¼″×1⅛″×67°



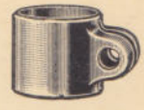
PLL 009
Loop lug.
1⅛″×⅞″×84¾°

PST 022
Loop strut.
(close joint).

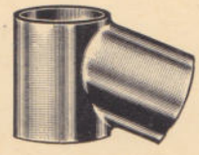
SET No. 10



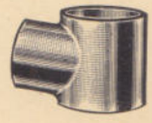
PTL 010
Top head lug.
1¼″×⅞″×35°



PSL 009
Seat lug.
1⅛″



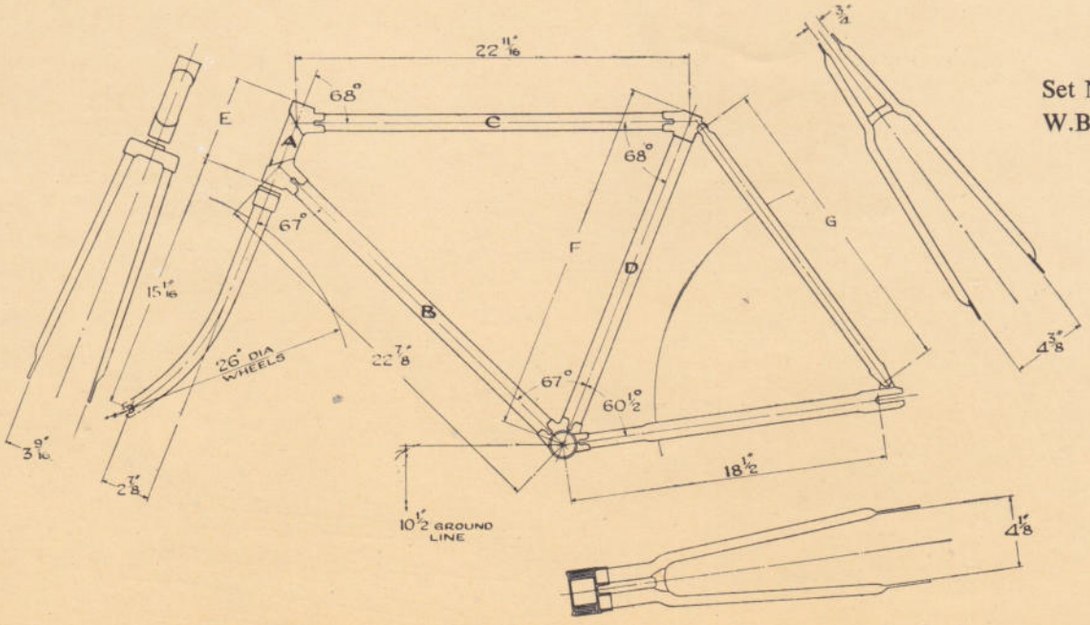
PBL 006
Bottom head lug.
1¼″×1⅛″×67°



PLL 009
Loop lug.
1⅛″×⅞″×84¾°

Note :—Fork Crown is illustrated on opposite page, No. 4

(For weights see page 49)



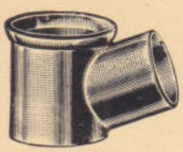
Set No.
W.B. 6

FITTINGS FOR ROADSTER CYCLES

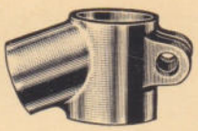
GENT'S PARALLEL FRAME FOR 26" WHEELS

Frame size	TUBE LENGTHS With allowances for mitreing				CENTRES			BRIDGES	
	A	B	C	D	E	F	G	Seat stay	Chain stay
20 inch	4 5/16"	21 9/16"	21 3/4"	19 1/4"	4 5/16"	20"	17 3/4"	PBP 111	PBP 089
21 inch	5 5/16"	21 9/16"	21 3/4"	20 1/4"	5 5/16"	21"	18 5/16"	PBP 111	PBP 089
22 inch	6 5/16"	21 9/16"	21 3/4"	21 1/4"	6 5/16"	22"	18 7/8"	PBP 111	PBP 089
23 inch	7 5/16"	21 9/16"	21 3/4"	22 1/4"	7 5/16"	23"	19 7/16"	PBP 111	PBP 089
Tube sizes	1 1/4" × 20g	1 1/8" × 18g	1" × 20g	1 1/8" × 20g					

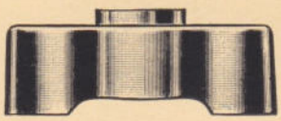
SET No. 1



PTL 001
Top head lug.
1¼" × 1" × 68°

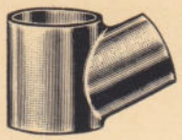


PSL 001
Seat lug.
1⅛" × 1" × 68°

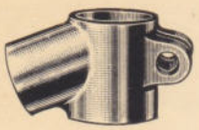


PCN 051 Fork crown.

SET No. 6

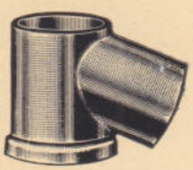


PTL 006
Top head lug.
1¼" × 1" × 68°

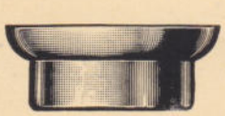


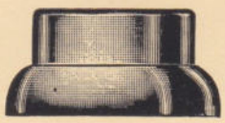
PSL 001
Seat lug.
1⅛" × 1" × 68°

The Bottom Bracket Shell for this set is MBS 050

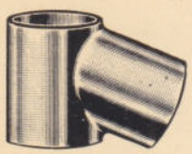


PBL 001
Bottom head lug.
1¼" × 1⅛" × 67°





LOOSE RACE SEATINGS

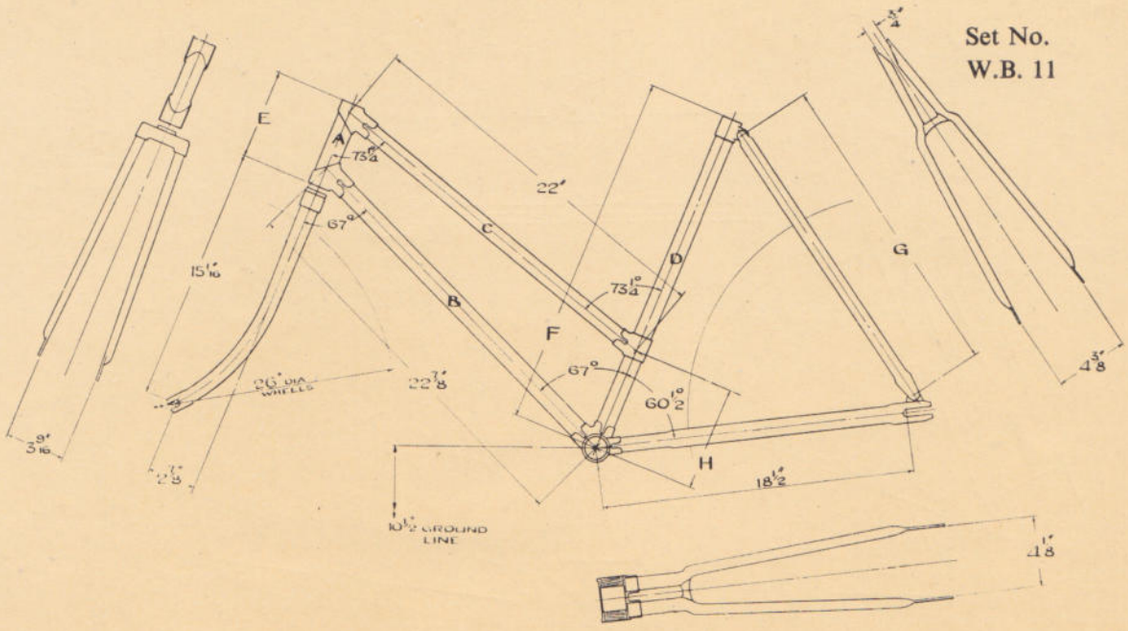


PBL 006
Bottom head lug.
1¼" × 1⅛" × 67°

	Top.	Bottom.
To telescope 1¼" × 20g Head Tube	PRS 007	PRS 008
,, ,, 1¼" × 22g ,, ,,	PRS 009	PRS 010

(For weights see page 49)

Numbers for Fish-tailed and Cut-away Lugs are detailed on page 24

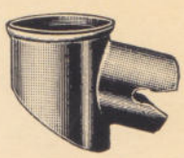


FITTINGS FOR ROADSTER CYCLES

LADIES' FRAME FOR 26" WHEELS

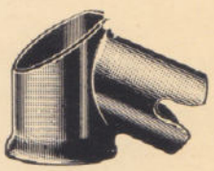
Frame sizes	TUBE LENGTHS With allowances for mitreing				CENTRES				BRIDGES	
	A	B	C	D	E	F	G	H	Seat stay	Chain stay
20 inch	4 5/16"	21 3/16"	21⅛"	19¼"	4 5/16"	20"	17¾"	5 5/16"	PBP 111	PBP 089
21 inch	5 5/16"	21 3/16"	21⅛"	20¼"	5 5/16"	21"	18 5/16"	6 5/16"	PBP 111	PBP 089
22 inch	6 5/16"	21 3/16"	21⅛"	21¼"	6 5/16"	22"	18⅞"	7 5/16"	PBP 111	PBP 089
23 inch	7 5/16"	21 3/16"	21⅛"	22¼"	7 5/16"	23"	19 7/16"	8 5/16"	PBP 111	PBP 089
Tube sizes	1¼" x 20g	1⅛" x 18g	⅞" x 20g	1⅛" x 20g						

SET No. 8



PTL 027
Top head lug
1¼" × ⅞" × 73¼°

PSL 009
Seat lug
1⅛"

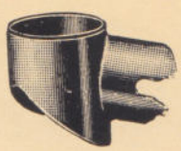


PBL 015
Bottom head lug
1¼" × 1⅛" × 67°

PLL 939
Loop lug
1⅛" × ⅞" × 73¼°

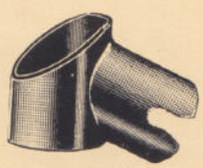
The Bottom Bracket Shell for this set is MBS 050

SET No. 11



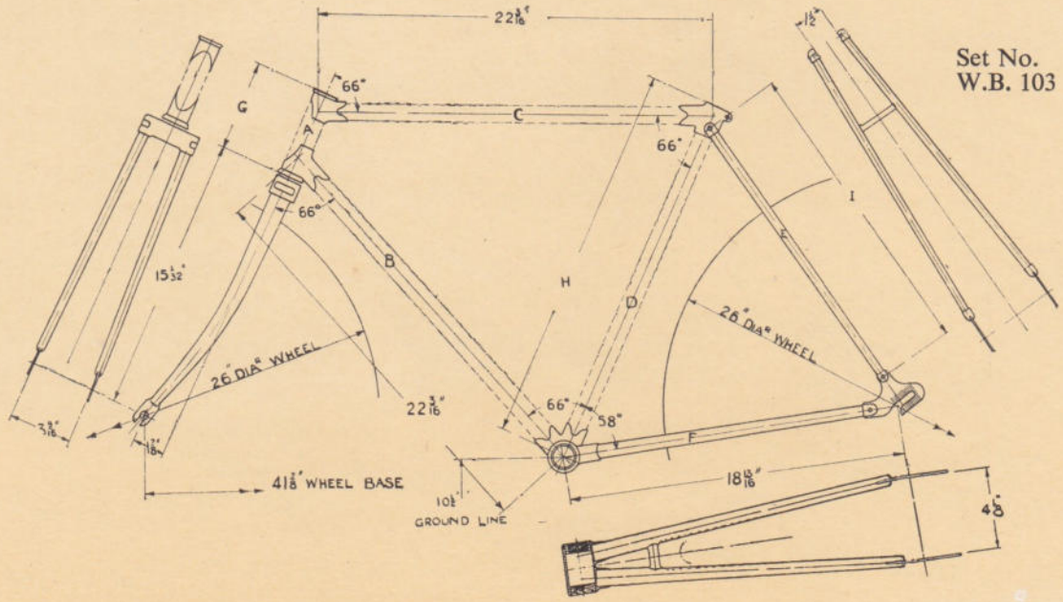
PTL 092
Top head lug
1¼" × ⅞" × 73¼°

PSL 009
Seat lug
1⅛"



PBL 014
Bottom head lug
1¼" × 1⅛" × 67°

PLL 939
Loop lug
1⅛" × ⅞" × 73¼°

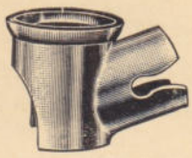


Set No.
W.B. 103

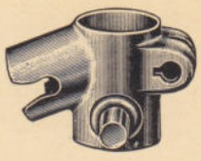
FITTINGS FOR TOURIST CYCLES

GENT'S PARALLEL FRAME (LOW BRACKET)

Steering tubes for expander head only	Frame size	TUBE LENGTHS With allowances for mitreing						CENTRES			BRIDGES	
		A	B	C	D	E	F	G	H	I	Chain stay	Seat stay
5⅞" long ..	20 inch	3½"	21 1/16"	21 5/16"	19 15/32"	15 23/32"	16 5/32"	4"	20 5/32"	16 11/16"	PBP 117	PBP 205
6⅞" long ..	21 inch	4½"	21 1/16"	21 5/16"	20 15/32"	16 13/32"	16 5/32"	5"	21 5/32"	17 3/16"	PBP 117	PBP 205
7⅞" long ..	22 inch	5½"	21 1/16"	21 5/16"	21 15/32"	16 31/32"	16 5/32"	6"	22 5/32"	17¾"	PBP 117	PBP 205
8⅞" long ..	23 inch	6½"	21 1/16"	21 5/16"	22 15/32"	17 7/16"	16 5/32"	7"	23 5/32"	18 5/16"	PBP 117	PBP 205
9⅞" long ..	24 inch	7½"	21 1/16"	21 5/16"	23 15/32"	18 3/32"	16 5/32"	8"	24 5/32"	18 15/16"	PBP 117	PBP 205
11⅞" long ..	26 inch	9½"	21 1/16"	21 5/16"	25 15/32"	19 15/32"	16 5/32"	10"	26 5/32"	20¼"	PBP 117	PBP 205
	Tube sizes	1¼" × 20g	1½" × 18g	1" × 20g	1⅛" × 20g	⅝–15/32" tapered	⅞" to 9/16"					

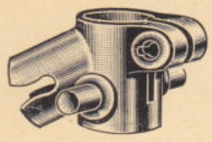


PTL 409
Top head lug
1¼" × 1" × 66°

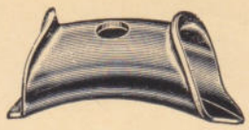


PSL 355
Seat lug
1⅛" × 1" × 66°

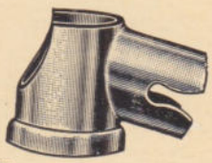
BSE 187
Eye-pieces
in pairs



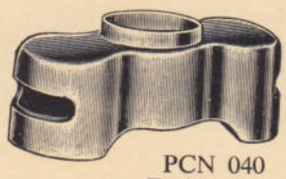
MSL 292
Seat lug
1⅛" × 1" × 66°



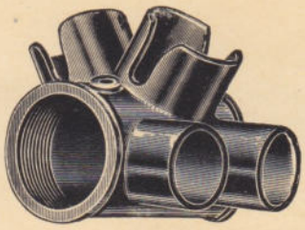
PBP 117
Chain stay
bridge piece



PBL 743
Bottom head lug
1¼" × 1⅛" × 66°



PCN 040
Fork crown



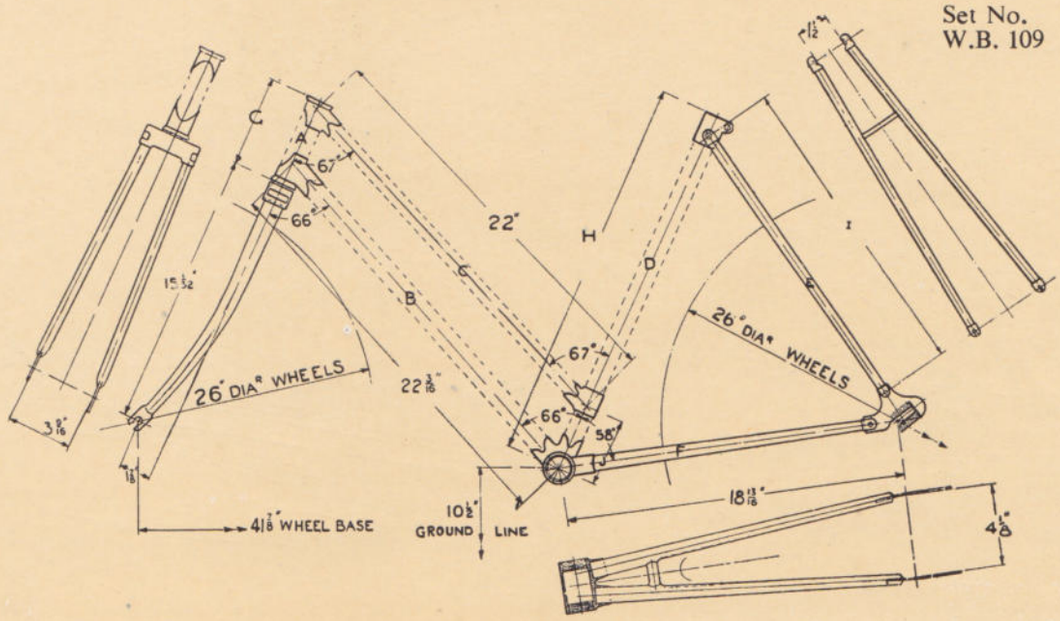
MBS 129
Bottom bracket shell
1⅛" × 1⅛" × ⅞"
1½" C.L. × 66° × 58°
cotterless V pattern

PBP 205
Seat stay bridge piece. (The above bridge piece suits seat stays, straight, round and tapered)

Numbers for plain lugs, F/T only, and cut-away only are detailed on page 24.

NOTE :—The fork ends and seat and chain-stay connectors are illustrated on Page 9.

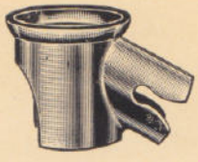
(For weights see page 49)



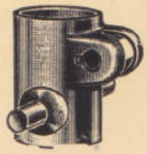
FITTINGS FOR TOURIST CYCLES

LADIES' PARALLEL FRAME (LOW BRACKET)

Steering tubes for expander head only	Frame size	TUBE LENGTHS With allowances for mitreing						CENTRES				BRIDGES	
		A	B	C	D	E	F	G	H	I	J	Chain stay	Stay seat
5⅞" long ..	20 inch	3½"	21 1/16"	21 3/32"	19 15/32"	15 29/32"	16 5/32"	4"	20 3/32"	16 11/16"	2 9/16"	PBP 117	PBP 205
6⅞" long ..	21 inch	4½"	21 1/16"	21 3/32"	20 15/32"	16 13/32"	16 5/32"	5"	21 5/32"	17 3/16"	3 9/16"	PBP 117	PBP 205
7⅞" long ..	22 inch	5½"	21 1/16"	21 3/32"	21 15/32"	16 31/32"	16 5/32"	6"	22 5/32"	17¾"	4 9/16"	PBP 117	PBP 205
8⅞" long ..	23 inch	6½"	21 1/16"	21 3/32"	22 15/32"	17 9/16"	16 5/32"	7"	23 5/32"	18 5/16"	5 9/16"	PBP 117	PBP 205
9⅞" long ..	24 inch	7½"	21 1/16"	21 3/32"	23 15/32"	18 5/32"	16 5/32"	8"	24 5/32"	18 15/16"	6 9/16"	PBP 117	PBP 205
11⅞" long ..	26 inch	9½"	21 1/16"	21 3/32"	25 15/32"	19 15/32"	16 5/32"	10"	26 5/32"	20¼"	8 9/16"	PBP 117	PBP 205
	Tube sizes	1¼" × 20g	1⅛" × 18g	⅞" × 20g	1⅛" × 20g	⅝" – 15/32" tapered	⅜" to 9/16"						



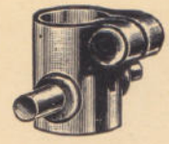
PTL 493
Top head lug
1¼" × ⅞" × 67°
PTL 515
1¼" × 1 × 73¼°



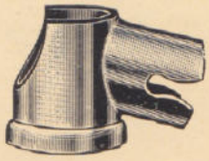
PSL 610
Seat lug 1⅛"

BSE 187
Steel eye-pieces
in pairs

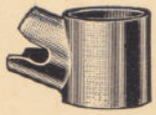
SFE 286
Front fork end



M.S.L. 208
Seat lug 1⅛"



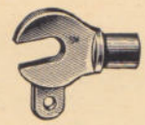
PBL 743
Bottom head lug
1¼" × 1⅛" × 66°



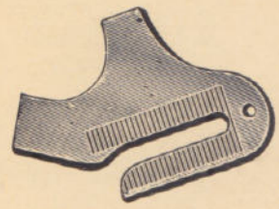
PLL 908
Loop lug
1⅛" × ⅞" × 67°
PLL 939
1⅛" × 1" × 73¼°

BCS 256. Pair of loose
chain stay connectors

BSS 257. Pair of bottom
seat stay connectors



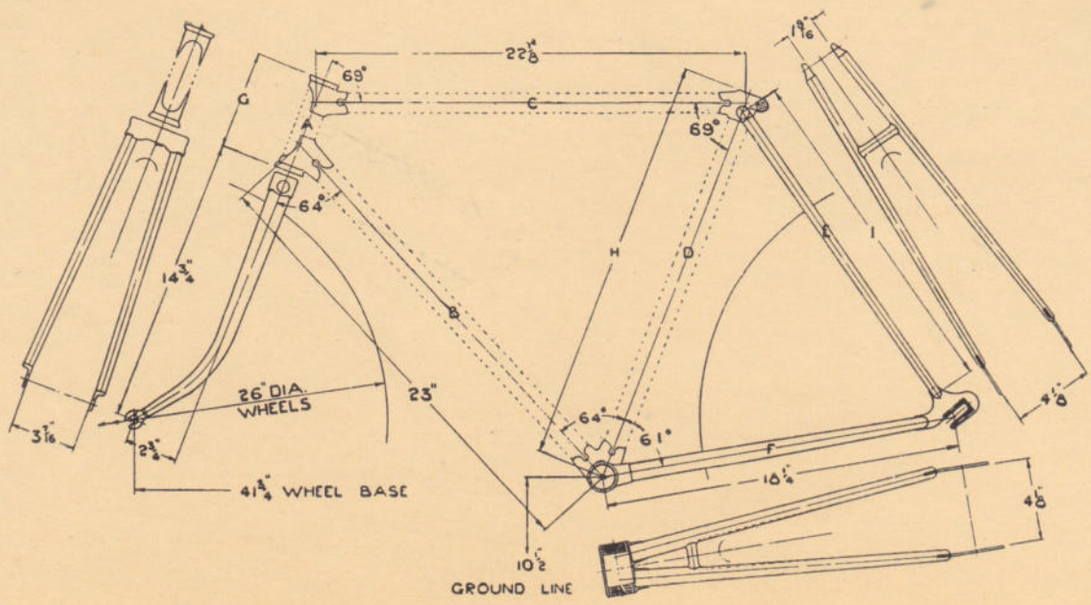
SFE 287
Front fork end



PFE 294
Forward drop-out, quick
release rear fork end

(For weights see page 49)

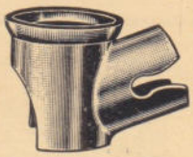
Set No.
W.B. 575



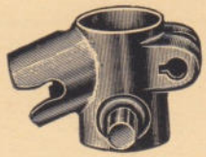
FITTINGS FOR ROAD RACING CYCLES

GENT'S CLUB MODEL

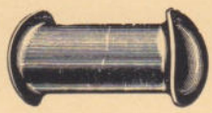
Frame sizes	TUBE LENGTHS With allowances for mitreing						CENTRES			BRIDGES	
	A	B	C	D	E	F	G	H	I	Chain stay	Seat stay
20 inch	3½"	21⅞"	21¼"	19 5/16"	16 11/16"	15⅜"	4"	20"	17 5/16"	PBP 167	PBP 168
21 inch	4½"	21⅞"	21¼"	20 5/16"	17¼"	15⅜"	5"	21"	18⅛"	PBP 167	PBP 168
22 inch	5½"	21⅞"	21¼"	21 5/16"	17⅞"	15⅜"	6"	22"	18¾"	PBP 167	PBP 168
23 inch	6½"	21⅞"	21¼"	22 5/16"	18½"	15⅜"	7"	23"	19⅜"	PBP 167	PBP 168
Tube sizes	1¼" dia. ×20g	1⅛" dia. ×18g	1" dia. ×20g	1⅛" dia. ×20g	⅝"–13/32" dia. tapered	⅞"–9/16" dia. tapered and fluted					



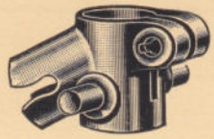
PTL 423
Top head lug
1¼" × 1" × 69°



PSL 361
Seat lug
1⅛" × 1" × 69°

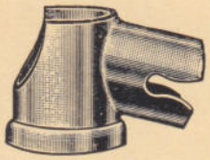


TBP 167
Chain stay
bridge piece

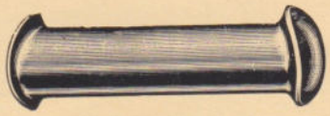


MSL 682
Seat lug
1⅛" × 1" × 69°

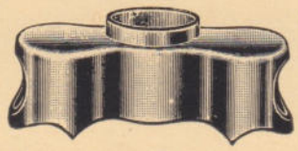
BSE 187
Steel eye-pieces
in pairs



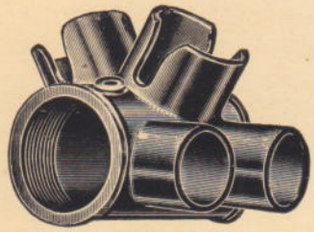
PBL 729
Bottom head lug
1¼" × 1⅛" × 64°



TBP 168
Seat stay bridge piece
(The above bridge piece suits seat stays, straight, round and tapered)



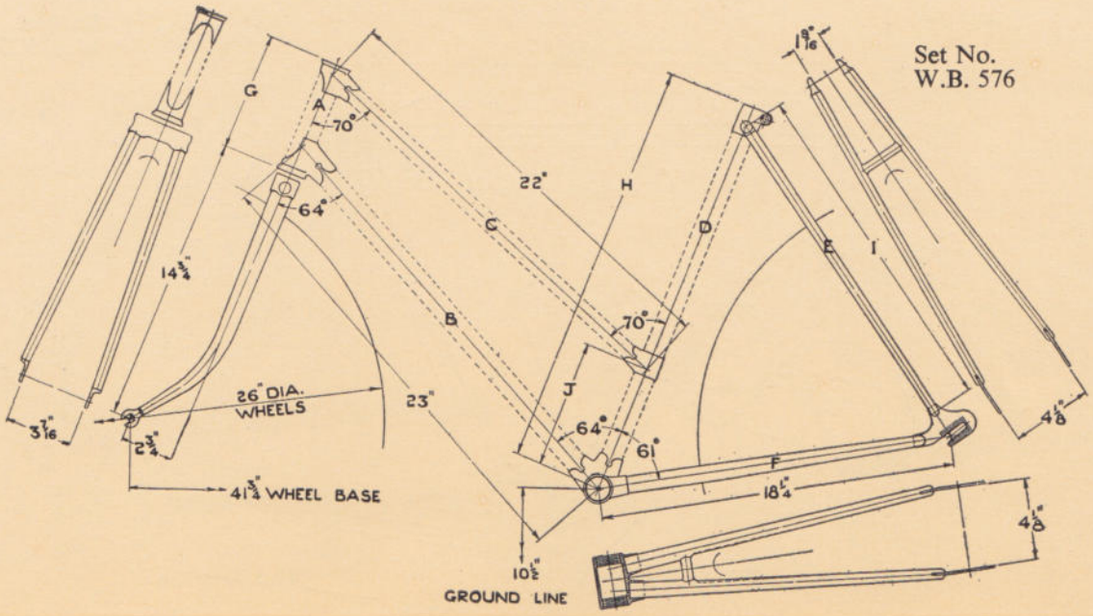
PCN 585
Fork crown



MBS 586
Bottom bracket shell
1⅛" × 1⅛" × ⅞"
1½" C.L. × 64° × 61°
cotterless V pattern

NOTE—Numbers for plain lugs, F/T only, and C/A only are detailed on page 24.

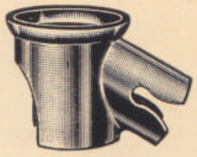
(For weights see page 49)



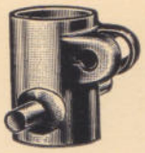
FITTINGS FOR ROAD RACING CYCLES

LADIES' CLUB MODEL

Frame sizes	TUBE LENGTHS with allowances for mitreing						CENTRES				BRIDGES	
	A	B	C	D	E	F	G	H	I	J	Chain stay	Seat stay
20 inch ...	4½"	21⅞"	21 3/32"	19 5/16"	16 11/16"	15⅜"	5"	20"	17 9/16"	5½"	TBP 167	TBP 168
21 inch ...	5½"	21⅞"	21 3/32"	20 5/16"	17¼"	15⅜"	6"	21"	18⅛"	6½"	TBP 167	TBP 168
22 inch ...	6½"	21⅞"	21 3/32"	21 5/16"	17⅞"	15⅜"	7"	22"	18¾"	7½"	TBP 167	TBP 168
23 inch ...	7½"	21⅞"	21 3/32"	22 5/16"	18½"	15⅜"	8"	23"	19⅜"	8½"	TBP 167	TBP 168
Tube sizes ...	1¼" dia. ×20g	1⅛" dia. ×18g	⅞" dia. ×20g	1⅛" dia. ×20g	⅝"–13/32" dia. tapered	⅞"–9/16" dia. tapered and fluted						

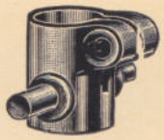


PTL 504
Top head lug.
1¼" × ⅞" × 70°

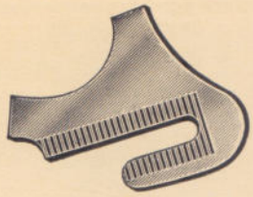


PSL 610
Seat lug 1⅛"

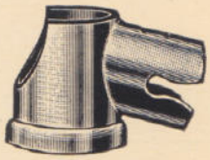
BSE 187
Steel eye-pieces in pairs.



MSL 208
Seat lug 1⅛"



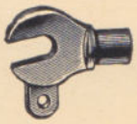
PFE 584
Forward drop-out quick release rear fork end



PBL 729
Bottom head lug.
1¼" × 1⅛" × 64°

PLL 914
Loop lug
1⅛" × ⅞" × 70°

SFE 286
Front fork end



SFE 287
Front fork end.

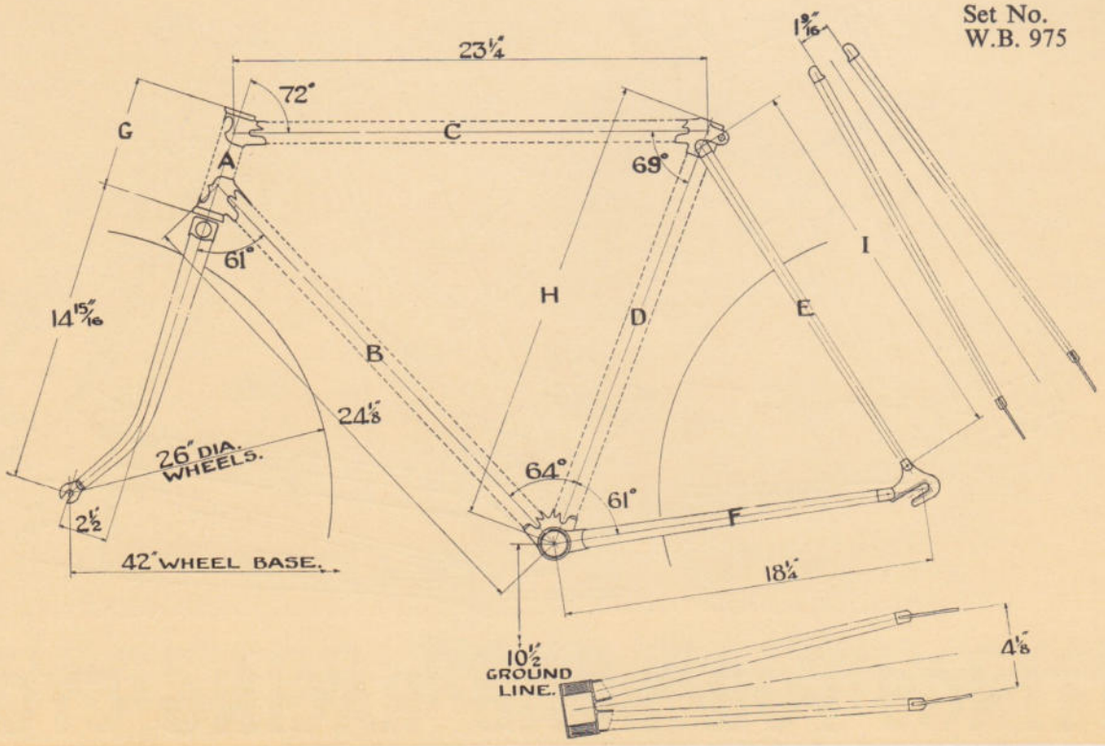
BCS 256
Pair of loose chain stay connectors.

BSS 670
Pair of bottom seat stay connectors.

Numbers for plain lugs, F/T only and cut away only are detailed on pages 24 and 25.

Fork crown, bridge pieces, and bottom bracket shell as shown in the gent's set on page 10.

Set No.
W.B. 975

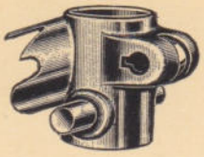


FITTINGS FOR ROAD OR TRACK RACING CYCLES

GENTS' "METEOR" FRAME

Frame sizes	TUBE LENGTHS With allowances for mitreing						CENTRES			BRIDGES	
	A	B	C	D	E	F	G	H	I	Chain stay	Seat stay
21 inch	3⅞"	23"	22⅜"	20 5/16"	17⅛"	15⅜"	4⅜"	21"	17⅞"	TBP 167	TBP 168
22 inch	4⅞"	23"	22⅜"	21 5/16"	17¾"	15⅜"	5⅜"	22"	18½"	TBP 167	TBP 168
23 inch	5⅞"	23"	22⅜"	22 5/16"	18⅜"	15⅜"	6⅜"	23"	19⅛"	TBP 167	TBP 168
Tube sizes ...	1¼" dia. ×20g	1⅛" dia. ×18g	1" dia. ×20g	1⅛" dia. ×20g	⅝"–13/32" dia. tapered	⅞"–9/16" dia. tapered and fluted					

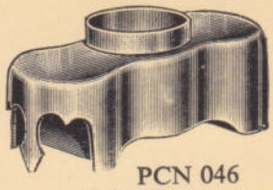
PTL 231
Top head lug
1¼" × 1" × 72°



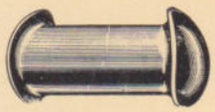
PSL 233
Seat lug
1⅛" × 1" × 69°

BSE 187
Steel eye-pieces in pairs

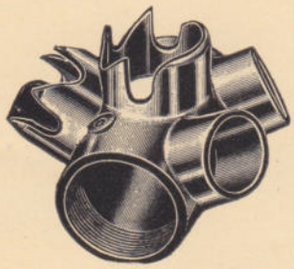
SFE 286
Front fork end



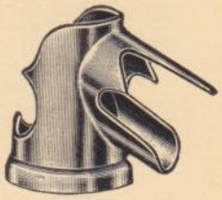
PCN 046
Fork crown



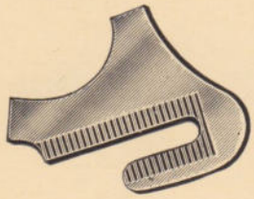
TBP 167
Chain stay bridge piece



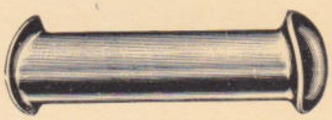
MBS 235
Bottom bracket shell
1⅛" × 1⅛" × ⅞"
1½" C.L. × 64° × 61°
cotterless V pattern



PBL 232
Bottom head lug
1¼" × 1⅛" × 61°



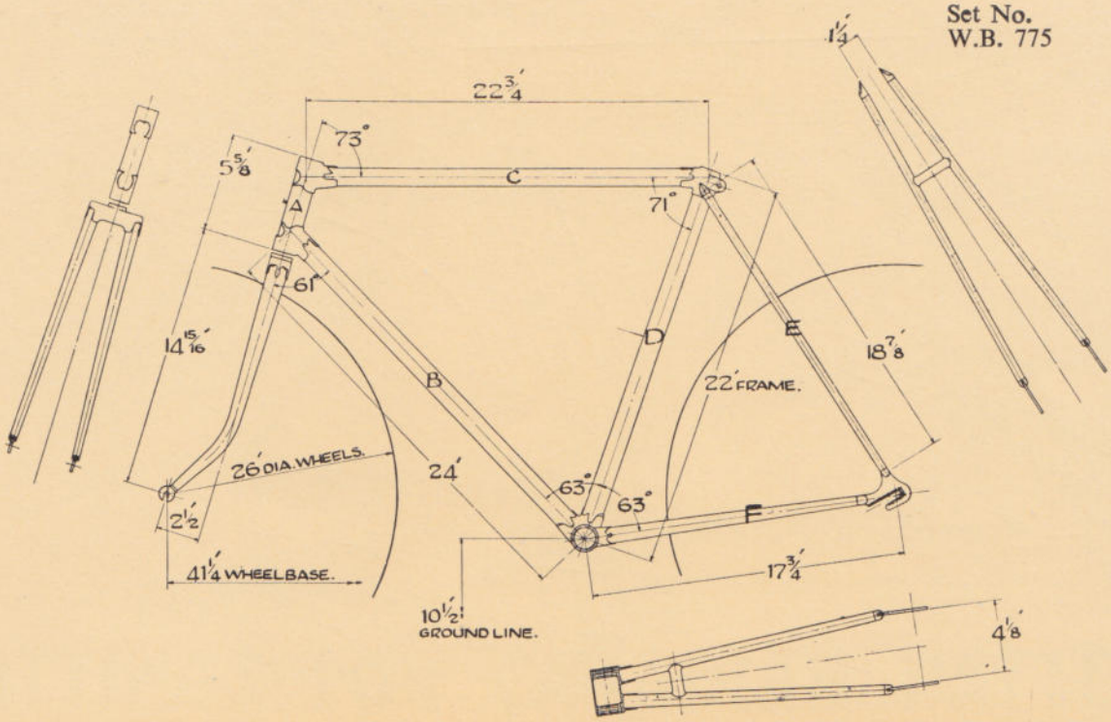
PFE 584
Forward drop-out quick release rear fork end



TBP 168
Seat stay bridge piece

(For weights see page 49)

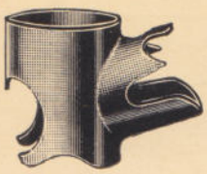
Set No.
W.B. 775



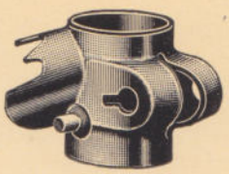
FITTINGS FOR ROAD RACING CYCLES

GENT'S "HURRICANE" FRAME

Frame size	TUBE LENGTHS with allowance for mitreing					
	A	B	C	D	E	F
22 inch	5⅝″	22⅞″	21⅞″	21 5/16″	18 1/16″	14⅞″
Tube sizes	1¼″ dia.	1⅛″ dia.	1″ dia.	1⅛″ dia.	½″—13/32″ dia. tapered	¾″—9/16″ dia. tapered

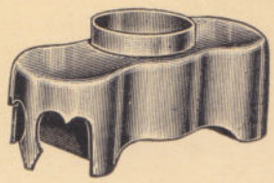


PTL 099
Top head lug
1¼″ × 1″ × 73°

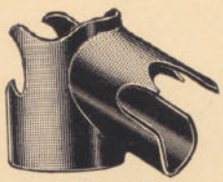


PSL 010
Seat lug
1⅛″ × 1″ × 71°

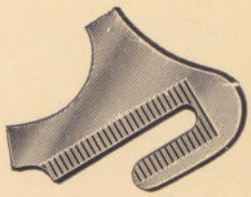
SFE 286
Front fork
end



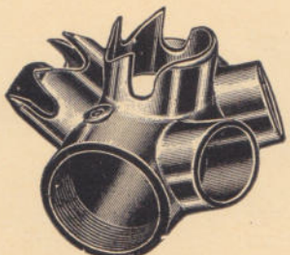
PCN 046
Fork crown



PBL 674
Bottom head lug
1¼″ × 1⅛″ × 61°



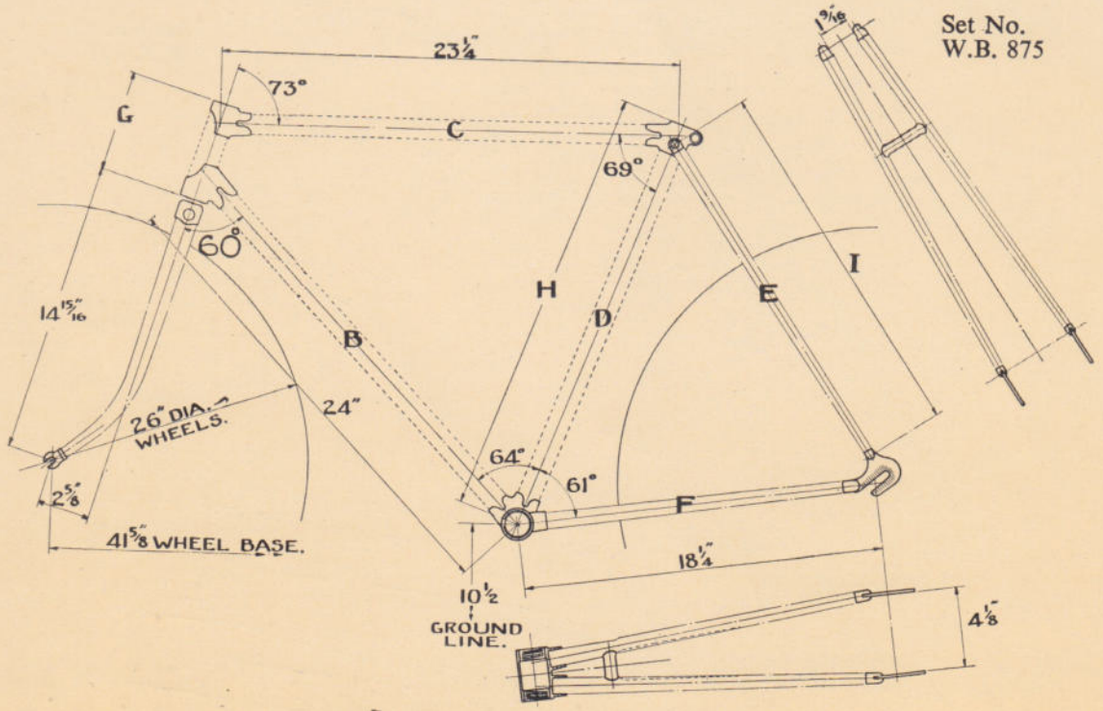
PFE 584
Forward drop-out quick
release rear fork end



MBS 221
Bottom bracket shell
1⅛″ × 1⅛″ × ¾″
1½″ C.L. × 63° × 63°
cotterless V pattern

TBP 167
Chain stay bridge piece

TBP 168
Seat stay bridge piece
(For weights see page 49).

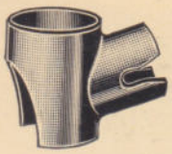


E

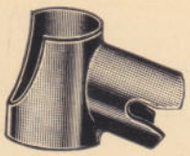
FITTINGS FOR PATH RACING CYCLES

GENT'S "OLYMPIC" FRAME

Frame sizes	TUBE LENGTHS With allowances for mitreing						CENTRES		
	A	B	C	D	E	F	G	H	I
21 inch	3⅝"	22⅞"	22⅜"	20 5/16"	17⅛"	15¾"	4⅛"	21"	17 7/8"
22 inch	4⅝"	22⅞"	22⅜"	21 5/16"	17¾"	15¾"	5⅛"	22"	18½"
23 inch	5⅝"	22⅞"	22⅜"	22 5/16"	18⅜"	15¾"	6⅛"	23"	19⅛"
Tube sizes	1¼" dia. ×20g	1⅛" dia. ×18g	1" dia. ×20g	1⅛" dia. ×20g	⅛"–" tapered	⅞"–9/16" tapered and fluted			



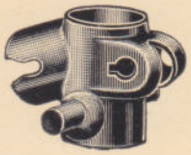
PTL 098
Top head lug
1¼" × 1" × 73°.



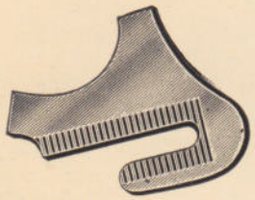
PBL 072
Bottom Head lug
1¼" × 1⅛" × 60°.

BSE 187
Steel
eye-pieces
in pairs

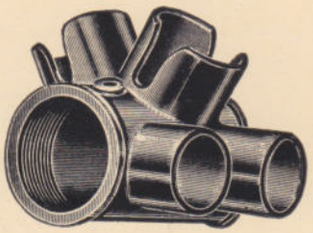
TBP 168
Seat stay bridge piece.



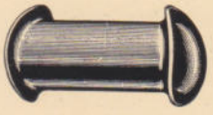
PSL 061
Seat lug
1⅛" × 1" × 69°.



PFE 584
Forward drop-out quick release rear fork end.

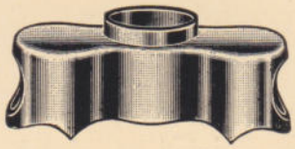


MBS 586
Bottom bracket shell.
1⅜" × 1⅛" × ⅞".
1½" C.L. × 64° × 61°
cotterless V pattern.



TBP 167
Chain stay bridge piece.

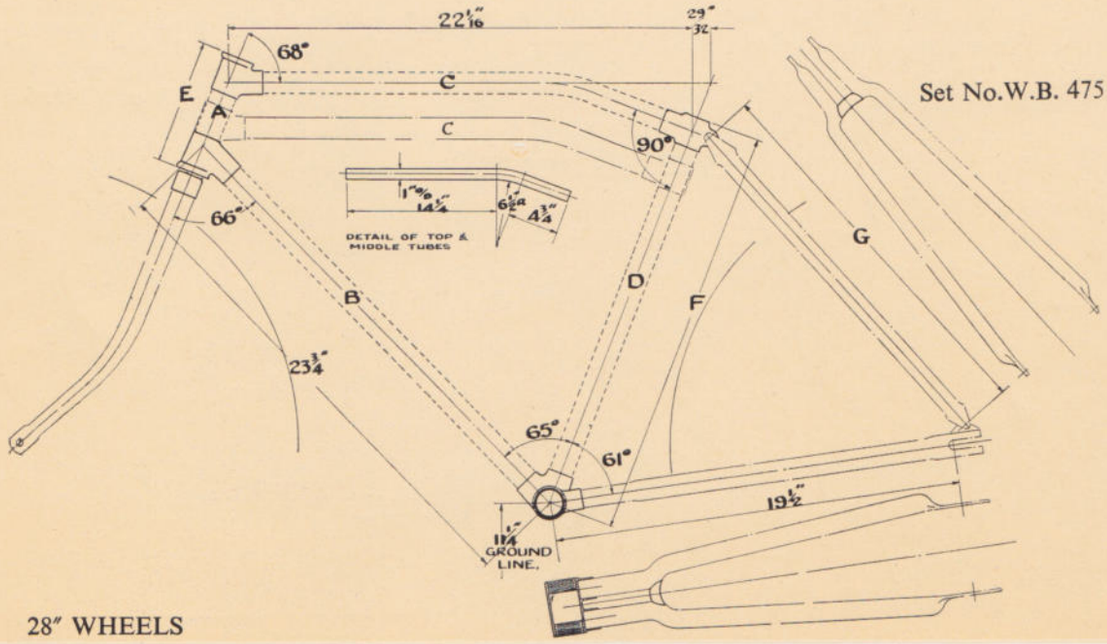
SFE 286
Front fork end



PCN 585
Fork crown, pierced and milled.

The "OLYMPIC SPECIAL" Set is identical with the above layout except that the lugs supplied are of the No-Race pattern, and are designed to be used in conjunction with Continental type headfittings.

(For weights see page 49).

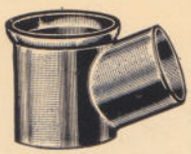


Set No.W.B. 475

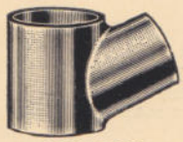
28″ WHEELS

FITTINGS FOR CANADIAN PATTERN CYCLES

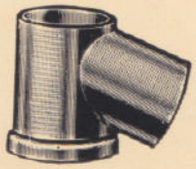
Frame size	TUBE LENGTHS With allowances for mitreing				CENTRES			BRIDGES	
	A	B	C	D	E	F	G	Chain stay	Seat stay
20/22 inch	5⅜″	22⅝″	See Sketch	19¼″	5⅞″	20″	18⅜″	PBP 089	PBP 141
22/24 inch	7⅜″	22⅝″	See Sketch	21¼″	7⅞″	22″	19⅜″	PBP 089	PBP 141
Tube sizes	1¼″ dia. ×20g	1⅛″ dia. ×18g	1″ dia. ×20g	1⅛″ dia. ×20g					



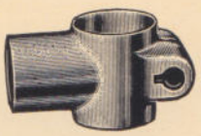
PTL 001
Top head lug
1¼″ × 1″ × 68°



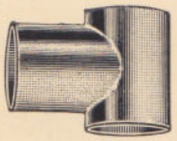
PTL 006
Middle head lug
1¼″ × 1″ × 68°



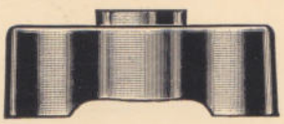
PBL 196
Bottom head lug
1¼″ × 1⅛″ × 66°



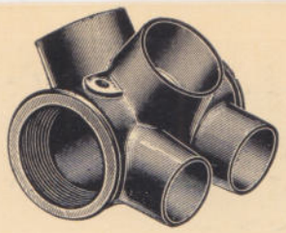
PSL 005
Seat lug
1⅛″ × 1″ × 90°



PTE 166
Middle seat lug
1⅛″ × 1″ × 90°

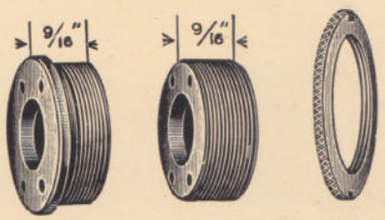


PCN 051
Fork crown



MBS 047
Bottom bracket shell
1⅛″ × 1⅛″ × ⅞″ 1½″ C.L. × 65° × 61°

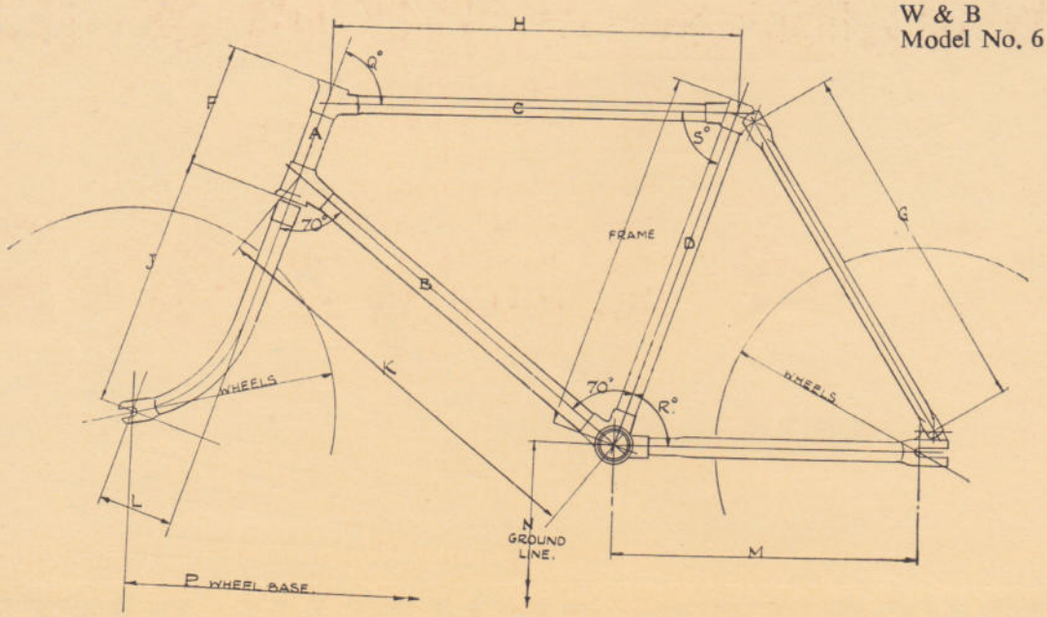
SET BBC 890



BBC 048 BBC 049 PLR 050
Bottom bracket cups and lockring

Numbers for cut-away and fish-tailed lugs are detailed on page 24.
(For weights see page 49).

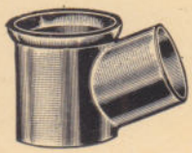
W & B
Model No. 6



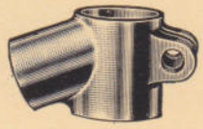
FITTINGS FOR JUNIOR CYCLES

W. & B. MODEL No. 6

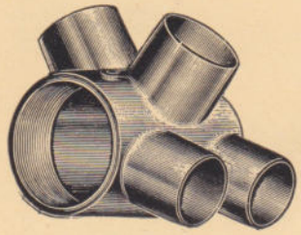
Frame size	Wheel dia.	TUBE LENGTHS with allowances for mitreing				CENTRES								ANGLES			
		A	B	C	D	F	G	H	J	K	L	M	N	P	Q	R	S
15″	16″	4 7/16″	15 7/8″	16 3/16″	14 5/16″	5″	14 1/4″	16 7/8″	10 1/8″	16 15/16″	1 7/8″	12 3/16″	7 5/8″	30 3/4″	70°	70°	70°
16″	18″	4 13/16″	17 3/16″	17 1/2″	15 5/16″	5 3/8″	15 1/2″	18 1/8″	11 1/8″	18 1/4″	3 1/4″	13 3/8″	8 3/8″	34 5/8″	70°	70°	70°
17″	18″	5 13/16″	17 3/16″	17 1/2″	16 5/16″	6 3/8″	16 1/4″	18 1/8″	11 1/8″	18 1/4″	3 1/4″	13 3/8″	8 3/8″	34 5/8″	70°	70°	70°
18″	20″	6 1/4″	17 15/16″	18 1/8″	17 5/16″	6 13/16″	17 1/4″	18 3/4″	12 1/4″	19″	2 5/8″	14 1/2″	10″	36″	70°	70°	70°
TUBE SIZES		1″ × 22g	7/8″ × 20g	3/4″ × 20g	7/8″ × 20g												



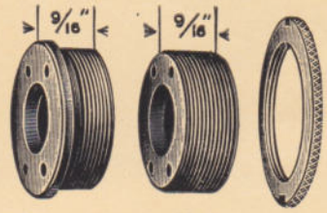
PTL 441
Top head lug
1″ × 3/4″ × 70°



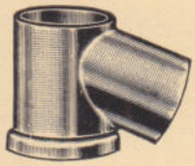
PSL 313
Seat lug
7/8″ × 3/4″ × 70°



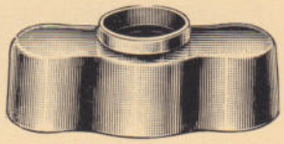
MBS 125
Bottom bracket shell
7/8″ × 7/8″ × 3/4″ × 1 5/16″ C.L



¡BBC 890
Cups and lockring
(Cotterless)



PBL 774
Bottom head lug
1″ × 7/8″ × 70°

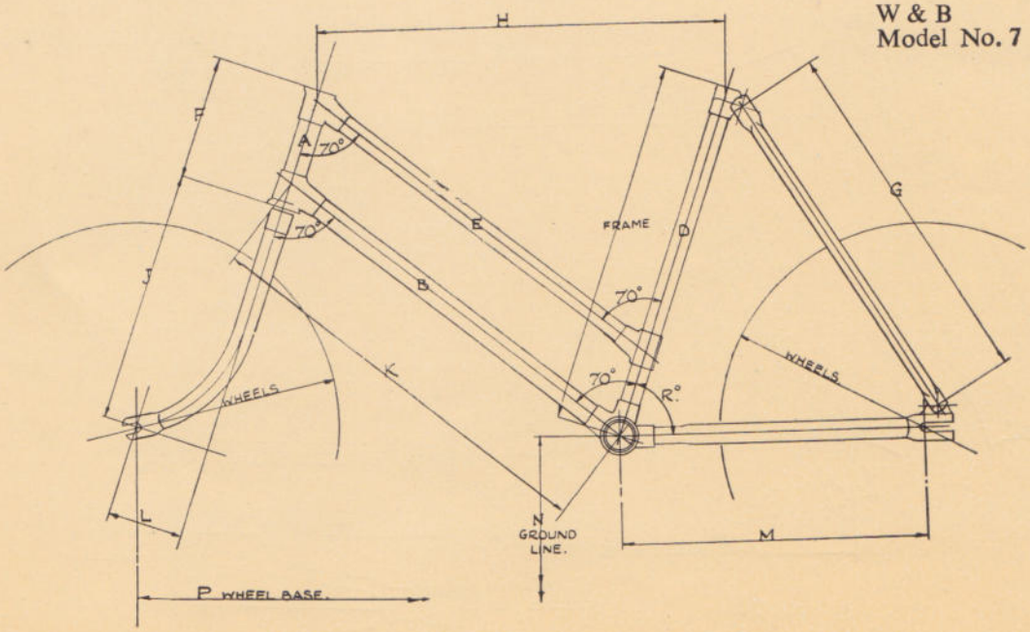


PCN 500
Fork crown

PBP 122 PBP 123
Bridges

BBA 647
Bracket axle 1 5/16″ C.L.
For G.C.C. BBA 646

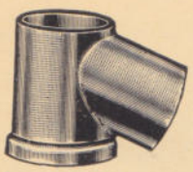
(For weights see page 49)



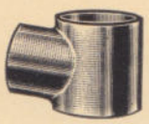
FITTINGS FOR JUNIOR CYCLES

W. & B. MODEL No. 7

Frame size	Wheel dia.	TUBE LENGTHS With allowances for mitreing				CENTRES									ANGLES
		A	B	D	E	F	G	H	J	K	L	M	N	P	R
15″	16″	4 7/16″	15 7/8″	14 5/16″	16 3/16″	5″	14 1/4″	16 7/8″	10 1/8″	16 15/16″	1 7/8″	12 3/16″	7 5/8″	30 3/4″	70°
16″	18″	5 3/16″	17 3/16″	15 5/16″	17 1/2″	5 3/4″	15 1/2″	17 7/8″	11 1/8″	18 1/4″	3 1/4″	13 3/8″	8 5/8″	34 5/8″	70°
17″	18″	5 3/16″	17 3/16″	16 5/16″	17 1/2″	5 3/4″	16 1/4″	18 1/8″	11 1/8″	18 1/4″	3 1/4″	13 3/8″	8 5/8″	34 5/8″	70°
18″	20″	6 1/4″	17 15/16″	17 5/16″	18 1/4″	6 13/16″	17 1/4″	18 3/4″	12 1/4″	19″	2 5/8″	14 1/2″	10″	36″	70°
TUBE SIZES		1″ × 22g	7/8″ × 20g	7/8″ × 20g	3/4″ × 20g										



PBL 775
Bottom head lug
1″ × 7/8″ × 70°

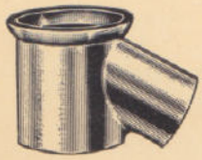


PLL 951
Loop lug
7/8″ × 3/4″ × 70°

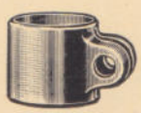
BHR 160
Head ball race
(in pairs)

BCR 159
Crown race

For weights see page 49



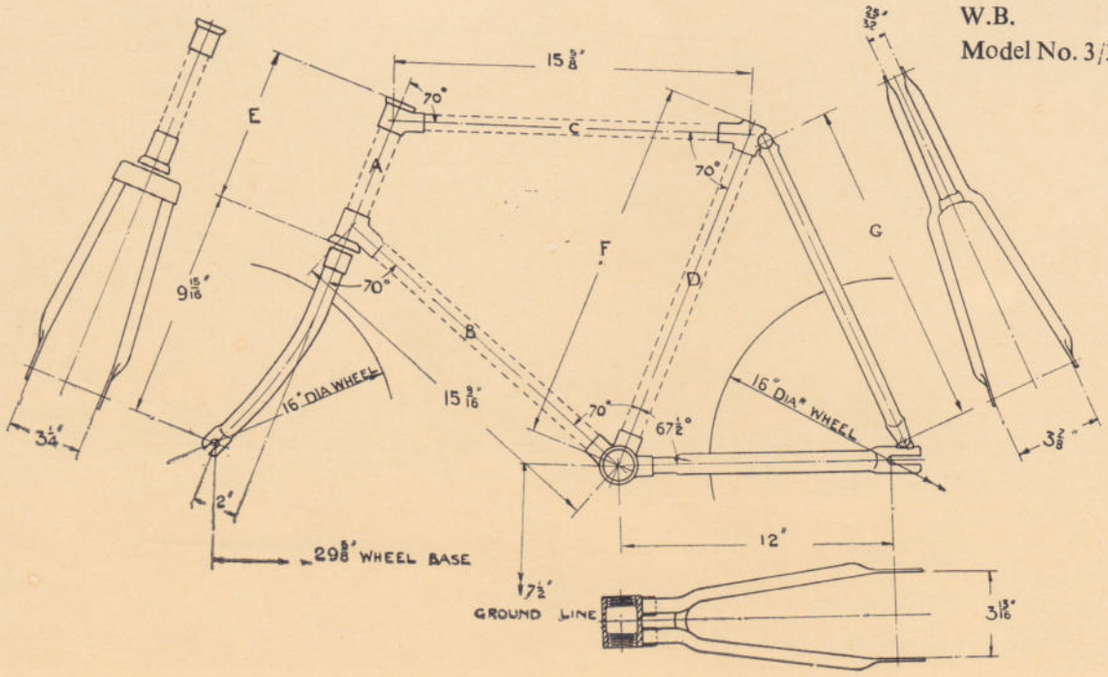
PTL 517
Top head lug
1″ × 3/4″ × 70°



PSL 173
Seat lug 7/8″

BLN 149
Round locknut
7/8″ × 30thd.

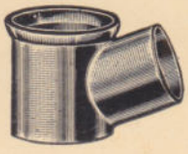
BSR 153
Screwed ball race
7/8″ × 30thd.



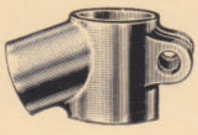
FITTINGS FOR MINIATURE CYCLES

W. & B. MODEL No. 3/31

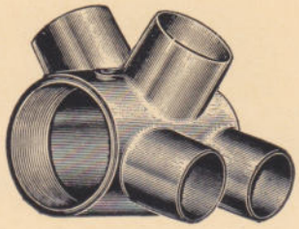
Frame size	TUBE LENGTHS With allowances for mitreing				CENTRES			BRIDGES	
	A	B	C	D	E	F	G	Chain stay	Seat stay
14 inch	4 7/32"	14½"	14⅞"	13 5/16"	4 25/32"	14"	13 3/16"	PBP 122	PBP 123
16 inch	6 7/32"	14½"	14⅞"	15 5/16"	6 25/32"	16"	14 7/16"	PBP 122	PBP 123
Tube sizes	1" × 22g	⅞" × 20g	¾" × 20g	⅞" × 20g					



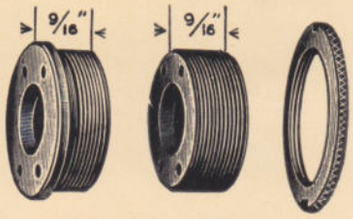
PTL 441
Top head lug
1" × ¾" × 70°



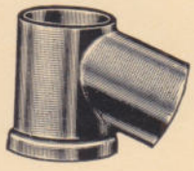
PSL 313
Seat lug
⅞" × ¾" × 70°



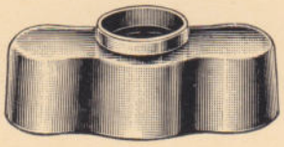
MBS 632
Bottom bracket shell
⅞" × ⅞" × ¾" × 1 5/16" C.L.



BBC 890
Cups and lockring
(Cotterless)



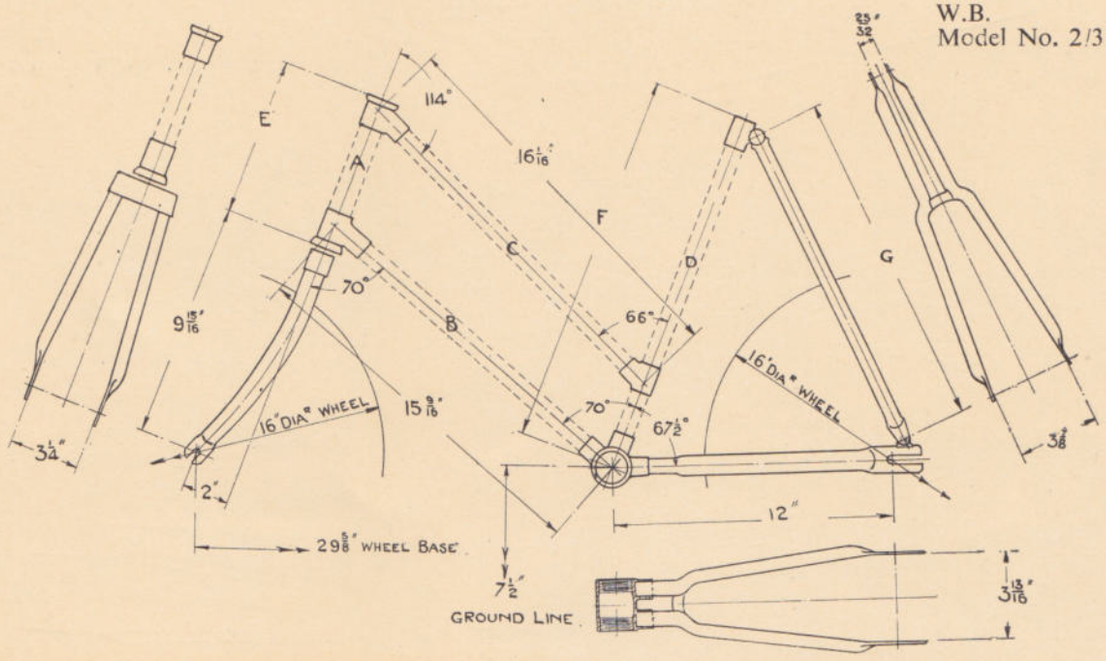
PBL 774
Bottom head lug
1" × ⅞" × 70°



PCN 500
Fork crown

PBP 122 PBP 123
Bridges

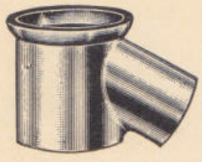
BBA 647
Bracket axle 1 5/16" C.L.
For G.C.C. BBA 646



FITTINGS FOR MINIATURE CYCLES

W. & B. MODEL No. 2/31

Frame size	TUBE LENGTHS With allowances for mitreing				CENTRES			BRIDGES	
	A	B	C	D	E	F	G	Chain stay	Seat stay
14 inch	$6\frac{7}{32}$"	$14\frac{1}{2}$"	$15\frac{5}{16}$"	$13\frac{5}{16}$"	$6\frac{25}{32}$"	14"	$13\frac{3}{16}$"	PBP 122	PBP 123
16 inch	$6\frac{7}{32}$"	$14\frac{1}{2}$"	$15\frac{5}{16}$"	$15\frac{5}{16}$"	$6\frac{25}{32}$"	16"	$14\frac{7}{16}$"	PBP 122	PBP 123
Tube sizes	1" × 22g	$\frac{7}{8}$" × 20g	$\frac{3}{4}$" × 20g	$\frac{7}{8}$" × 20g					

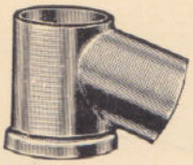


PTL 816
Top head lug
1" × $\frac{3}{4}$" × 66°

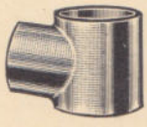
PSL 173
Seat lug $\frac{7}{8}$"

BLN 149
Round locknut
$\frac{7}{8}$" × 30thd.

BSR 153
Screwed ball race
$\frac{7}{8}$" × 30thd.



PBL 774
Bottom head lug
1" × $\frac{7}{8}$" × 70°



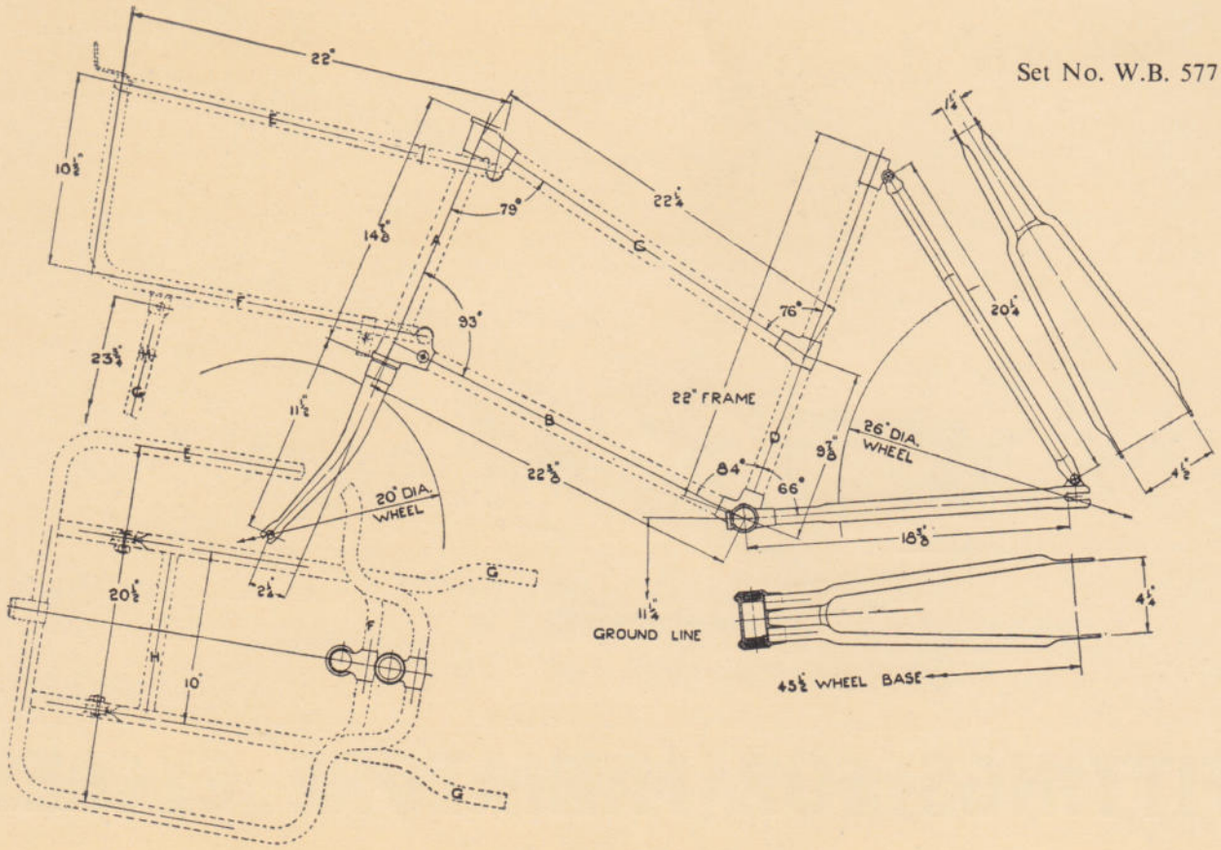
PLL 950
Loop lug
$\frac{7}{8}$" × $\frac{3}{4}$" × 66°

BHR 160
Head ball race
(in pairs)

BCR 159
Crown race

(For weights see page 49)

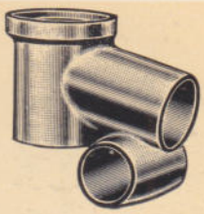
Set No. W.B. 577



FITTINGS FOR CARRIER CYCLES

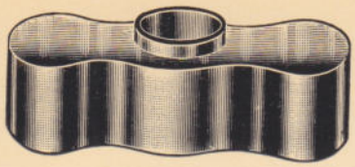
LOW GRAVITY PATTERN

Frame size	Tube lengths with allowances for mitreing							
	A	B	C	D	E	F	G	H
22 inch ..	14½″	21¼″	21½″	21⅜″	76¾″	66½″	24½″	9⅝″
Tube sizes ..	1¼″ dia.	1⅛″ dia.	1⅛″ dia.	1⅛″ dia.	⅞″ dia.	⅞″ dia.	⅞″ dia.	⅞″ dia.



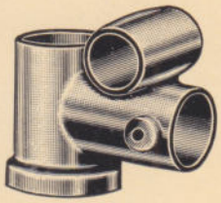
MTL 611.
Top head lug.

PSL 613
Seat lug, F.E.

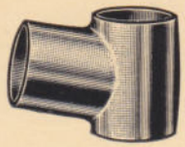


PCN 070
Fork crown.

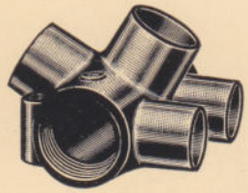
PBP 050
Chain stay
bridge piece.



MBL 612
Bottom head lug.



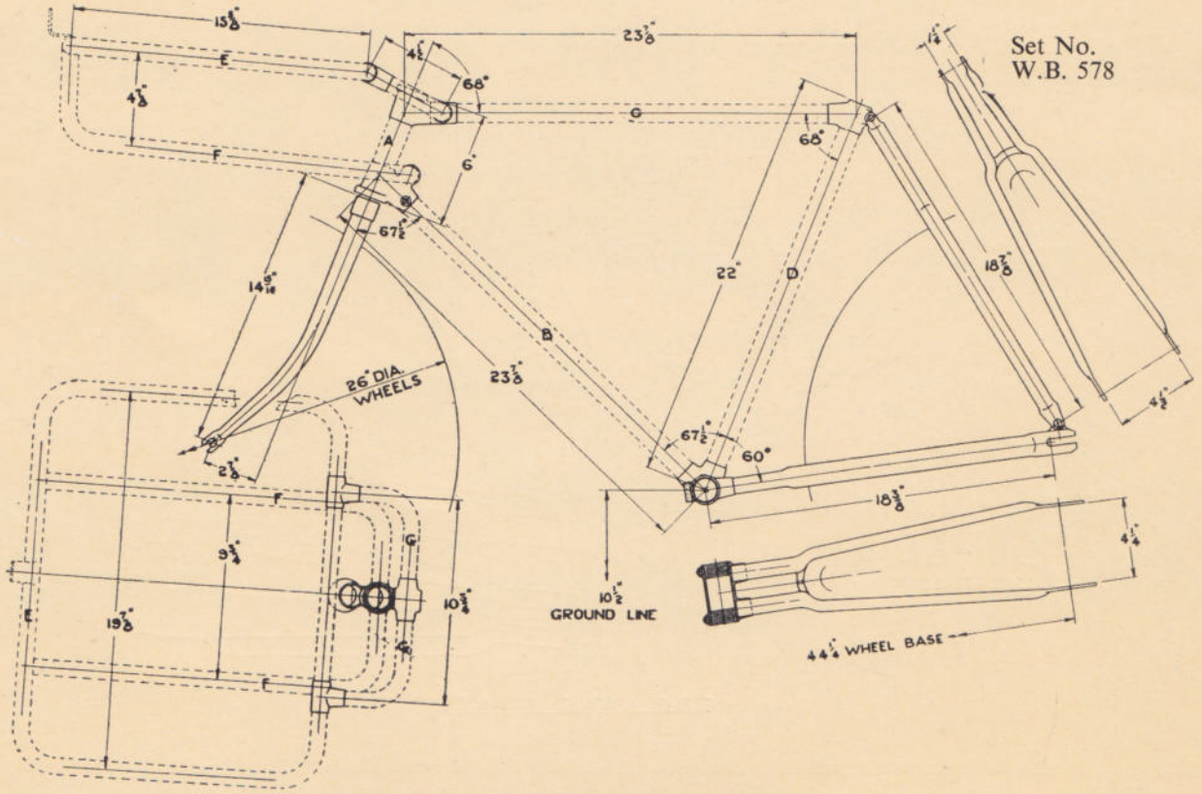
MLL 614
Loop lug.



MBS 616
Bottom bracket.
1⅛″ × 1⅛″ × ⅞″ × 1¾″
C.L. × 84° × 66°

PBP 140
Seat stay
bridge piece.

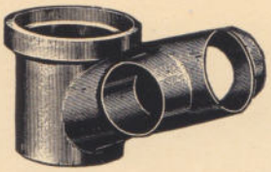
(For weights see page 49)



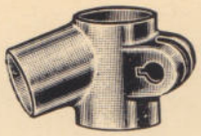
FITTINGS FOR CARRIER CYCLES

NORMAL PATTERN

Frame size	Tube lengths with allowances for mitreing						
	A	B	C	D	E	F	G
22 inch	5 9/16"	22¾"	23"	21¼"	68"	27"	8¾"
Tube sizes	1¼" dia.	1⅛" dia.	1" dia.	1⅛" dia.	⅞" dia.	⅞" dia.	⅞" dia.

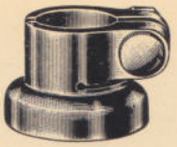


MTL 619
Top head lug.

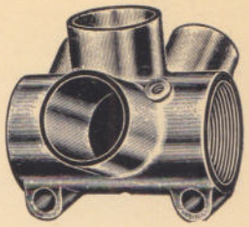


PSL 622
Seat lug, F.E.
1⅛" × 1" × 68°

BLN 242
Lock nut
screwed
1" × 24 threads.

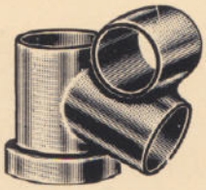


AHC 594
Carrier head
clip for 3/16"
balls.

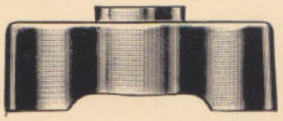


MBS 623
Bottom bracket.
1⅛" × 1⅛" × ⅞" ×
1¾" C.L.
67½° × 60°

(For weights see page 49).



MBL 618
Bottom head
lug.

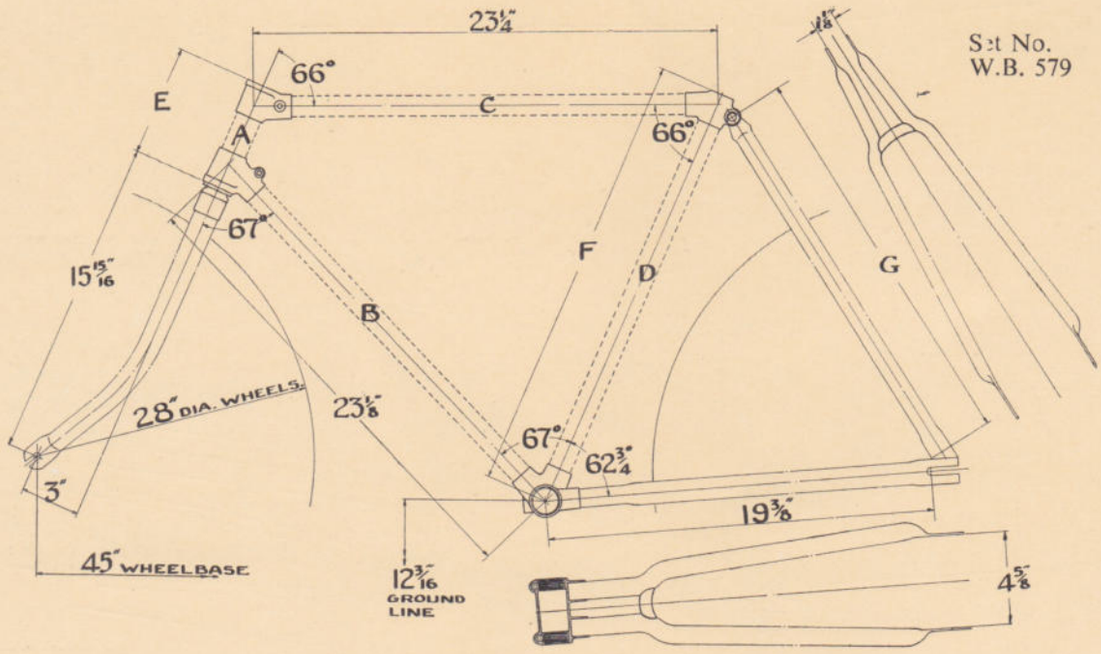


MCN 054
Fork crown.

BHR 667
Frame ball races for 3/16" balls

BHR 667

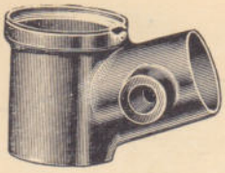
BCR 668
Crown ball race
for 3/16" balls.



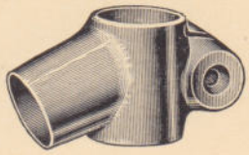
G.P.O. CYCLE FRAME.

FITTINGS FOR SERVICE CYCLES

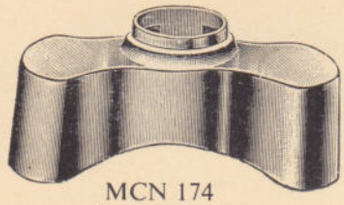
FRAME SIZE	TUBE LENGTHS With allowances for mitreing				CENTRES			BRIDGES	
	A	B	C	D	E	F	G	Chain stay	Seat stay
22"	5"	22"	22½"	21 5/16"	5½"	22"	19⅜"	PBP 060	PBP 140
24"	7"	22"	22½"	23 5/16"	7½"	24"	20⅞"	PBP 060	PBP 140
Tube Sizes	1¼" dia. ×20g	1⅛" dia. ×18g	1" dia. ×20g	1⅛" dia. ×20g					



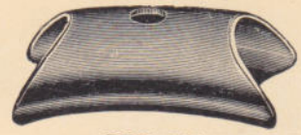
MTL 175
Top head lug.



MSL 189
Seat lug.

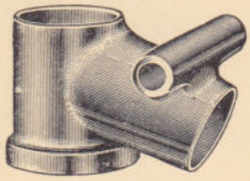


MCN 174
Fork crown

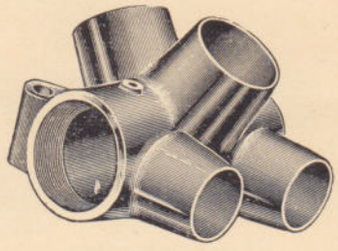


PBP 060
Chain stay bridge piece.

PBP 140 Seat stay bridge piece



MBL 188
Bottom head lug.



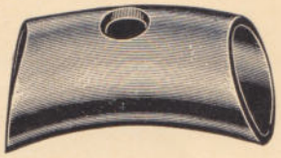
MBS 202
Bottom Bracket Shell.

BBC 047 Bracket
Cups (1 pair)

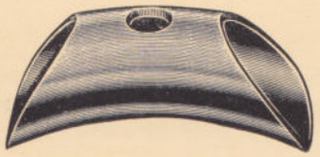
BBA 279
Bottom Bracket Axle.

G.P.O. Pattern Head fittings and handle bar lug are illustrated on pages 27 and 35

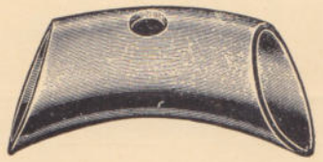
BRIDGE PIECES AND LOOP STRUTS



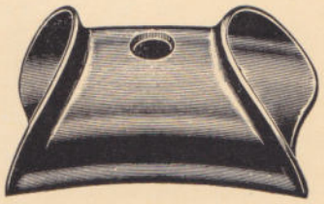
PBP 007
Pressed Steel
Seat stay bridge for $\frac{3}{4}$" "D" sharp crank



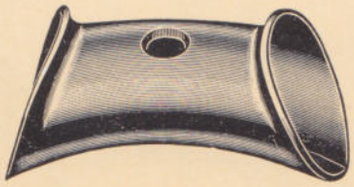
PBP 049
Pressed Steel
Seat stay bridge for $\frac{3}{4}$" "D" section



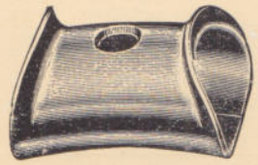
PBP 067
Pressed Steel
Seat stay bridge for $\frac{5}{8}$" "D" section



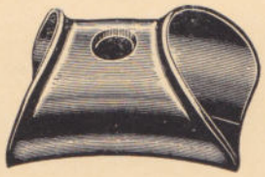
PBP 089
Pressed Steel
Flanged chain stay bridge for $\frac{7}{8}$" "D" section



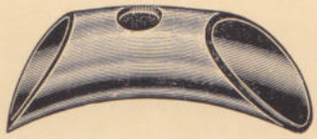
PBP 111
Pressed Steel
Flanged seat stay bridge for $\frac{3}{4}$" "D" section



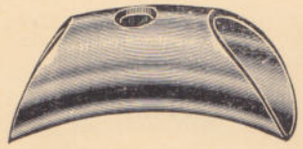
PBP 123
Pressed Steel
Scooter seat stay bridge for $\frac{5}{8}$" "D" section



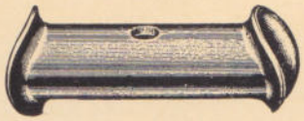
PBP 122
Pressed Steel
Scooter chain stay bridge for $\frac{3}{4}$" "R" to "D" section



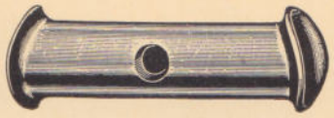
PBP 155
Pressed Steel
Seat stay bridge for $\frac{1}{2}$" round section



PBP 160
Pressed Steel
Bridge for $\frac{1}{2}$" and $\frac{5}{8}$" round and round to "D" seat stays

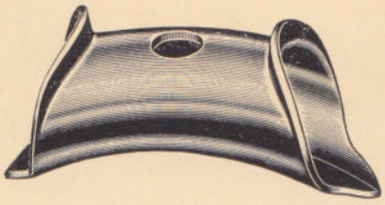


PBP 113
Pressed Steel
Bridge for $\frac{5}{8}$" round seat stay



PBP 148
Pressed Steel
Bridge for $\frac{5}{8}$" round seat stay drilled for brake

PBP 205
Pressed Steel
Bridge for $\frac{5}{8}$" round seat stay



PBP 149
Pressed Steel
Bridge for $\frac{7}{8}$" round tapered chain stay

PST 022
Pressed Steel
Loop strut for $\frac{7}{8}$"×1$\frac{1}{8}$" tubes

PST 079
Pressed Steel
Loop strut for $\frac{7}{8}$"×1$\frac{1}{8}$" tubes

NOTE.—We make nearly 200 designs of bridge pieces for chain and seat stays ; also loop struts in many patterns.

The more popular of these are illustrated above. Samples will be sent on application.

Enquiries should clearly state whether bridge pieces are required for (*a*) chain stays, (*b*) seat stays, (*c*) round or "D" or oval section stays and size of section, as well as size of frame and diameter of wheels.

Customers are urged to supply a hand-made sample of their exact requirements should any of our standard patterns not be suitable.

PRESSED STEEL FRAME LUGS FOR CYCLES

GENT'S PRESSED STEEL TOP LUGS, WITH RACE

Description	Plain	F/T only	C/A only	C/A & F/T
1¼″×1″ ×62¾°	PTL 400	PTL 401	PTL 402	PTL 403
1¼″×1″ ×65°	PTL 220	PTL 404	PTL 405	PTL 406
1¼″×1″ ×66°	PTL 195	PTL 407	PTL 408	PTL 409
1¼″×1″ ×67°	PTL 410	PTL 411	PTL 412	PTL 413
1¼″×1″ ×68°	PTL 001	PTL 414	PTL 415	PTL 416
1¼″×1″ ×68½°	PTL 417	PTL 418	PTL 419	PTL 420
1¼″×1″ ×69°	PTL 580	PTL 421	PTL 422	PTL 423
1¼″×1″ ×70°	PTL 424	PTL 425	PTL 426	PTL 427
1¼″×1″ ×71°	PTL 618	PTL 428	PTL 429	PTL 430
1¼″×1″ ×71½°	PTL 431	PTL 432	PTL 433	PTL 434
1¼″×1″ ×72°	PTL 435	PTL 436	PTL 437	PTL 438
1⅜″× 7/16″ ×68°	PTL 439			
1⅜″× 7/16″ ×65°	PTL 440			
1″ × 7/16″ ×70°	PTL 441			
1¼″×1⅛″ ×68°	PTL 215			

GENT'S P.S. TOP LUGS, NO RACE

Description	Plain	F/T only	C/A only	C/A & F/T
1¼″×1″ ×60½°	PTL 442	PTL 443	PTL 444	PTL 445
1¼″×1″ ×61°	PTL 117	PTL 446	PTL 447	PTL 448
1¼″×1″ ×62°	PTL 119	PTL 449	PTL 450	PTL 451
1¼″×1″ ×62¾°	PTL 452	PTL 453	PTL 454	PTL 455
1¼″×1″ ×65°	PTL 269	PTL 456	PTL 457	PTL 458
1¼″×1″ ×66°	PTL 116	PTL 459	PTL 460	PTL 461
1¼″×1″ ×67°	PTL 115	PTL 462	PTL 463	PTL 464
1¼″×1″ ×68°	PTL 006	PTL 465	PTL 466	PTL 467
1¼″×1″ ×69°	PTL 468	PTL 469	PTL 470	PTL 471
1¼″×1″ ×70°	PTL 472	PTL 473	PTL 474	PTL 475
1¼″×1″ ×71¼°	PTL 573	PTL 476	PTL 477	PTL 478
1¼″×1″ ×72°	PTL 479	PTL 480	PTL 481	PTL 482
1¼″×1⅛″ ×68°	PTL 264			

LADIES' P.S. TOP LUGS, WITH RACE

Description	Plain	F/T only	C/A only	C/A & F/T
1¼″× 7/16″ ×60°	PTL 483	PTL 484	PTL 485	PTL 486
1¼″× 7/16″ ×63°	PTL 487	PTL 488	PTL 489	PTL 490
1¼″× 7/16″ ×67°	PTL 206	PTL 491	PTL 492	PTL 493
1¼″× 7/16″ ×69°	PTL 494	PTL 495	PTL 496	PTL 497
1¼″× 7/16″ ×69½°	PTL 498	PTL 499	PTL 500	PTL 501
1¼″× 7/16″ ×70°	PTL 588	PTL 502	PTL 503	PTL 504
1¼″× 7/16″ ×71°	PTL 505	PTL 506	PTL 507	PTL 508
1¼″× 7/16″ ×72°	PTL 509	PTL 510	PTL 511	PTL 512
1¼″×1″ ×73¼°	PTL 331	PTL 513	PTL 514	PTL 515
1″ × 9/16″ ×66°	PTL 516			
1″ × 9/16″ ×70°	PTL 517			
1¼″× 9/16″ ×21°	PTL 518			
1¼″× 9/16″ ×25°	PTL 172			
1¼″×1″ ×25°	PTL 519			
1¼″× 7/16″ ×35°	PTL 009			
1¼″× 9/16″ ×50½°	PTL 520			
1¼″×1⅛″ ×28½°	PTL 523			
1⅜″× 7/16″ ×35°	PTL 525			

P.S. BOTTOM LUGS, WITH RACE

Description	Plain	F/T only	C/A only	C/A & F/T
1¼″×1⅛″ ×60°	PBL 619	PBL 700	PBL 701	PBL 702
1¼″×1⅛″ ×61°	PBL 703	PBL 704	PBL 705	PBL 706
1¼″×1⅛″ ×62°	PBL 707	PBL 708	PBL 709	PBL 710
1¼″×1⅛″ ×62° L.P.	PBL 711	PBL 712	PBL 713	PBL 714
1¼″×1″ ×62°	PBL 715	PBL 716	PBL 717	PBL 718
1¼″×1⅛″ ×63°	PBL 719	PBL 720	PBL 721	PBL 722
1¼″×1⅛″ ×63° L.P.	PBL 723	PBL 724	PBL 725	PBL 726
1¼″×1⅛″ ×64°	PBL 581	PBL 727	PBL 728	PBL 729
1¼″×1⅛″ ×64° L.P.	PBL 730	PBL 731	PBL 732	PBL 733
1¼″×1⅛″ ×65°	PBL 274	PBL 734	PBL 735	PBL 736
1¼″×1⅛″ ×65° L.P.	PBL 737	PBL 738	PBL 739	PBL 740
1¼″×1⅛″ ×66°	PBL 196	PBL 741	PBL 742	PBL 743
1¼″×1⅛″ ×66° L.P.	PBL 744	PBL 745	PBL 746	PBL 747
1¼″×1⅛″ ×67°	PBL 001	PBL 748	PBL 749	PBL 750
1¼″×1⅛″ ×67° L.P.	PBL 751	PBL 752	PBL 753	PBL 754
1¼″×1″ ×67°	PBL 755	PBL 756	PBL 757	PBL 758
1¼″×1⅛″ ×68°	PBL 759	PBL 760	PBL 761	PBL 762
1¼″×1⅛″ ×68° L.P.	PBL 763	PBL 764	PBL 765	PBL 766
1¼″×1⅛″ ×69° L.P.	PBL 767	PBL 768	PBL 769	PBL 770
1¼″×1⅛″ ×70°	PBL 275	PBL 771	PBL 772	PBL 773
1″ × 7/16″ ×70°	PBL 774			
1″ × 7/16″ ×70° L.P.	PBL 775			
1⅛″×1″ ×67°	PBL 776			

P.S. BOTTOM LUGS, NO RACE

Description	Plain	F/T only	C/A only	C/A & F/T
1¼″×1⅛″ ×62½°	PBL 777	PBL 778	PBL 779	PBL 780
1¼″×1⅛″ ×62¾°	PBL 572	PBL 781	PBL 782	PBL 783
1¼″×1⅛″ ×63°	PBL 784	PBL 785	PBL 786	PBL 787
1¼″×1⅛″ ×64°	PBL 108	PBL 788	PBL 789	PBL 790
1¼″×1⅛″ ×65°	PBL 791	PBL 792	PBL 793	PBL 794
1¼″×1⅛″ ×66°	PBL 795	PBL 796	PBL 797	PBL 798
1¼″×1⅛″ ×67°	PBL 006	PBL 799	PBL 800	PBL 801
1¼″×1⅛″ ×67° L.P.	PBL 802	PBL 803	PBL 804	PBL 805
1¼″×1⅛″ ×68°	PBL 109	PBL 806	PBL 807	PBL 808
1¼″×1⅛″ ×69°	PBL 105	PBL 809	PBL 810	PBL 811
1¼″×1⅛″ ×70°	PBL 107	PBL 812	PBL 813	PBL 814
1¼″×1⅛″ ×71°	PBL 104	PBL 815	PBL 816	PBL 817
1¼″×1⅛″ ×72°	PBL 106	PBL 818	PBL 819	PBL 820
1¼″×1⅛″ ×72½°	PBL 821	PBL 822	PBL 823	PBL 824
1¼″×1⅛″ ×74°	PBL 825	PBL 826	PBL 827	PBL 828
14 gauge				
1¼″×1⅛″ ×70°	PBL 829	PBL 830	PBL 831	PBL 832
1¼″×1⅛″ ×70½°	PBL 833	PBL 834	PBL 835	PBL 836
1¼″×1⅛″ ×71°	PBL 837	PBL 838	PBL 839	PBL 840

LADIES' P.S. TOP LUGS, NO RACE

Description	Plain	Description	Plain
1¼″× 7/16″ ×65°	PTL 521	1¼″× 7/16″ ×25°	PTL 124
1¼″× 7/16″ ×20°	PTL 150	1¼″× 9/16″ ×35°	PTL 010
1¼″× 7/16″ ×21½°	PTL 522	1¼″×1″ ×28½°	PTL 524

GENT'S P.S. SEAT LUGS, ⅝″ EARS

Description	Plain	F/T only
1⅛″×1″ ×61°	PSL 162	PSL 300
1⅛″×1″ ×62½°	PSL 301	PSL 302
1⅛″×1″ ×64°	PSL 160	PSL 303
1⅛″×1″ ×65°	PSL 223	PSL 304
1⅛″×1″ ×66°	PSL 159	PSL 305
1⅛″×1″ ×67°	PSL 306	PSL 307
1⅛″×1″ ×68°	PSL 001	PSL 308
1⅛″×1″ ×68½°	PSL 309	PSL 310
1⅛″×1″ ×69°	PSL 620	PSL 311
1″ × 7/16″ ×68°	PSL 312	
7/16″ × 9/16″ ×70°	PSL 313	
1⅛″×1⅛″ ×68°	PSL 218	PSL 315

GENT'S P.S. SEAT LUGS, FLUSH EARS

Description	Plain	F/T only
1⅛″×1″ ×65°	PSL 344	PSL 345
1⅛″×1″ ×66°	PSL 346	PSL 347
1⅛″×1″ ×68°	PSL 622	PSL 348
1⅛″×1″ ×69°	PSL 349	PSL 350
1⅛″×1″ ×70°	PSL 005	

GENT'S P.S. SEAT LUGS, ¾″ EARS

Description	Plain	F/T only
1⅛″×1″ ×62¾°	PSL 316	PSL 317
1⅛″×1″ ×63°	PSL 318	PSL 319
1⅛″×1″ ×64°	PSL 320	PSL 321
1⅛″×1″ ×64½°	PSL 322	PSL 323
1⅛″×1″ ×65°	PSL 324	PSL 325
1⅛″×1″ ×66°	PSL 326	PSL 327
1⅛″×1″ ×67°	PSL 328	PSL 329
1⅛″×1″ ×68°	PSL 330	PSL 331
1⅛″×1″ ×69°	PSL 332	PSL 333
1⅛″×1″ ×70°	PSL 334	PSL 335
1⅛″×1″ ×71°	PSL 336	PSL 337
1⅛″×1⅛″ ×64½°	PSL 338	PSL 339
1⅛″×1⅛″ ×65°	PSL 340	PSL 341
1⅛″×1⅛″ ×66°	PSL 342	PSL 343

SPECIAL FEATURE CUT DESIGNS OTHER THAN STANDARD CUT-AWAY AND FISH TAILING ARE ILLUSTRATED ON PAGES 28 & 29.

GENT'S P.S. SEAT LUGS FLUSH EAR (SPIGOTTED)

Description	Plain	F/T only
1⅛″×1″ ×64°	PSL 351	PSL 352
1⅛″×1″ ×65°	PSL 353	PSL 354
1⅛″×1″ ×66°	PSL 609	PSL 355
1⅛″×1″ ×67°	PSL 356	PSL 357
1⅛″×1″ ×68°	PSL 358	PSL 359
1⅛″×1″ ×69°	PSL 360	PSL 361
1⅛″×1″ ×70°	PSL 362	PSL 363
1⅛″×1″ ×71°	PSL 364	PSL 365
1⅛″×1″ ×72°	PSL 366	PSL 367

LADIES' P.S. SEAT LUGS, ⅝″ EARS

Description	
7/16″ miniature	PSL 173
1″ juvenile	PSL 368
1⅛″	PSL 009
1⅛″ 14 gauge	PSL 369

LADIES' P.S. SEAT LUGS

1⅛″ ¾″ Ears ..	PSL 370
1⅛″ 14 gauge, ¾″ Ears ..	PSL 371
1⅛″ Flush Ear	PSL 613
1⅛″ Flush Ear (Spigotted) ..	PSL 610

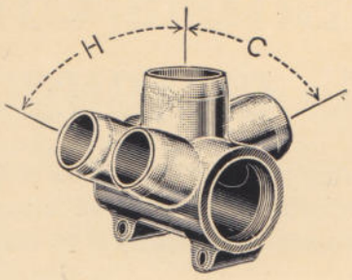
NOTE.—L.P. denotes Long Pipe.

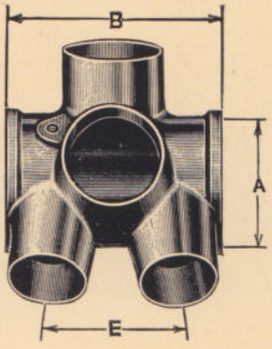
PRESSED STEEL FRAME LUGS FOR CYCLES

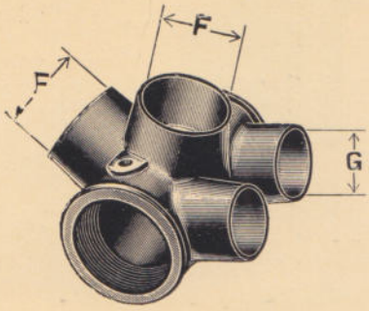
PRESSED STEEL LOOP LUGS

Description	Plain	F/T only	Description	Plain	F/T only	Description	Plain	F/T only
1⅛″ × ⅞″ × 60°	PLL 900	PLL 901	1⅛″ × ⅞″ × 75°	PLL 919	PLL 920	1⅛″ × ⅞″ × 88°	PLL 164	PLL 938
1⅛″ × ⅞″ × 63°	PLL 902	PLL 903	1⅛″ × ⅞″ × 80°	PLL 921	PLL 922	1⅛″ × 1″ × 73¼°	PLL 332	PLL 939
1⅛″ × ⅞″ × 65°	PLL 904	PLL 905	1⅛″ × ⅞″ × 81°	PLL 165	PLL 923	1⅛″ × 1″ × 75°	PLL 940	PLL 941
1⅛″ × ⅞″ × 66°	PLL 906	PLL 907	1⅛″ × ⅞″ × 82°	PLL 924	PLL 925	1⅛″ × 1″ × 79°	PLL 942	PLL 943
1⅛″ × ⅞″ × 67°	PLL 209	PLL 908	1⅛″ × ⅞″ × 82° L.P.	PLL 926	PLL 927	1⅛″ × 1″ × 80°	PLL 944	PLL 945
1⅛″ × ⅞″ × 67° L.P.	PLL 909	PLL 910	1⅛″ × ⅞″ × 82½°	PLL 928	PLL 929	1⅛″ × 1″ × 84¾°	PLL 946	PLL 947
1⅛″ × ⅞″ × 68°	PLL 191	PLL 911	1⅛″ × ⅞″ × 83°	PLL 930	PLL 931	1⅛″ × 1″ × 90°	PLL 952	PLL 953
1⅛″ × ⅞″ × 69½°	PLL 912	PLL 913	1⅛″ × ⅞″ × 84°	PLL 163	PLL 932	1″ × ⅞″ × 68°	PLL 948	
1⅛″ × ⅞″ × 70°	PLL 590	PLL 914	1⅛″ × ⅞″ × 84¾°	PLL 009	PLL 933	1″ × ⅞″ × 84¾°	PLL 949	
1⅛″ × ⅞″ × 71°	PLL 915	PLL 916	1⅛″ × ⅞″ × 85°	PLL 934	PLL 935	⅞″ × ¾″ × 66°	PLL 950	
1⅛″ × ⅞″ × 72°	PLL 917	PLL 918	1⅛″ × ⅞″ × 87½°	PLL 936	PLL 937	⅞″ × ¾″ × 70°	PLL 951	

BOTTOM BRACKET SHELLS

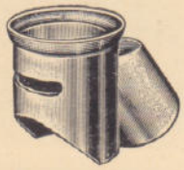






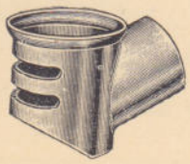
NOTE.—For illustrations and design numbers of special feature cut brackets, see page 26.

No.	Thread for cup A	Length B	Angles C	Angles H	Centre of Back Pipes E	Diameters F	Diameters G	Chain Line	Weight per Gross	Description
MBS 032	1·370 dia. × 24T.	2¾″	67°	62¾°	1½″ straight	1⅛″	⅞″	1½″	84 lbs.	Cottered standard
MBS 037	1·370 dia. × 24T.	2¾″	67°	62¾°	1½″ straight	1″	⅞″	1½″	78 ,,	Cottered
MBS 040	1·370 dia. × 24T.	2⅝″	67°	62¾°	1½″ straight	1⅛″	⅞″	1½″	76½ ,,	Cotterless double flanged
MBS 041	1·370 dia. × 24T.	2⅝″	67°	62¾°	1½″ straight	1″	⅞″	1½″	76½ ,,	Cotterless standard
MBS 125	1·370 dia. × 24T.	2¼″	70°	70°	1¼″ straight	⅞″	¾″	1 5/16″	63 ,,	Cotterless scooter pattern 6 and 7
MBS 126	1·370 dia. × 24T.	2⅝″	60°	64°	1 17/64″ V. patt.	1⅛″	¾″	1½″	78 ,,	Cotterless lightweight pattern
MBS 128	1·370 dia. × 24T.	2⅝″	66°	58°	1 17/64″ V. patt.	1⅛″	⅞″	1½″	81½ ,,	Cotterless double flanged
MBS 135	1·370 dia. × 24T.	2⅝″	58°	67°	1 17/64″ V. patt.	1⅛″	⅞″	1½″	78 ,,	Cotterless " Record " pattern
MBS 193	1·370 dia. × 24T.	2⅝″	66°	58°	1·213 V. patt.	1⅛″	⅞″	1½″	76½ ,,	Cotterless low bracket V. for racing machines
MBS 202	1·370 dia. × 24T.	3¼″	67°	62¾°	1 13/16″ straight	1⅛″	⅞″	1¾″	110½ ,,	Cottered G.P.O. pattern
MBS 236	1·370 dia. × 24T.	2⅝″	64°	61°	1 17/64″ V. patt.	1⅛″	⅞″	1½″	70 ,,	Cotterless
MBS 278	1·370 dia. × 24T.	2⅝″	67°	62¾°	1½″ straight	1″	⅞″	1½″	84 ,,	Cottered
MBS 583	1·370 dia. × 24T.	2⅝″	64°	61°	1 17/64″ V. patt.	1⅛″	⅞″	1½″	72 ,,	Cotterless for upright frame
MBS 616	1·370 dia. × 24T.	3¼″	84°	66°	1⅝″ straight	1⅛″	⅞″	1¾″	112½ ,,	Cottered " low gravity " carrier
MBS 623	1·370 dia. × 24T.	3¼″	67½°	60°	1⅞″ straight	1⅛″	⅞″	1¾″	110½ ,,	Fixed and detachable carrier
MBS 632	1·370 dia. × 24T.	2¼″	70°	67½°	1¼″ straight	⅞″	¾″	1 5/16″	72 ,,	Cotterless scooter pattern 2 and 3
MBS 633	1·370 dia. × 24T.	2⅝″	63°	63½°	1 3/16″ straight	1⅛″	1″	1½″	81 ,,	Cotterless colonial pattern
MBS 635	1 7/16″ dia. plain	2⅝″	72°	58°	1½″ straight	1⅛″	⅞″	1½″	72 ,,	Cottered split drawbolt pattern
MBS 636	1·370 dia. × 24T.	2⅝″	58°	68°	1 7/10″ straight	1⅛″	⅞″	1½″	74 ,,	Cotterless
MBS 637	1·370 dia. × 24T.	2⅝″	58½°	66½°	1 7/16″ straight	1″	⅞″	1½″	73 ,,	Cotterless } Colonial
MBS 638	1·370 dia. × 24T.	2⅝″	63°	63°	1 7/16″ straight	1⅛″	⅞″	1½″	72 ,,	Cotterless } pattern
MBS 640	1·370 dia. × 24T.	2⅝″	66°	64°	1 17/64″ V. patt.	1⅛″	⅞″	1½″	72 ,,	Cotterless
MBS 641	1·370 dia. × 24T.	2⅝″	62°	61°	1 7/16″ straight	1⅛″	⅞″	1½″	72 ,,	Cotterless
MBS 669	Plain Bore	2⅝″	67°	62¾°	1⅝″ straight	1⅛″	⅞″	1½″	72 ,,	For unit interiors
MBS 670	Plain Bore	2⅝″	67°	62¾°	1⅝″ straight	1″	⅞″	1½″	72 ,,	For unit interiors
MBS 671	1·370 dia. × 24T.	2⅝″	60°	60°	1 17/64″ V. patt.	1⅛″	⅞″	1½″	82 ,,	Cotterless
MBS 846	1·370 dia. × 24T.	2⅝″	62°	61°	1 7/16″ straight	1⅛″	⅞″	1½″	72 ,,	Cotterless double flanged
MBS 851	1·370 dia. × 24T.	2⅝″	62°	61°	1 17/64″ V. patt.	1⅛″	⅞″	1½″	71 ,,	Cotterless double flanged
MBS 853	1·370 dia. × 24T.	2⅝″	62°	61°	1 17/64″ V. patt.	1⅛″	⅞″	1½″	66½ ,,	Cotterless lightweight pattern
MBS 855	1·370 dia. × 24T.	2⅝″	62°	61°	1 7/16″ straight	1⅛″	⅞″	1½″	65½ ,,	Cotterless lightweight pattern



Design No. 1

Design No. 2.



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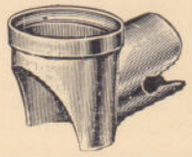

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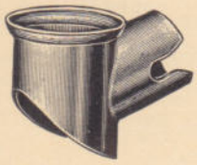

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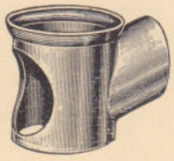

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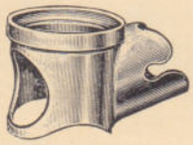
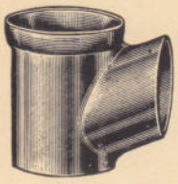


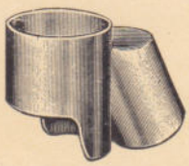
Design No. 7

Design No. 8



Design No. 9

Design No. 10



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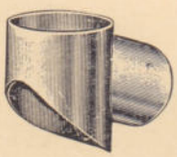
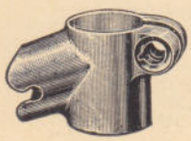


Design No. 12

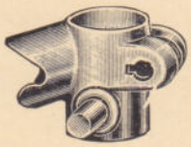
FEATURE CUT DESIGNS

On this page we illustrate a number of Lugs and Brackets to indicate designs only of feature cutting which we can apply to the majority of W. & B. Lugs.

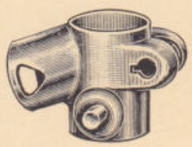
When lugs are required feature cut to any of the above designs it is necessary to specify the catalogue number of the lug **and** the number of the feature cut design required, e.g. PTL 001 to feature cut design number 10.



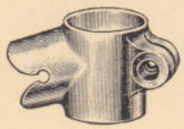
Design No. 22



Design No. 23



Design No. 24



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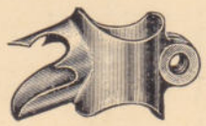

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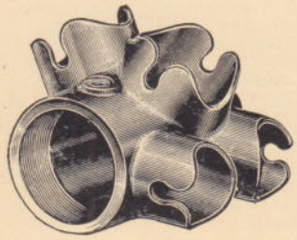
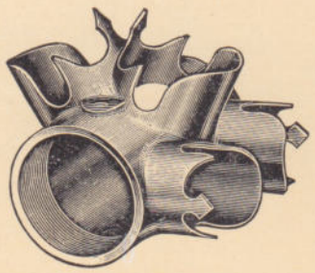


Design No. 61



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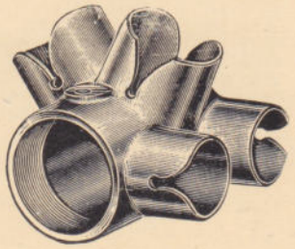

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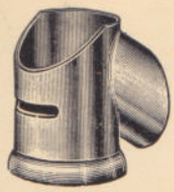

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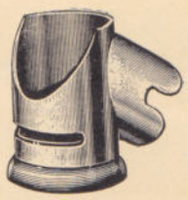
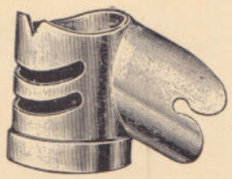


Design No. 2



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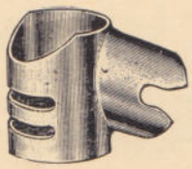

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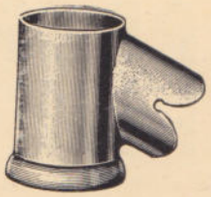

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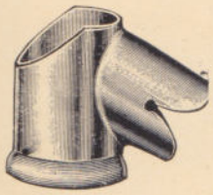

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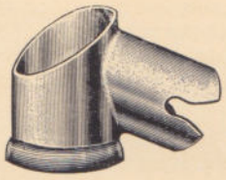

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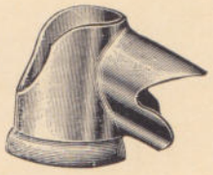
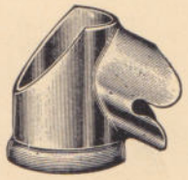


Design No. 19



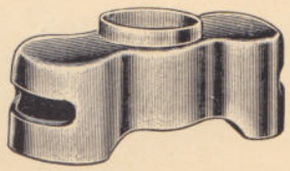
Design No. 20

Design No. 21

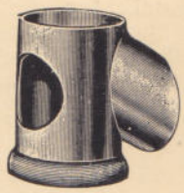
FEATURE CUT DESIGNS

On this page we illustrate a number of Lugs, and Crowns to indicate designs only of feature cutting which we can apply to the majority of W. & B. Crowns and Brackets.

When Crowns or Brackets are required feature cut to any of the above designs it is necessary to specify the catalogue number of the Crown or Bracket **and** the design number required.



Design No. 40



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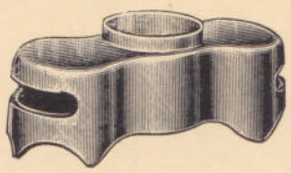
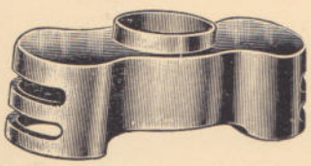
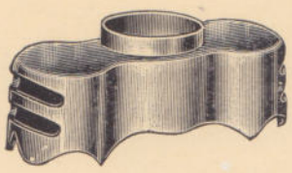


Design No. 41



Design No. 42



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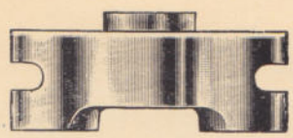
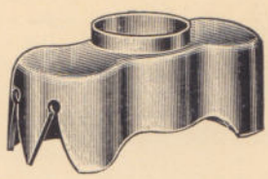
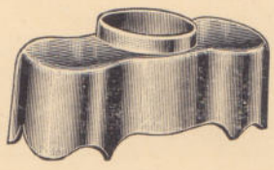


Design No. 44

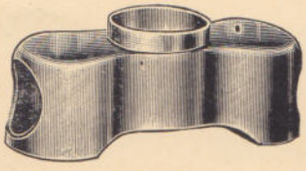


Design No. 45

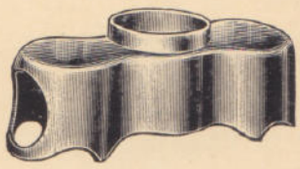
		Weigl per gr
PHL 071	$\frac{7}{8}$″ × $\frac{7}{8}$″ × 16g	18 lb
PHL 070	$\frac{3}{4}$″ × $\frac{7}{8}$″ × 16g	15 ,
PHL 072	$\frac{7}{8}$″ × $\frac{7}{8}$″ × 16g	21 ,
	(Extended patt. × 1 $\frac{3}{16}$″)	
PHL 254	$\frac{3}{4}$″ × $\frac{3}{4}$″ × 16g	14$\frac{1}{2}$ll



Design No. 47



Design No. 48



Design No. 49

PRESSED STEEL FRAME LUGS FOR CYCLES

FOR GENT'S MACHINES

Set No. 11.

CODE SETLL.

1″ drop frame, with fixed race seatings.

			Weight per gross
PTL 220	Top head lug	.. $1\frac{1}{4}''\times1''\times65°$	22 lbs.
PBL 001	Bottom head lug	.. $1\frac{1}{4}''\times1\frac{1}{8}''\times67°$	25 lbs.
PSL 223	Seat lug	.. .. $1\frac{1}{8}''\times1''\times65°$	22½lbs.

Set No. 15.

CODE SETPP.

2″ drop frame, with fixed race seatings.

PTL 400	Top head lug	.. $1\frac{1}{4}''\times1''\times62\frac{3}{4}°$	22 lbs.
PBL 001	Bottom head lug	.. $1\frac{1}{4}''\times1\frac{1}{8}''\times67°$	25 lbs.
PSL 301	Seat lug	.. .. $1\frac{1}{8}''\times1''\times62\frac{3}{4}°$	22½lbs.

FOR BOYS' MACHINES

Set No. 24.

CODE SETYY.

Parallel top tube, with fixed race seatings.

PTL 439	Top head lug	.. $1\frac{1}{8}''\times\frac{7}{8}''\times68°$	19½lbs.
PBL 776	Bottom head lug	.. $1\frac{1}{8}''\times1''\times67°$	22 lbs.
PSL 312	Seat lug	.. .. $1''\times\frac{7}{8}''\times68°$	19½lbs.

FOR LADIES' MACHINES

Set No. 28.

CODE STECC.

With fixed race seatings.

PTL 523	Top head lug	.. $1\frac{1}{4}''\times1''\times28\frac{1}{2}°$	26 lbs.
PBL 001	Bottom head lug	.. $1\frac{1}{4}''\times1\frac{1}{8}''\times67°$	25 lbs.
PSL 009	Seat lug	.. .. $1\frac{1}{8}''$	14 lbs.
PLL 952	Loop lug	.. .. $1\frac{1}{8}''\times1''\times90°$	13 lbs.

Set No. 12.

CODE SETMM.

1″ drop frame, without fixed race seatings.

			Weight per gross
PTL 269	Top head lug	.. $1\frac{1}{4}''\times1''\times65°$	21 lbs.
PBL 006	Bottom head lug	.. $1\frac{1}{4}''\times1\frac{1}{8}''\times67°$	24 lbs.
PSL 223	Seat lug	.. .. $1\frac{1}{8}''\times1''\times65°$	22½lbs.

Set No. 16.

CODE SETQQ.

2″ drop frame, without fixed race seatings.

PTL 452	Top head lug	.. $1\frac{1}{4}''\times1''\times62\frac{3}{4}°$	21 lbs.
PBL 006	Bottom head lug	.. $1\frac{1}{4}''\times1\frac{1}{8}''\times67°$	24 lbs.
PSL 301	Seat lug	.. .. $1\frac{1}{8}''\times1''\times62\frac{3}{4}°$	22½lbs.

FOR GIRLS' MACHINES

Set No. 27.

CODE STEBB.

With fixed race seatings.

PTL 525	Top head lug	.. $1\frac{1}{8}''\times\frac{7}{8}''\times35°$	21 lbs.
PBL 776	Bottom head lug	.. $1\frac{1}{8}''\times1''\times67°$	22 lbs.
PSL 368	Seat lug	.. .. $1''$	13 lbs.
PLL 949	Loop lug	.. .. $1''\times\frac{7}{8}''\times84\frac{3}{4}°$	11 lbs.

Set No. 29.

CODE STEDD.

Without fixed race seatings.

PTL 524	Top head lug	.. $1\frac{1}{4}''\times1''\times28\frac{1}{2}°$	25 lbs.
PBL 006	Bottom head lug	.. $1\frac{1}{4}''\times1\frac{1}{8}''\times67°$	24 lbs.
PSL 009	Seat lug	.. .. $1\frac{1}{8}''$	14 lbs.
PLL 952	Loop lug	.. .. $1\frac{1}{8}''\times1''\times90°$	13 lbs.

PRESSED STEEL FRAME LUGS FOR CARRIER AND DOUBLE RAIL CYCLES

Set No. 229.

CODE STEGG.

For parallel frame (1″ top rails), with fixed race seatings.

			Weight per gross
PTL 001	Top head lug	.. $1\frac{1}{4}''\times1''\times68°$	22 lbs.
PML 211	Middle head lug	.. $1\frac{1}{4}''\times1''\times68°$	21 lbs.
PBL 001	Bottom head lug	.. $1\frac{1}{4}''\times1\frac{1}{8}''\times67°$	25 lbs.
PSL 001	Seat lug	.. .. $1\frac{1}{8}''\times1''\times68°$	22½lbs.
PMS 214	Middle seat lug	.. $1\frac{1}{8}''\times1''\times68°$	20½lbs.

Set No. 231.

CODE STEJJ.

For parallel frame ($1\frac{1}{8}''$ top rails), with fixed race seatings.

PTL 215	Top head lug	.. $1\frac{1}{4}''\times1\frac{1}{8}''\times68°$	24½lbs.
PML 216	Middle head lug	.. $1\frac{1}{4}''\times1\frac{1}{8}''\times68°$	24 lbs.
PBL 001	Bottom head lug	.. $1\frac{1}{4}''\times1\frac{1}{8}''\times67°$	25 lbs.
PSL 218	Seat lug	.. .. $1\frac{1}{8}''\times1\frac{1}{8}''\times68°$	23 lbs.
PMS 219	Middle seat lug	.. $1\frac{1}{8}''\times1\frac{1}{8}''\times68°$	22 lbs.

Set No. 233.

CODE STELL.

For 1″ drop frame with fixed race seatings.

PTL 220	Top head lug	.. $1\frac{1}{4}''\times1''\times65°$	22 lbs.
PML 221	Middle head lug	.. $1\frac{1}{4}''\times1''\times65°$	21 lbs.
PBL 001	Bottom head lug	.. $1\frac{1}{4}''\times1\frac{1}{8}''\times67°$	25 lbs.
PSL 223	Seat lug	.. .. $1\frac{1}{8}''\times1''\times65°$	22½lbs.
PMS 224	Middle seat lug	.. $1\frac{1}{8}''\times1''\times65°$	20½lbs.

Set No. 230.

CODE STEHH.

For parallel frame (1″ top rails), without fixed race seatings.

			Weight per gross
PTL 006	Top head lug	.. $1\frac{1}{4}''\times1''\times68°$	21 lbs.
PML 211	Middle head lug	.. $1\frac{1}{4}''\times1''\times68°$	21 lbs.
PBL 006	Bottom head lug	.. $1\frac{1}{4}''\times1\frac{1}{8}''\times67°$	24 lbs.
PSL 001	Seat lug	.. .. $1\frac{1}{8}''\times1''\times68°$	22½lbs.
PMS 214	Middle seat lug	.. $1\frac{1}{8}''\times1''\times68°$	20½lbs.

Set No. 232.

CODE STEKK.

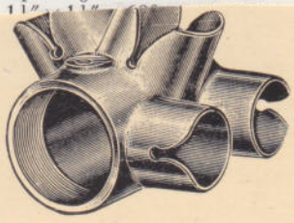
For parallel frame ($1\frac{1}{8}''$ top rails), without fixed race seatings.

PTL 264	Top head lug	.. $1\frac{1}{4}''\times1\frac{1}{8}''\times68°$	24 lbs.
PML 216	Middle head lug		
PBL 006	Bottom head lug		
PSL 218	Seat lug	..	
PMS 219	Middle seat lug		

Set No. 234.

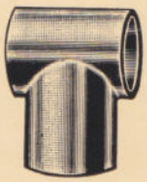
For 1″ drop frame, without fixed race seatings.

PTL 269	Top head lug	.
PML 221	Middle head lug	.
PBL 006	Bottom head lug	. .
PSL 223	Seat lug	.. ..
PMS 224	Middle seat lug	..

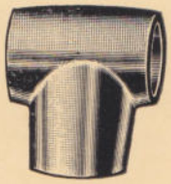


Design No. 60

PRESSED STEEL LUGS FOR SPECIAL APPLICATION

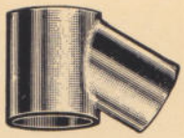


T lugs, plain.			Weight per gross
PTE 723	$1\frac{1}{8}'' \times 1\frac{1}{8}'' \times 16g$		24 lbs.
PTE 166	$1\frac{1}{8}'' \times 1''$	$\times 15g$	23 ,,
PTE 717	$1\frac{1}{8}'' \times 1''$	$\times 18g$	15 ,,
PTE 144	$1\frac{1}{8}'' \times \frac{7}{8}''$	$\times 15g$	21 ,,
PTE 738	$1'' \times 1\frac{1}{2}''$	$\times 16g$	30 ,,
PTE 183	$1'' \times 1''$	$\times 15g$	21 ,,
PTE 152	$1'' \times \frac{7}{8}''$	$\times 15g$	22 ,,
PTE 153	$\frac{7}{8}'' \times 1''$	$\times 18g$	$11\frac{1}{2}$,,
PTE 156	$\frac{7}{8}'' \times \frac{7}{8}''$	$\times 15g$	18 ,,
PTE 147	$\frac{3}{4}'' \times \frac{7}{8}''$	$\times 16g$	13 ,,
PTE 148	$\frac{3}{4}'' \times \frac{3}{4}''$	$\times 16g$	13 ,,
PTE 741	$\frac{5}{8}'' \times \frac{5}{8}''$	$\times 18g$	$7\frac{1}{2}$,,
PTE 734	$\frac{1}{2}'' \times \frac{1}{2}''$	$\times 18g$	5 ,,

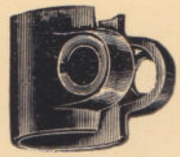


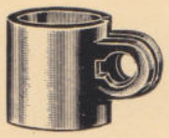
T lugs, barrelled.			Weight per gross
PTE 730	$1\frac{1}{4}'' \times 1\frac{1}{4}''$	$\times 12g$	34 lbs.
PTE 747	$1\frac{1}{8}'' \times 1\frac{1}{8}''$	$\times 12g$	31 ,,
PTE 737	$\frac{5}{8}'' \times \frac{5}{8}''$	$\times 14g$	12 ,,

Angle lugs



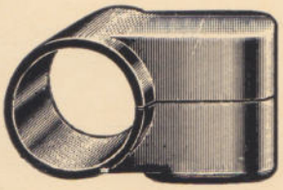
			Weight per gross
PAL 175	$1\frac{1}{8}'' \times 1\frac{1}{8}''$	$\times 15g \times 45°$	38lbs.
PAL 145	$1\frac{1}{8}'' \times 1\frac{1}{8}''$	$\times 14g \times 78°$	33 ,,
PAL 735	$\frac{1}{2}'' \times \frac{1}{2}''$	$\times 18g \times 83°$	5 ,,
PAL 736	$\frac{1}{2}'' \times \frac{1}{2}''$	$\times 18g \times 59°$	5 ,,



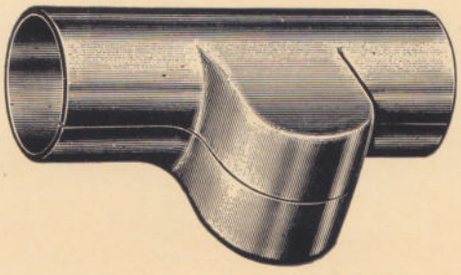


Clips.			Weight per gross
PCS 180	.. $1''$	$\times 12g$	27 lbs.
PCS 726	.. $1''$	$\times 13g$	18 ,,
PCS 149	.. $\frac{7}{8}''$	$\times 14g$	$16\frac{1}{2}$,,
PCS 740	.. $\frac{7}{8}''$	$\times 16g$	$5\frac{1}{2}$,,
PCS 724	.. $\frac{3}{4}''$	$\times 15g$	$10\frac{1}{2}$,,
PCS 725	.. $2''$	$\times 13g$	28 ,,
PCS 739	.. $1\frac{3}{4}''$	$\times 15g$	24 ,,
PCS 154	.. $1\frac{1}{4}''$	$\times 11g$	36 ,,
PCS 179	.. $1\frac{1}{8}''$	$\times 12g$	18 ,,
PCS 720	.. $1\frac{1}{8}''$	$\times 14g$	18 ,,

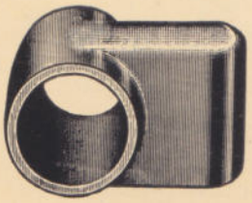
HANDLEBAR LUGS



			Weight per gross
PHL 071	$\frac{7}{8}'' \times \frac{7}{8}''$	$\times 16g$	18 lbs.
PHL 070	$\frac{3}{4}'' \times \frac{7}{8}''$	$\times 16g$	15 ,,
PHL 072	$\frac{7}{8}'' \times \frac{7}{8}''$	$\times 16g$	21 ,,
	(Extended patt. $\times 1\frac{3}{16}''$)		
PHL 254	$\frac{3}{4}'' \times \frac{3}{4}''$	$\times 16g$	$14\frac{1}{2}$lbs.



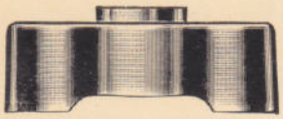
PHL 130
Wide pattern $3'' \times \frac{7}{8}'' \times \frac{7}{8}''$
Weight per gross 28 lbs.



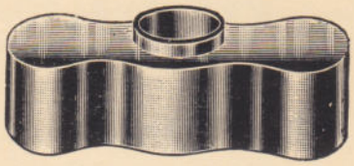
MHL 077 G.P.O. Lug
Weight per gross 31 lbs.

PHC 133 Handlebar clip
$1'' \times 14g$.
Weight per gross 13 lbs.

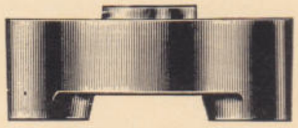
FORK CROWNS



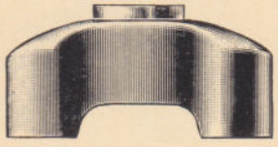
PCN 051 Fork crown.



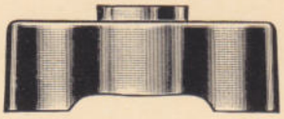
PCN 070 Fork crown for low gravity carrier or balloon tyre.



MCN 644 Fork crown (profiled) for $\frac{7}{8}$" dia. round blades.

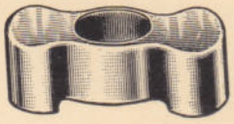


PCN 055 Fork crown.

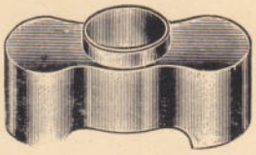


MCN 052 Fork crown.
MCN 054 Fork crown for carrier cycles.

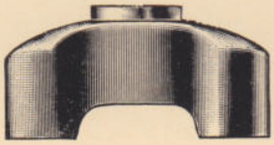
Crown covers
(brass)



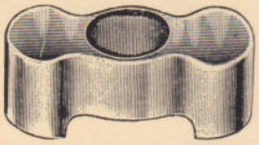
Cover No.	To fit over crown No.
PCC 057	PCN 500
PCC 058	PCN 051
PCC 059	PCN 055
PCC 605	MCN 056
PCC 606	MCN 052



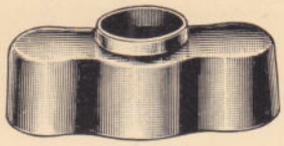
PCN 287 Narrow pattern racing fork crown for standard D forks.



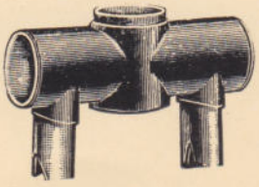
MCN 056 Fork crown



PCC 288 Crown cover in brass to fit over crown PCN 287.



PCN 500
Juvenile fork crown.



MCN 060 Standard tubular pattern fork crown complete with pair of caps

MCN 061 Narrow tubular pattern fork crown, complete with pair of caps.

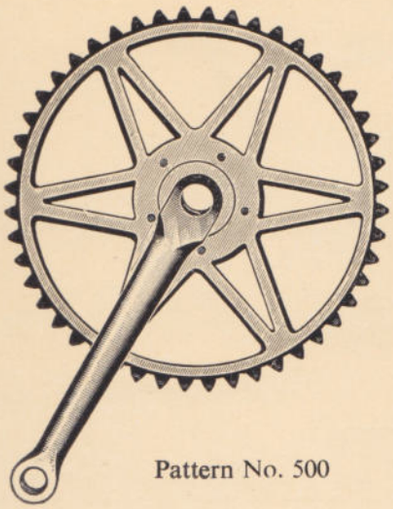
PPE 127 Crown plate in brass to fit crown PCN 051.

PPE 102 Crown plate in brass, to fit crown PCN 055.

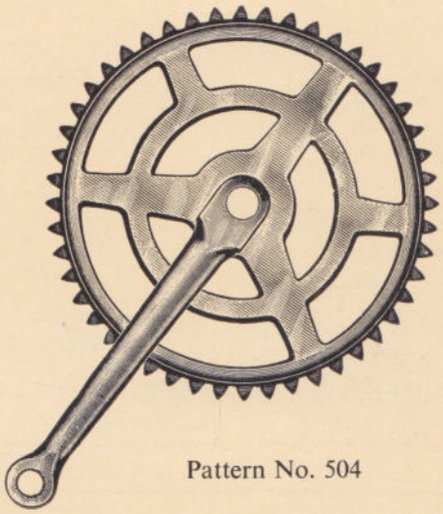
	Weight per gross.			
PCN 051	38 lbs.	MCN 060	54	lbs.
PCN 055	40 ,,	MCN 061	54	,,
PCN 287	30 ,,	MCN 644	54	,,
PCN 500	25 ,,	PCC 058	12½	,,
MCN 615	99 ,,	PCC 059	12	,,
MCN 052	69 ,,	PCC 605	12½	,,
MCN 054	66 ,,	PCC 606	13	,,
MCN 056	63 ,,	PCC 288	9	,,
PPE 127	9 ,,	PPE 102	9	,,

CHAIN WHEELS AND CRANKS

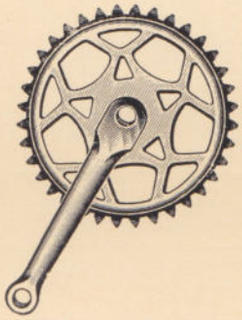
Standard Sets



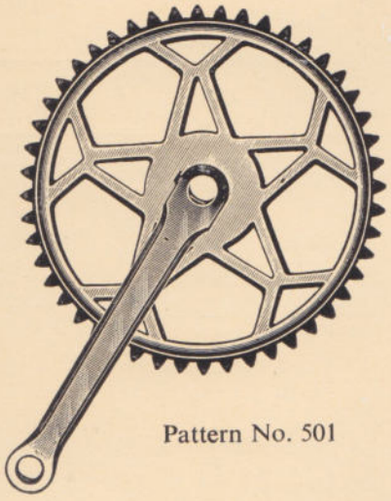
Pattern No. 500



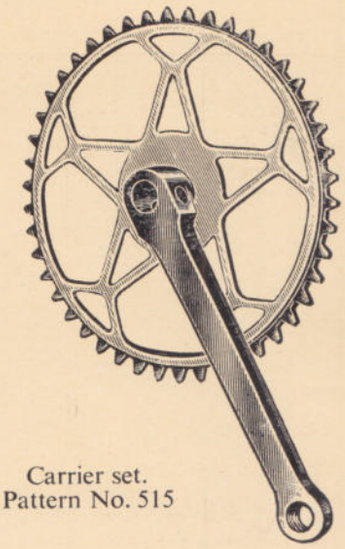
Pattern No. 504



36T & 40T
Pattern No. 501



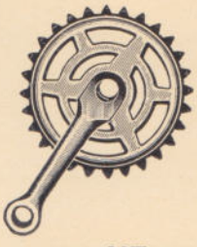
Pattern No. 501



Carrier set.
Pattern No. 515

Junior and juvenile sets.

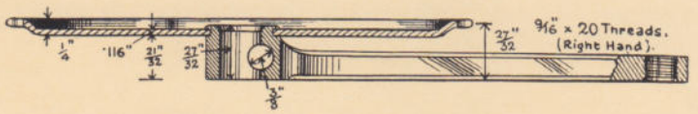
22T
Pattern No. 517



28T
Pattern No. 505

Only standard lines appear in this interim catalogue. Our next edition will illustrate a new comprehensive range, covering requirements for Roadster, Racer, Juvenile and Tandem cycles.

CHAIN WHEELS AND CRANKS FOR CYCLES



JOGGLED. All ½" Pitch, ⅛" Tooth.

Made from selected steel with superior finish.

Code Give list numbers only.

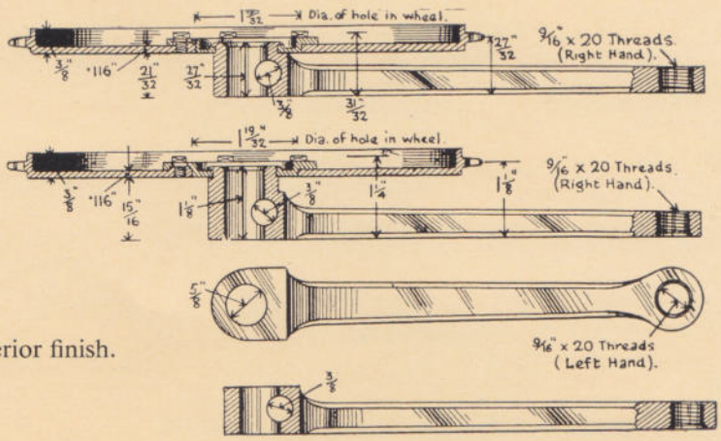
No. of Teeth.	Crank	With or without G.C.C.	Pattern No. 500		Pattern No. 501		Pattern No. 504		Pattern No. 508 (with 6½" cranks only)			
			Type of fixing		Type of fixing		Type of fixing		Type of fixing			
			Fixed	5-Pin	Fixed	5-Pin	Fixed	5-Pin	Fixed	3-Pin		
			List No.	List No	List No.	List No.	List No.	List No.	List No.	List No.		
52	7"	Without	—	—	5061	5063	5115	—	—	—		
52	7"	With	—	—	5062	5064	5116	—	—	—		
48	7"	Without	5001	5011	5021	5031	5081	—	5266	5268		
48	7"	With	5002	5012	5022	5032	5082	—	—	—		
46	6½"	Without	—	—	5069	5071	5083	—	5267	5269		
46	6½"	With	—	—	5070	5072	5084	—	—	—		
44	6½"	Without	5003	5013	5023	5033	5085	—	—	—		
44	6½"	With	5004	5014	5024	5034	5086	—	—	—		
42	6½"	Without	—	—	—	—	—	—	—	—		
42	6½"	With	—	—	—	—	—	—	—	—		
40	5½"	Without	5007	5017	5027	5037	5111	—	—	—		
40	5½"	With	5008	5018	5028	5038	5112	—	—	—		
40	4½"	Without	5087	5089	5091	5095	5113	—	—	—		
40	4½"	With	5088	5090	5092	5096	5114	—	—	—		
36	5½"	Without	—	—	5099	5103	—	—	—	—		
36	5½"	With	—	—	5100	5104	—	—	—	—		
36	4½"	Without	—	—	5101	5105	—	—	—	—		
36	4½"	With	—	—	5102	5106	—	—	—	—		
32	4½"	Without							—	—		
32	4½"	With							—	—		
32	4"	Without	In scoot	er pattern	only—jogg	led or flat	wheel,		—			
32	4"	With	oval	cranks.					—			
28	4"	Without							—			
28	4"	With							—			
22	4"	Without	In scoo	ter pattern	only—flat	wheel, ov	al cranks.					
22	4"	With										

Other combinations can be built up if required. " Popular Square " cranks are supplied standard. Other cranks can be fitted to instructions.

NOTE.—Crank cotters are not sent out with the chain wheels and cranks, nor included in the price of the latter, unless specially asked for. Cotters can be supplied at an extra cost if required, see page 33.

THE LIST NUMBER FOR JOGGLED WHEELS AND THE PATTERN OF CRANK AND FINISH IS THE ONLY INFORMATION REQUIRED WHEN ORDERING.

CHAIN WHEELS AND CRANKS FOR CYCLES



Made from selected steel with superior finish.

Code Give list numbers only.

ACN 128
3/8" crank cotter, washer and nut

FLANGED (cold forged). All 1/2" pitch ; either 1/8" or 3/16" tooth.

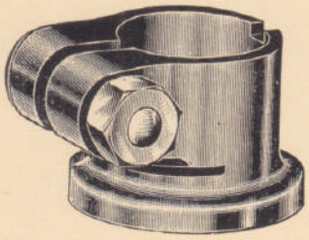
No. of Teeth	Crank	With or without G.C.C.	Pattern No. 500		Pattern No. 501		Pattern No. 504		Pattern No. 509 (with 6½" cranks only)		Tandem sets No. 516		Carrier sets No. 515	
			Type of fixing		Type of fixing		Type of fixing		Type of fixing		With 6½" or 7" cranks		3/16" teeth and heavy cranks	
			Fixed	5-Pin	Fixed	5-Pin	Fixed	5-Pin	Fixed	3-Pin	Front 3-Pin	Rear 6-Pin	Fixed	5-Pin
			List No.	List No.	List No.	List No.	List No.	List No.	List No.	List No.	List No.	List No.	List No.	List No.
60	7"	Without	—	—	5169	5179	—	—	—	—	—	—	—	—
60	7"	With	—	—	5170	5180	—	—	—	—	—	—	—	—
56	7"	Without	In special pattern only—fixed or 5-pin.						—	—	—	—	—	—
56	7"	With												
52	7"	Without	—	—	5171	5181	5231	—	—	—	5274	5279	5284	5294
52	7"	With	—	—	5172	5182	5232	—	—	—	—	—	5285	5295
48	7"	Without	5153	5163	5173	5183	5233	—	5270	5272	5275	5280	5286	5296
48	7"	With	5154	5164	5174	5184	5234	—	—	—	—	—	5287	5297
46	6½"	Without	—	—	5175	5185	5235	—	5271	5273	5276	5281	5288	5298
46	6½"	With	—	—	5176	5186	5236	—	—	—	—	—	5289	5299
44	6½"	Without	5157	5167	5177	5187	5237	—	—	—	5277	5282	5290	5300
44	6½"	With	5158	5168	5178	5188	5238	—	—	—	—	—	5291	5301
42	6½"	Without	—	—	—	—	—	—	—	—	5278	5283	5292	5302
42	6½"	With	—	—	—	—	—	—	—	—	—	—	5293	5303
40	5½"	Without	5240	5242	5244	5246	5264	—	—	—	—	—	—	—
40	5½"	With	5241	5243	5245	5247	5265	—	—	—	—	—	—	—

When ordering **FLANGED** chain wheels please quote List No. and say whether 1/8" or 3/16" teeth are required and the pattern of crank.

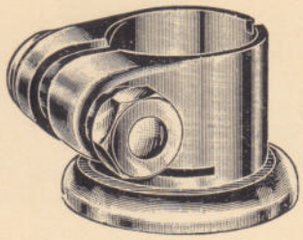
Other combinations can be built up if required. " Popular Square " cranks are fitted as standard.

NOTE.—Crank cotters are not sent out with the chain wheels and cranks, nor included in the price of the latter, unless specially asked for. Cotters can be supplied at an extra cost if required, see above.

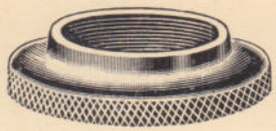
CYCLE HEAD FITTINGS



AHC 593 Malleable head clip for ⅛″ balls and 31/32″ steerer.
AHC 592 ditto, for 1″ steerer.

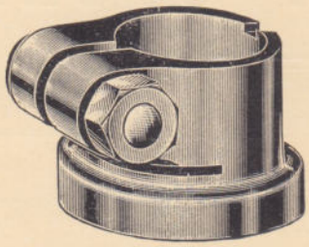


AHC 157 Pressed steel head clip for ⅛″ balls and 31/32″ steerer.
AHC 158 ditto, for 1″ steerer.

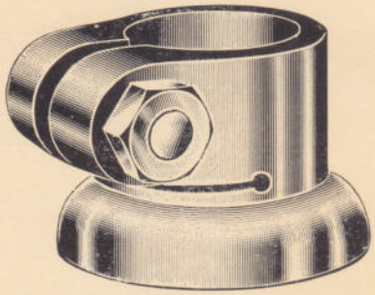


BSR 093 Screwed ball race
31/32″ × 30 threads, for ⅛″ balls.
BSR 245 ditto, for 1″ × 24 threads.
BSR 246 ditto, for 1″ × 26 threads.

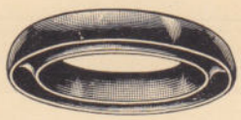
BSR 598 Screwed ball race
31/32″ × 30 threads, for ⅛″ balls.
BSR 602 ditto, for 1″ × 24 threads.
BSR 601 ditto, for 1″ × 26 threads.
BSR 107 ditto, for $\frac{3}{16}$″ balls and 1″ × 24 threads.



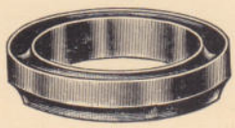
AHC 147 Malleable head clip, hardened steel race, for ⅛″ balls and 31/32″ steerer.
AHC 148 ditto, for 1″ steerer.



AHC 594 Malleable head clip, carrier, with hardened steel race for $\frac{3}{16}$″ balls, and 1″ steerer.



BHR 062 Head ball race, for ⅛″ balls.

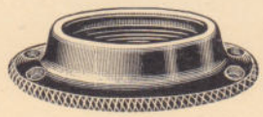


BCR 063 Crown ball race, for ⅛″ balls.
BHR 223 Set of 1 crown race and 2 frame races.

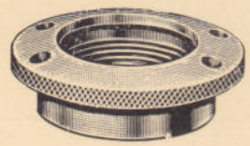
PDW 103 Distance washer

BLN 230 Lock nut
31/32″ × 30 threads.
BLN 242 1″ × 24 threads.
BLN 247 1″ × 26 threads.

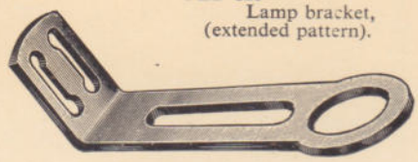
BLN 243 Lock nut
31/32″ × 30 threads.
BLN 244 1″ × 24 threads.



BLN 111 Lock nut
1″ × 24 threads.



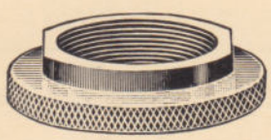
BLN 064 Lock nut
31/32″ × 30 threads.
BLN 240 1″ × 26 threads.
BLN 241 1″ × 24 threads.



PLB 123
Lamp bracket,
(extended pattern).

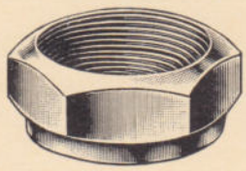
PLB 121 Lamp bracket.
PLB 120 ditto, flanged.
PLB 290 ditto, juvenile.

G.P.O. head fittings



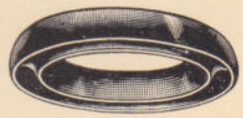
BSR 140 Screwed ball race, ⅛″ balls.

PDW 141 Distance washer.



BLN 139 Lock nut.

For weights see page 35 (opposite)



BHR 183 Head ball race (2) ⅛″ balls.

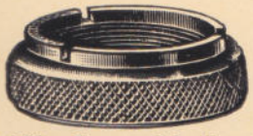
BCR 142 Crown ball race, ⅛″ balls.

CUP AND CONE HEAD FITTINGS

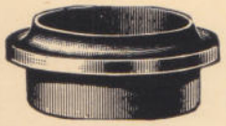
English pattern

BLN 244 Lock nut
1″ × 24 threads.

PDW 249 Plated washer with tongue.



BSR 250 Screwed ball race for $\frac{5}{32}$″ balls, 1″ × 24 threads.



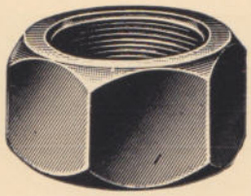
BHR 251 Top ball race, for $\frac{5}{32}$″ balls.

BHR 252 Bottom ball race, for $\frac{5}{32}$″ balls.

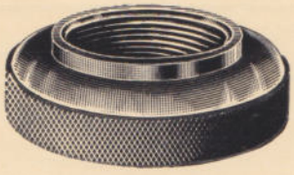
BCR 253 Crown ball race, for $\frac{5}{32}$″ balls.

Weight per gross			Weight per gross		
BHR 251	9½	lbs.	BLN 248	7½	lbs
BHR 252	12	,,	PDW 249	1	,,
BCR 253	6½	,,	BSR 250	15	,,

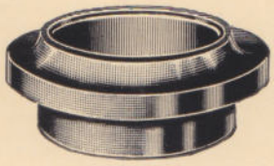
Auto and Carrier Set



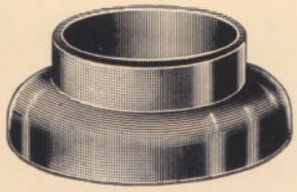
BLN 255 Lock nut
1″ × 24 threads.



BSR 219 Screwed ball race for $\frac{3}{16}$″ balls.
1″ × 24 threads



BHR 221 Bottom ball race for $\frac{3}{16}$″ balls.



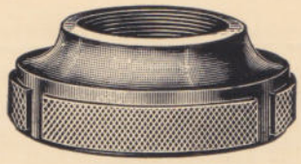
BCR 222 Crown ball race for $\frac{3}{16}$″ balls.

BHR 220 Top ball race for $\frac{3}{16}$″ balls.

Weights per gross					
BLN	255	20	lbs.	4	oz.
BSR	219	14	,,	1	,,
BHR	220	9	,,	9	,,
BHR	221	9	,,		
BCR	222	6	,,	12	,,

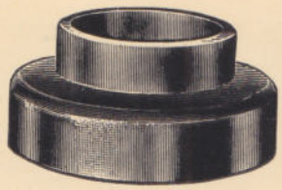
Heavy carrier pattern

BLN 228
Lock nut
1″ × 24 threads.

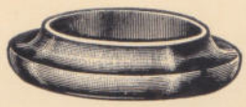


BSR 224
Screwed ball race
for ¼″ balls
1″ × 24 threads.

BHR 225
Top ball race,
for ¼″ balls.



BHR 226
Bottom ball race
for ¼″ balls.

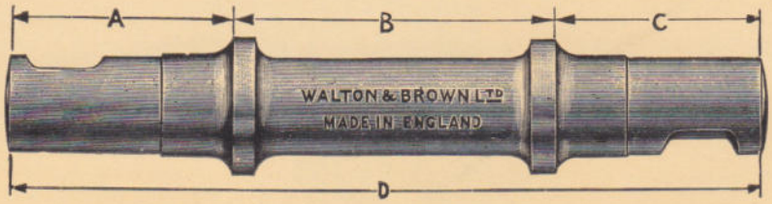


BCR 227
Crown ball race,
for ¼″ balls.

Weight per gross			
BLN	228	6	lbs.
BSR	224	31½	,,
BHR	225	18	,,
BHR	226	27	,,
BCR	227	10½	,,

Weight per gross			Weight per gross			Weight per gross			Weight per gross			Weight per gross			Weight per gross			Weight per gross		
BLN	230	9	AHC	593	28	BSR	598	8	BLN	111	7¾	AHC	594	27	BLN	064	10	AHC	147	37	PDW	141	38
BLN	242	9	AHC	592	28	BSR	602	8	BLN	243	8	PLB	123	12	BLN	240	10	AHC	148	36	BSR	140	3
BLN	247	9	BSR	093	9½	BSR	601	8	BLN	244	8	PLB	121	12	BLN	241	10	BHR	062	5	BLN	139	10½
AHC	595	26	BSR	245	9½	BSR	107	12	AHC	157	28	PLB	120	20	AHC	122	28	BCR	063	4½	BHR	183	6
AHC	597	25	BSR	246	9¼	PDW	103	1½	AHC	158	27	PLB	290	12	AHC	123	28	BHR	223	14½	BCR	142	6

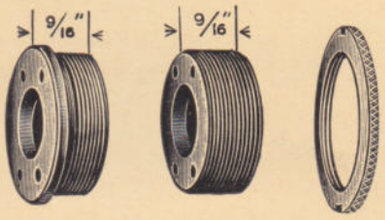
BRACKET AXLES



No.	A	B	C	D	Description	Weight per gross
BBA 042	1 5/16"	1 15/16"	1 3/8"	4 5/8"	1 1/2" C.L. for cottered brackets	64 lbs.
BBA 043	1 29/32"	2 7/16"	1 1/2"	5 11/32"	1 3/4" C.L. " " "	68 "
BBA 045	1 5/16"	1 15/16"	1 11/16"	4 15/16"	1 1/2" C.L. G.C.C. for ditto	68 "
BBA 110	1 1/2"	2 1/16"	1 19/32"	5 5/32"	1 1/2" C.L. Special	72 "
BBA 112	1 11/16"	2 7/16"	1 11/16"	5 13/16"	1 3/4" C.L. G.C.C. 3/8" longer than standard on left-hand side	90 "
BBA 113	1 19/64"	2·165"	1 29/32"	4·868"	1 5/8" C.L. Continental pattern	75 "
BBA 114	1 19/64"	2 1/4"	1 29/32"	4·953"	Special Continental pattern	68 "
BBA 115	1 19/64"	2·165"	1 21/32"	5·118"	1 5/8" C.L. G.C.C. Continental pattern	72 "
BBA 116	1 19/64"	2 1/4"	1 21/32"	5·203"	Special G.C.C. Continental pattern	71 "
BBA 117	1 7/16"	2·165"	1 11/16"	5·290"	Special Continental pattern	72 "
BBA 261	1 5/8"	2 1/16"	1 3/4"	5 5/16"	1 1/2" C.L. G.C.C. 1/8" longer on chain side for oil bath gear case	68 "
BBA 279	1 5/16"	2 7/16"	1 11/16"	5 7/16"	1 3/4" C.L. G.C.C. carrier	76 "
BBA 284	1 9/32"	2 1/16"	1 3/8"	4 13/32"	1 1/2" C.L. for cotterless brackets	64 "
BBA 285	1 9/32"	2 1/16"	1 3/8"	4 13/32"	1 1/2" C.L. G.C.C. for ditto	66 "
BBA 319	1 7/16"	1 15/16"	1 11/16"	5 1/16"	1 1/2" C.L. G.C.C. cottered brackets, 5/32" longer than standard on left-hand side	69 "
BBA 646	1 11/32"	1 21/32"	1 5/8"	4 5/8"	1 5/16" C.L. G.C.C. scooter pattern	72 "
BBA 647	1 11/32"	1 21/32"	1 11/32"	4 11/32"	1 5/16" C.L.	70 "
BBA 653	1 5/16"	1 5/8"	1 3/8"	4 5/16"	1 1/8" C.L. Tandem front	63 "
BBA 654	1 3/8"	2 3/16"	1 1/2"	5 1/16"	1 3/4" C.L. Tandem rear	74 1/4 "
BBA 655	1 5/16"	1 5/8"	1 5/8"	4 5/16"	1 1/8" C.L. G.C.C. Tandem front	81 "
BBA 656	1 5/8"	2 3/16"	1 11/16"	5 1/4"	1 3/4" C.L. G.C.C. Tandem rear	90 "

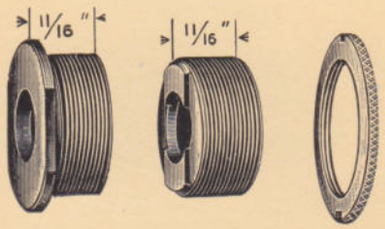
BRACKET CUPS AND LOCK RINGS

STANDARD PATTERN
SET BBC 890



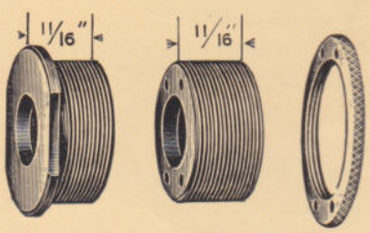
BBC 048 BBC 049 PLR 050

SET BBC 700



BBC 177 BBC 180 PLR 050

DEEP PATTERN
SET BBC 789

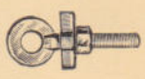


BBC 177 BBC 178 PLR 179

Seat bolt and nut.

ABN 224 1 1/8" × 5/16"
ABN 225 1 1/4" × 5/16"
ABN 226 1 3/8" × 5/16"
ABN 227 1 1/2" × 5/16"
ABN 228 1 5/8" × 5/16"
ABN 229 1 3/4" × 5/16"
ABN 230 1 7/8" × 5/16"

ACN 170 5/16" bottom bracket cotter, and nut



ACA 157 Chain adjuster.

NOTE :

For Cottered Brackets

1 pair BBC 049 9/16"

or

1 pair BBC 178 11/16"

(For weights see page 49)

"WALTONIA" CYCLE BELLS

The Trade Mark "WALTONIA" is registered in Great Britain, South Africa, India and Irish Free State. Other registrations pending.

These Bells are an all-British product, with a loud and arresting tone so necessary when riding in busy streets to-day.

They have a pleasing note, are of substantial construction and almost everlasting wear.

Positive in action and reliable. Easily and quickly fitted. Suitable for any standard handlebar.

Offered with dome in either of three finishes—nickel-plated, black-enamelled, or chromium-plated. All with black bases.

Cartons can be printed as customer desires where quantities ordered warrant the cost.

Bells are packed in individual cartons, which in turn are packed in dozen lots in cardboard containers.

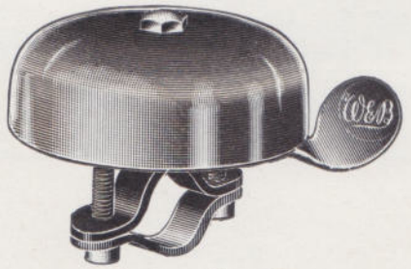
"Waltonia" Cam Model Dome 2 3/16" dia.

Pattern No.	Dome	Finish	Fitment	Weight per gross
200	Steel	Black or N.P.	Two-piece Clip	42
,,	,,	Chromium-plated	,,	,,

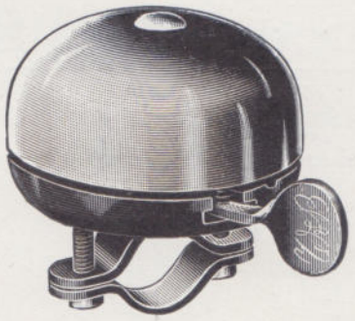
"Waltonia" rotary bell Dome 2 3/16" dia.

Pattern No.	Dome	Finish	Fitments	Weight per gross
104	Steel	Black or N.P.	Two-piece clip . .	45 lbs.
,,	,,	Chromium-plated	,, ,, . .	45 ,,

IMPORTANT—State Finish when ordering.



Pattern No. 200

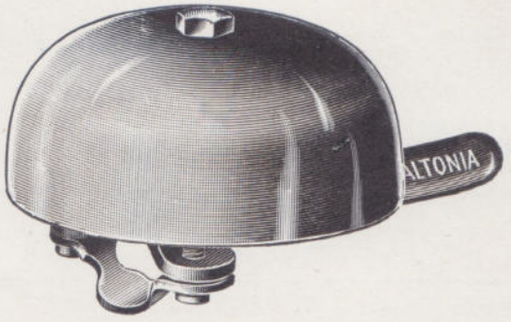


Pattern No. 104

"Waltonia" large dome bell 3" dia.

Pattern No.	Dome	Finish	Fitments	Weight per gross
100	Steel	Black or N.P.	Two-piece clip . .	78 lbs.
,,	,,	Chromium-plated	,, ,, . .	78 ,,

IMPORTANT—Finish required should be stated when ordering, in addition to Pattern No.



Pattern No. 100

THE BELL THAT CAN BE HEARD—EFFICIENCY IS THE KEYNOTE

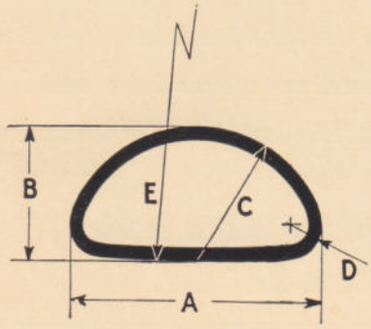
"WALTONIA" cycle bells are price maintained articles and are sold subject to the condition that they shall not be resold at less than our current authorised prices.

BICYCLE TUBES & FITTINGS

RECOMMENDED STANDARDS

Compiled by The Bicycle Standardisation Committee of The British Cycle, and Motor Cycle Manufacturers and Traders Union Ltd,

"D" to ROUND FORK BLADE



TANDEM

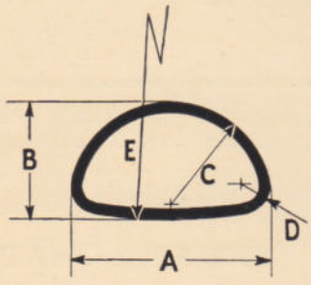
ROADSTER

SIZES	A O/D	B O/D	C O/D	D O/D	E O/D	F I/D	A O/D	B O/D	C O/D	D O/D	E O/D	F I/D
Nominal	1.218″	.710″	.620″	.187″	6″	.465″	1.155″	.625″	.600″	.150″	6″	.450″
Limits for Tubes	1.212″ 1.224″	.704″ .716″				.465″ .471″	1.149″ 1.161″	.619″ .631″				.450″ .456″
Limits for Fittings	1.218″ 1.223″	.710″ .715″				.463″ .467″	1.155″ 1.160″	.625″ .630″				.448″ .452″

"D" TO FLAT FORK BLADE

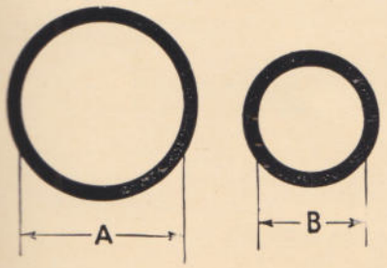
JUNIOR MACHINES

SIZES	A O/D	B O/D	C O/D	D O/D	E O/D
Nominal	.905″	.530″	.468″	.125″	$2\frac{5}{16}$″
Limits for Tubes ..	.899″ .911″	.524″ .536″			
Limits for Fittings ..	.905″ .910″	.530″ .535″			



ROUND FORK BLADES

1″ o.d. TAPER TUBES

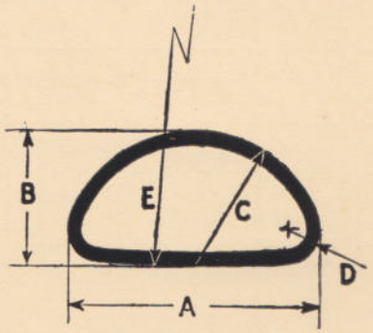


SIZES	A O/D	B I/D
Nominal	1.0″	.450″
Limits for Tubes ..	.995″ 1.001″	.450″ .456″
Limits for Fittings	1.000″ 1.004″	.448″ .452″

$\frac{7}{8}$″ o.d. TAPER TUBES

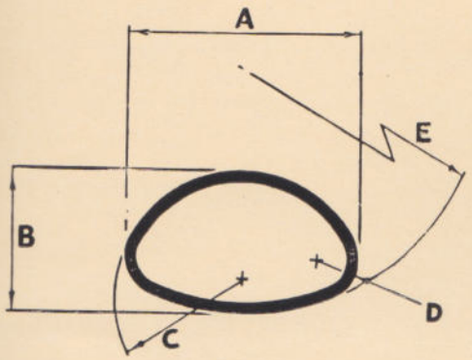
SIZES	A O/D	B I/D
Nominal	.875″	.450″
Limits for Tubes ..	.870″ .876″	.450″ .456″
Limits for Fittings	.875″ .879″	.448″ .452″

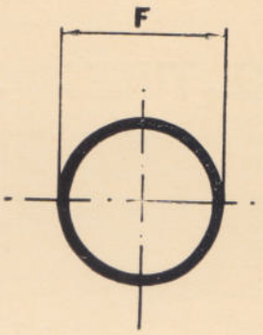
"D" SEAT STAYS—TRAPPED ENDS



SIZES	A O/D	B O/D	C O/D	D O/D	E O/D
Nominal ..	.875″	.562″	.437″	.187″	$2\frac{3}{4}$″
Limits for Tubes	.870″ .880″	.557″ .567″			

$\frac{7}{8}$″ ROUND TO "D" CHAIN STAYS

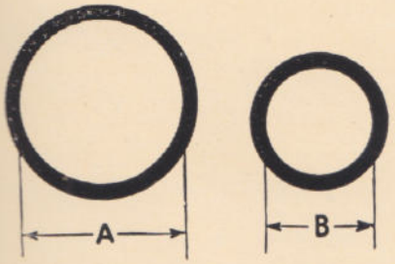




SIZES	A O/D	B O/D	C O D	D O/D	E O/D	F O/D
Nominal	1.055″	.625″	.562″	.187″	$1\frac{1}{16}$″	.875″
Limits for Tubes	1.050″ 1.060″	.620″ .630″	End of "D" Section Trapped			.870″ .876″
Limits for Fittings	—	—				.875″ .879″

ROUND CHAIN STAYS

$\frac{7}{8}$″ o.d. TANDEM

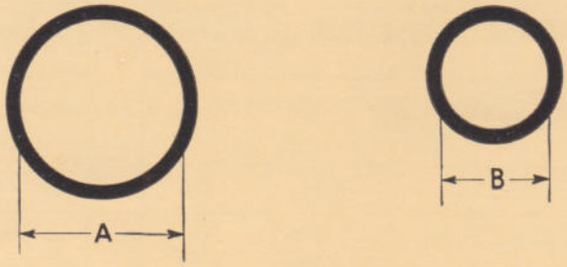


SIZES	A O/D	B I/D
Nominal	.875″	.500″
Limits for Tubes ..	.870″ .876″	.500″ .506″
Limits for Fittings	.875″ .879″	.498″ .502″

RACER

SIZES	A O/D	B I/D
Nominal	.875″	.450″
Limits for Tubes ..	.870″ .876″	.450″ .456″
Limits for Fittings	.875″ .879″	.448″ .452″

ROUND SEAT STAYS



TANDEM

SIZES	A I/D	B I/D
Nominal ..	.597″	.425″
Limits for Tubes	.597″ .603″	.425″ .431″
Limits for Fittings	.595″ .599″	.423″ .427″

RACER

	Approximate Outside Diameters					
	$\frac{5}{8}$″ to $\frac{7}{16}$″		$\frac{1}{2}$″ to $\frac{3}{8}$″		$\frac{1}{2}$″ to $\frac{5}{16}$″	
SIZES	A I/D	B I/D	A I/D	B I/D	A I/D	B I/D
Nominal ..	.561″	.370″	.444″	.310″*	.444″	Domed and Slotted to suit Fork ends
Limits for Tubes	.561″ .567″	.370″ .376″	.444″ .450″	.310″ .316″	.444″ .450″	
Limits for Fittings	.559″ .563″	.368″ .372″	.442″ .446″	.308″ .312″	.442″ .446″	

* The lower end of this size of stay is usually slotted to receive the fork end.

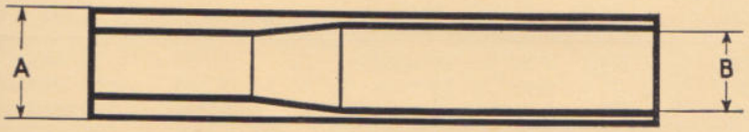
NOTE : A welded tube or tubes of heavier gauge should be reamered out to limits for tubes.

FRAME TUBES

Outside Diameter	Gauges					
$\frac{3}{4}$″		18		20		
$\frac{7}{8}$″		18		20		
1″		18	19	20	22	24
$1\frac{1}{8}$″		18	19	20	22	24
$1\frac{1}{4}$″	16	18		20		
$1\frac{3}{8}$″		18				
$1\frac{1}{2}$″	16			20		
$1\frac{5}{8}$″	16			20		

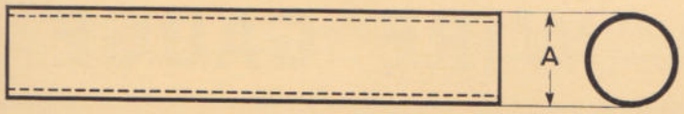
Limits for Tubes	+.001″ −.005″
Limits for Fittings	−.000″ +.004″

STEERERS BUTTED



	A O/D	B I/D
Nominal	1″	$\frac{7}{8}$″
Limits for Tubes	+.003″ −.003″	+.005″ −NIL
Limits for Fittings	−.000″ +.004″	

HANDLEBAR STEMS



	A O/D
Nominal	$\frac{7}{8}$″
Limits for Tubes ..	+.001″ −.004″
Limits for Fittings ..	+.004″ −.000″

SEAT PILLAR STEMS

Frame Tubes			Stem to Telescope		
Outside Diameter	Gauge	Inside Diameter	O/D A	O/D B	O/D C
1″	20	.928″	.919″	.912″	
$1\frac{1}{8}$″	18	1.029″	1.020″	1.013″	1.000″
$1\frac{1}{8}$″	20	1.053″	1.044″	1.037″	
$1\frac{1}{8}$″	22	1.069″	1.060″		
$1\frac{1}{8}$″	24	1.081″	1.072″		

A = Dimension when frame tube is SOLID DRAWN
B = Dimension when frame tube is WELDED
C = Dimension when frame tube is LINERED

Limits ..	+.003″ 1−.003″

CONVERSION TABLE

INCHES TO MILLIMETERS

Inches	M/ms.	Inches	M/ms.	Inches	M/ms.	Inches	M/ms.
1/32 ·03125	·7937	1/2 ·5000	12·7000	31/32 ·96875	24·6062	3 1/2 3·500	88·9000
1/16 ·0625	1·5875	17/32 ·53125	13·4937	1 1·000	25·3999	3 3/4 3·750	95·2500
3/32 ·09375	2·3812	9/16 ·5625	14·2875	1 1/8 1·125	28·5750	4 4·000	101·6000
·116 ·116	2·9464	·566 ·566	14·3764	1 1/4 1·250	31·7500	4 1/4 4·250	107·9500
1/8 ·1250	3·1750	19/32 ·59375	15·0812	1 3/8 1·375	34·9250	4 1/2 4·500	114·3000
5/32 ·15625	3·9687	5/8 ·6250	15·8750	1 1/2 1·500	38·1000	4 3/4 4·750	120·6500
3/16 ·1875	4·7625	21/32 ·65625	16·6687	1 19/32 1·59375	40·4812	5 5·000	127·0000
7/32 ·21875	5·5562	11/16 ·6875	17·4625	1 5/8 1·625	41·2750	5 1/4 5·250	133·3500
1/4 ·2500	6·3500	23/32 ·71875	18·2562	1 3/4 1·750	44·4500	5 1/2 5·500	139·7000
9/32 ·28125	7·1437	3/4 ·7500	19·0500	1 7/8 1·875	47·6250	5 3/4 5·750	146·0500
5/16 ·3125	7·9375	25/32 ·78125	19·8437	2 2·000	50·8000	6 6·000	152·4000
11/32 ·34375	8·7312	13/16 ·8125	20·6375	2 1/4 2·250	57·1500	6 1/4 6·250	158·7500
3/8 ·3750	9·5250	27/32 ·84375	21·4312	2 1/2 2·500	63·5000	6 1/2 6·500	165·1000
13/32 ·40625	10·3187	7/8 ·8750	22·2250	2 3/4 2·750	69·8500	6 3/4 6·750	171·4500
7/16 ·4375	11·1125	29/32 ·90625	23·0187	3 3·000	76·2000	7 7·000	177·8000
15/32 ·46875	11·9062	15/16 ·9375	23·8125	3 1/4 3·250	82·5500		

BRITISH IMPERIAL WIRE GAUGE

S.W. Gauge	Thickness in inches	S.W. Gauge	Thickness in inches	S.W. Gauge	Thickness in inches	S.W. Gauge	Thickness in inches
10	0·128	14	0·080	18	0·048	22	0·028
11	0·116	15	0·072	19	0·040	23	0·024
12	0·104	16	0·064	20	0·036	24	0·022
13	0·092	17	0·056	21	0·032	25	0·020

GEAR TABLE

26 in., 27 in., and 28 in. WHEELS

Teeth on Sprocket	40T.			42T.			44T.			46T.			48T.			52T.		
	26″	27″	28″	26″	27″	28″	26″	27″	28″	26″	27″	28″	26″	27″	28″	26″	27″	28″
12	86·6	90	93·4	91	94·5	98	95·3	99	103	99·7	103	107	104	108	112	113	117	121
13	80	83·1	86·2	84	87·2	90·4	88	91·4	94·8	92	95·5	99	96	99·7	103	104	108	112
14	74·3	77·1	80	78	81	84	81·7	84·8	88	85·4	88·7	92	89·1	92·6	96	96·6	100	104
15	69·4	72	74·7	72·8	75·6	78·4	76·3	79·2	82·1	79·7	82·8	85·9	83·2	86·4	89·6	90·1	93·6	97·1
16	65	67·5	70	68·3	70·9	73·5	71·5	74·2	77	74·7	77·6	80·5	78	81	84	84·5	87·7	91
17	61·2	63·5	65·9	64·2	66·7	69·4	67·3	69·9	72·7	70·3	73	76	73·4	76·2	79·3	79·5	82·6	85·6
18	57·8	60	62·3	60·7	63	65·3	63·5	66	68·4	66·4	69	71·5	69·3	72	74·7	75·1	78	80·9
19	54·8	56·8	58·9	57·5	59·7	62·1	60·2	62·5	65·1	62·9	65·4	68	65·7	68·2	71	71·1	73·9	76·9
20	52	54	56	54·6	56·7	58·8	57·2	59·4	61·6	59·8	62·1	64·4	62·4	64·8	67·2	67·6	70·2	72·8
21	49·6	51·4	53·3	52	54	56	54·5	56·6	58·7	57	59·1	61·3	59·4	61·7	64	64·4	66·8	69·3
22	47·3	49·1	50·8	49·6	51·5	53·6	52	54	56	54·4	56·4	58·7	56·7	58·9	61·3	61·4	63·8	66·4
23	45·2	47	48·7	47·5	49·3	51·1	49·7	51·6	53·6	52	54	56	54·3	56·3	58·4	58·8	61	63·3
24	43·3	45	46·7	45·5	47·2	49	47·7	49·5	51·3	49·8	51·7	53·7	52	54	56	56·3	58·5	60·6
25	41·6	43·2	44·8	43·7	45·4	47	45·8	47·5	49·3	47·8	49·7	51·5	49·9	51·8	53·8	54·1	56·2	58·2
26	40	41·6	43·1	42	43·6	45·2	44	45·7	47·4	46	47·8	49·5	48	49·8	51·7	52	54	56
28	37·1	38·6	40	39	40·5	42	40·8	42·4	44	42·7	44·3	46	44·6	46·3	48	48·3	50·1	52

To find any gear not given in this table, multiply the diameter in inches of the rear wheel by the number of teeth on the chainwheel, and divide by the number of teeth on the hub sprocket.

SPOKE LENGTHS

Size and Type of Wheel		Type of Hub	Small Flange		Large Flange		Gauge
			Length	Cross	Length	Cross	
28″ × 1½″ Westwood	Front	Standard	12⅛″	3	—	—	15
		Hub Brake and 8 Volt Dynohub	12⅛″	3	11 11/16″	3	14
	Rear	Standard	12⅛″	4	—	—	14
		Hub Brake	11⅞″	3	11 9/32″	3	14
		Hub Brake and Gear	12″	4	12″	4	14
		Gear	12″	4	—	—	14
26″ × 1½″ Westwood	Front	Standard	11⅛″	3	—	—	15
		Hub Brake and 8 Volt Dynohub	11⅛″	3	10″	2	14
	Rear	Standard	11⅛″	4	—	—	14
		Hub Brake	10 13/16″	3	10 5/16″	3	14
		Hub Brake and Gear	11″	4	11″	4	14
		Gear	11″	4	—	—	14
26″ × 1⅜″ Westwood and Raleigh	Front	Standard and Sports	11¼″	3	—	—	15
		Hub Brake and 8 Volt Dynohub	11 3/16″	3	10⅛″	2	14
	Rear	Standard and Sports	11 3/16″	4	—	—	14
		Hub Brake	11″	3	10½″	3	14
		Hub Brake and Gear	11⅛″	4	11⅛″	4	14
		Gear	11⅛″	4	—	—	14
26″ × 1⅜″ Endrick	Front	R.R.A.	10⅞″	Radial	—	—	15/17 D.B.
		Sports	11¼″	3	—	—	15
		Hub Brake and 8 Volt Dynamo	11 3/16″	3	10⅛″	2	14
	Rear	R.R.A. and Sports	11¼″	4	—	—	15
		Hub Brake	11″	3	10½″	3	14
		Hub Brake and Gear	11⅛″	4	11⅛″	4	14
		Gear	11⅛″	4	—	—	14
26″ × 1¼″ Endrick	Front	R.R.A.	11″	Radial	—	—	15/17 D.B.
		Sports	11⅜″	3	—	—	15
		Hub Brake and 8 Volt Dynohub	11⅜″	3	10 5/16″	2	14
	Rear	R.R.A. and Sports	11⅜″	4	—	—	15
		Hub Brake	11 1/16″	3	10⅝″	3	14
		Hub Brake and Gear	11 9/32″	4	11 9/32″	4	14
		Gear	11 9/32″	4	—	—	14
24″ × 1⅜″ Westwood	Front	Junior	10¼″	3	—	—	15
	Rear	Junior	10″	3	—	—	14
		Gear	10⅛″	4	—	—	14
26″ × 1¾″ Westwood	Front	Carrier	10⅝″	3	—	—	14
	Rear	Carrier	10⅝″	3	—	—	14
20″ × 1¾″ Westwood	Front	Carrier	7¼″	3	—	—	14

NOTES ON CYCLE FRAME DESIGN

By Harold Briercliffe ("The Motor Cycle and Cycle Trader," London)

SCOPE

This brief survey of the field of cycle design aims at giving to the builder a lead in his choice of sets of fittings for particular purposes.

LAYING OUT A FRAME

When the builder has chosen the set of fittings that serves his requirements—a guide to this selection will be found later—he may consider the individual measurements and angles of the frame he wishes to construct, within the limitations imposed by the major dimensions. For instance, it is desirable to have the top tube length about ½″ longer than the seat tube length, and this, in turn, together with the head angle, affects the fork off-set and wheelbase.

In general, however, builders should respect the dimensions advised by the fittings makers for each particular design of frame. Deviations from standard (such as by bending the end of a tube to make it fit some unorthodox angle) leads to weakness and possible failure. Different designs—in fork blades and chain seat stays, for instance, are available.

STANDARD ROADSTER FRAME

In providing a layout for this type of frame there are two main frame designs : (*a*) the 28″ wheel model, most suitable for overseas markets in countries where the roads are poor or non-existent, and (*b*) the 26″ wheel model, preferable for home use in town and country and wherever good roads are to be found.

28″ WHEEL MODEL

The 28″ wheel bicycle has a ground line (or bracket height) giving ample clearance, and its long wheel-base ensures comparatively smooth riding on the roughest of surfaces. A 68° head angle stabilizes the model's control, while the position of the saddle ensures balanced wheel loading.

26″ MODEL

The 26″ frame with low bracket height (10½″) is designed for business use in urban and country areas. It has a low centre of gravity because of the low position of the bracket, and this enables the rider to place his feet or foot on the ground without dismounting, when stopped at traffic blocks, for instance. The saddle position is determined so that, in conjunction with the low bracket, balanced wheel loading is obtained, giving a comfortable and easy riding position. The long fork offset of 2¾″ ensures reliable yet responsive steering qualities when used with its appropriate 68° head angle.

FRAMES FOR LADIES' MACHINES

The orthodox type of woman's frame having a curved loop tube is identical with the man's frame with, of course, the exception of the curved loop tube and the appropriate alternate lugs plus the larger head.

LADIES' SPORTS FRAME

The parallel-tube ladies' sports frame is more rigid and responsive than the orthodox loop frame model. A skirted rider can use this design and it is particularly suited for the sports girl who wishes to use her bicycle for business as well as pleasure. It has a low bracket for safety and convenience in traffic, a moderately long wheelbase and a long fork offset, together with moderate head and seat angles. This type of machine is easy to ride and control and the rider will find it makes a better mount for all normal purposes than the loop frame models.

CLUB MODEL

The appeal of the club model is to the youthful rider or to the utility rider who desires a light, comfortable and responsive bicycle that does not possess the special characteristics of the road or path-racing bicycle. It is an all-round sporting machine for the average cyclist. The wheelbase, while shorter than on a roadster, is not short enough to cause frequent road shocks to be transmitted to the rider. Head angle and fork rake are designed to give delicate, re-assuring steering.

ROAD RACING FRAME

Particular care and attention has to be given to the design of a road-racing frame. A racing machine suitable for all road events between 25 miles and 100 miles, and also 12-hour and 24-hour events, represents a happy medium. Semi-upright angles, complete with an appropriate fork offset and a moderately short wheelbase, give a machine that is most responsive to the rider's effort and yet does not tire him over long distances (in club work and touring as well as in racing) as a machine with steeper angles and shorter wheelbase (with its increased transmission of shocks) might. The fork offset and head angle assists easy cornering at "the turn" and elsewhere in road events, while comfortable steering on the level is also assured. The fairly upright seat angle provides a saddle position that enables the rider to sit "inside" the frame, behind the bracket but close enough to the handlebars to ensure maximum response from the rider's thrust.

PATH RACER

The post-war revival in track-work has led to new interest in path racing. Path models must be light, rigid, and most responsive, as they are meant for use on steeply-banked made-up or batten tracks, the latter as used in Six-day races. The aim of the designers is to produce a fast, dead-true mount capable of responding to the heavy demands of a spring finish without any loss of power due to distortion of the chain and seat stays. A short wheelbase, short back triangle and steep head angle, coupled with a small fork offset, give lateral stiffness in the forks and steering that responds truly and instantly, making a bicycle suitable for all types of concave tracks. With their larger wheelbases, longer fork offsets and less steep head and seat angles, road bicycles used on made-up tracks lack the control and responsiveness of the specially designed track model. On the other hand, stiff upright track models with short wheelbases are unsuitable for road purposes because they are "bumpy" on rough surfaces and necessitate seating positions that are uncomfortable for all but the all-out effort of the rider.

DUAL-PURPOSE RACER

The short-distance roadman (riding mainly in 25-mile and 50-mile races) and the massed-start rider require a bicycle which combines the easy steering and relative comfort of the

road racing bicycle and the responsiveness of the track machine. A compromise for this class of riding is the Dual-purpose type of machine that has a somewhat longer wheelbase than the track machine, more moderate head and seat angles, and a long fork offset. It is sufficiently fast for road work without sacrificing much of the comfort derived from a normal road frame.

ROADSTER CHAINWHEEL SETS (*a*)

Chainwheel sets for 28″ roadster bicycles have cranks and chainwheels fitted integrally. Seven inch cranks are used because of the good ground clearance available. The standard number of teeth in these chainwheels is 48, although in some cases it is possible to obtain 44, 46, and 50 teeth as well. The sets are supplied for use with bottom bracket spindles of two types, with or without gearcase clearance.

The sets for 26″ wheel models are similar, except that 6½″ cranks are usually fitted. Both sizes of crank are available in various sections, including oval, rectangular and fluted types, amongst others.

RACING CHAINWHEEL SETS (*b*)

The active club and racing cyclist requires a detachable chainwheel to enable him to effect exchange, thus giving wide variety in gears, as needed when one machine only is used for business, touring and various types of racing. Two types are available, one with five-pin fixing and the other with three-arm fixing. Attachment of crank to chainwheel in both cases is by means of square-headed set-screws with fine threads.

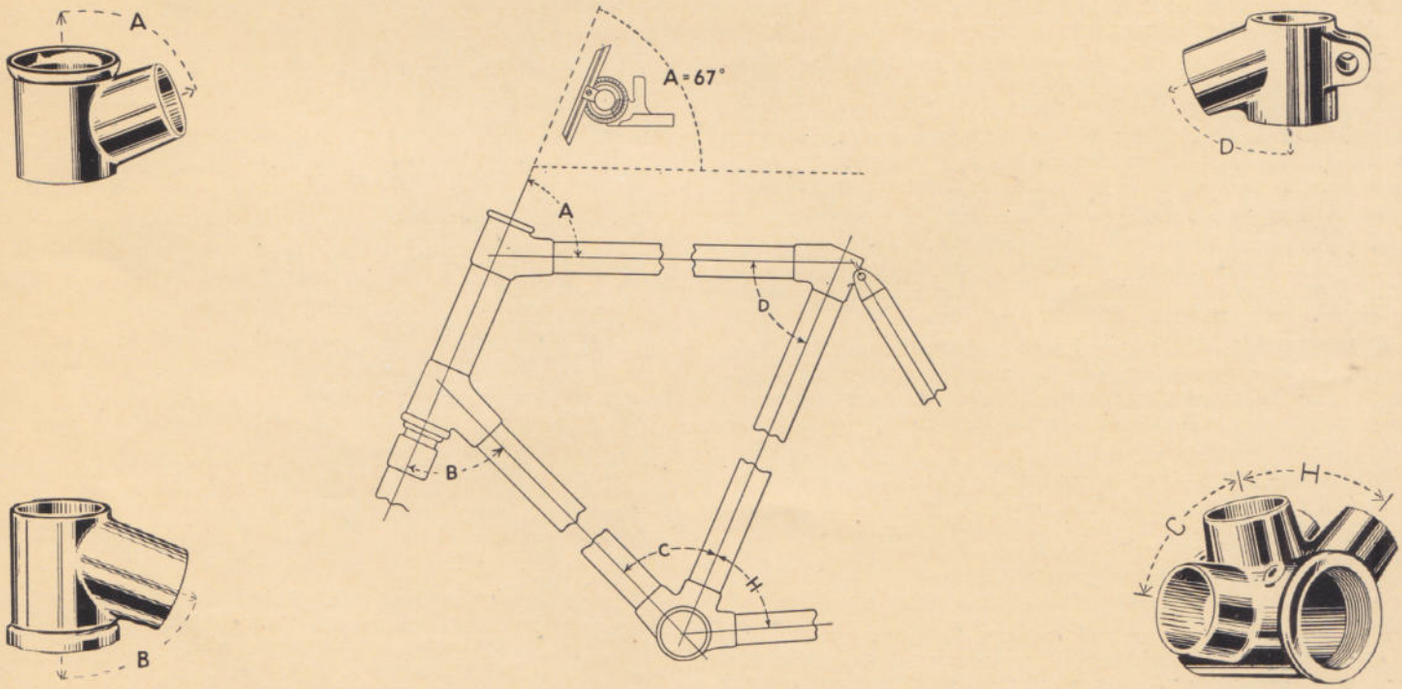
The three-arm type is particularly useful to the enthusiast, as the chainwheel can be detached and drawn down the crank and over the normal thin racing pedal without disturbing the crank cotter. Rectangular, tapered and fluted cranks only are usual in racing machines. A compromise for 26″ wheel machines between the 7″ and the 6½″ crank is provided by the 6¾″ chainset. The long crank cannot be used safely with a 26″ wheel and a 10½″ bracket height because of the limited clearance. A crank length of 6¾″, however, gives a little extra leverage that is useful in sprinting, in hill-climbing and massed-start contests and in touring in a district with abrupt climbs.

The radius of the location of the fixing set-screws in the lightest and neatest of the " continental " type chainwheels is wider than in the orthodox three-arm types. The three arms are stouter but the chainwheel itself is lighter.

ALLOY CHAINWHEEL SETS (*c*)

Experiments continue with alloy chainwheel sets. Cranks in light, stout, fluted alloy rectangular section are finding their adherents. Chainwheels in normal alloy, however, are subjected to a grinding process by the chain, resulting in the formation of an alloy-oil paste and in excessive wear on the teeth. The life of an alloy chainwheel at present is limited. Another problem with this type of set is the wear and tear on the alloy caused by the steel pins. To lessen this it is desirable to employ five-pin and not three-arm fixing with alloy sets.

DIAGRAM SHOWING METHOD OF MEASURING ANGLES OF FRAME LUGS



THE "WHY" OF SOLDER OR SWEAT CONNECTIONS

(Reproduced from the Bentwood Review, Sydney, with acknowledgement to Bennett and Wood Pty. Ltd.)

It is always helpful when you are doing a job to know why it should be done in a certain way. Here are a few of the most important "why's" associated with the accepted method of making solder or sweat connections.

CLEANING AND BURRING.—If a tube is not clean, flux will not adhere to or spread over the entire surface. Any method of cleaning is satisfactory, providing it removes the dirt or oxide from the surface. To get a good joint it is necessary that all burrs be removed from the tube.

FLUXING AND FITTING.—To prevent tarnishing or oxidation of the metal, flux is applied after cleaning. Flux, during soldering, dissolves any oxides formed on the heated section and thus allows the metal to flow freely into the tube joint.

TELESCOPING OF TUBING INTO FITTING.—Clearances between tube and fitting have been carefully worked out in manufacturing tolerances and should be .003″ to .004″ to obtain the best results. This is termed capillary attraction, which draws the solder into the joint when heat is applied, in the same manner as blotting paper absorbs a drop of ink.

HEAT AND SOLDERING.—Heat is applied to the joint until the flux appears to boil, and this is the correct temperature for soldering. Solder wire, usually 50 per cent. lead and 50 per cent. tin composition, when applied to the edge of the joint, flows into it. The solder should then show all round the joint, and any excess is quickly wiped off and the joint allowed to cool. Pin holes will appear in the joint if the joint has not been properly heated, the metal is dirty, or the metal has not been properly fluxed.

When proper attention has been paid to all of the foregoing, a soldered joint, at ordinary temperatures, is as strong as the tube itself.

HEAD FITTINGS

The Cup and Cone design of Head Fittings has in the post-war period become increasingly popular. Up to the outbreak of war this set was supplied in one size only, namely, suitable for $\frac{5}{32}$″ diameter balls. The fact that we have had a demand for this type of Head Fitting suitable for $\frac{3}{16}$″ and also $\frac{1}{4}$″ diameter balls is indicative of the high value placed upon it by the Cycle Manufacturer.

Generally speaking, the $\frac{5}{32}$″ pattern is employed on high-class Roadster and Racing Machines ; the set employing $\frac{3}{16}$″ diameter balls is quickly becoming the standard set for Carrier Bicycles and Auto Cycles ; the set illustrated in the catalogue as the Heavy Carrier set and utilizing $\frac{1}{4}$″ diameter balls is something in the nature of a special, and is used by various manufacturers of the Heavy Box Carrier type of cycle.

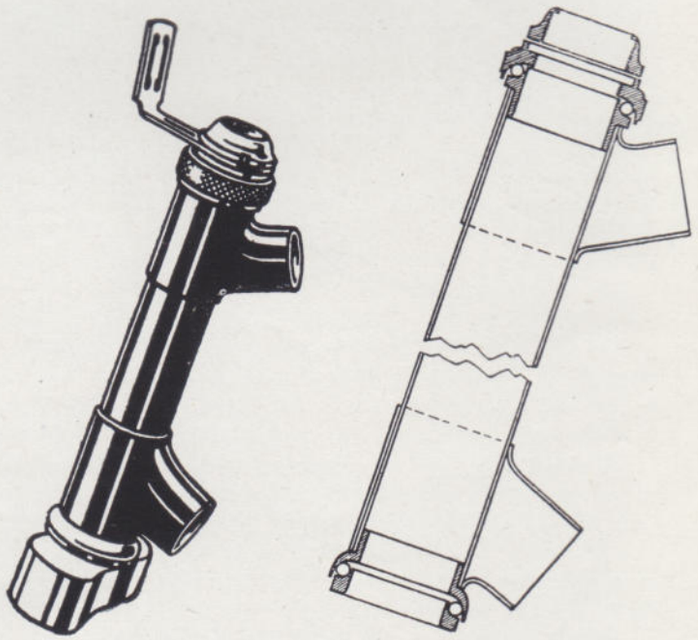
The discriminating Cycle Manufacturer will naturally ask whether the merits of this design are such that will justify the extra cost over the normal type of Head Fitting. These points are enumerated as follows :—

ALIGNMENT.—The liberal shank of the Top and Bottom Frame Races secures, when the Races are fitted, perfect alignment, and eliminates the possibility of a tight-and-loose position when the Head is adjusted, and results in virtually finger-tip steering control.

ADJUSTMENT.—The actual Race-form has been developed in such a way that minute adjustment can be secured to avoid shake and at the same time give free movement in the Steering Head. Further, the form of the ball-path is such that, when wear does ultimately take place, a slight adjustment of the fittings results in the balls taking up a bearing line on an unworn part of the Races.

APPEARANCE.—It is hardly necessary to emphasize the neat and pleasing appearance of this set. Other external forms can be made available provided that the quantity required is sufficient to justify the new tool outlay.

Cycle manufacturers seeking a good selling feature for their super models will do well to give consideration to this type of ball head.



It gives longer wear, better adjustment, and avoids "shake". It looks what it is—"superior".

CYCLE FRAMES

The following tables, which have been prepared by Reynolds Tube Co. Ltd., and Messrs. Accles and Pollock Ltd., show comparisons in weight of frames, stays and fork blades, in Standard " 531 " Tubing or A. & P. KROMO S.A.Q.

TYPICAL FRAME SETS USING " B " QUALITY AND " 531 " MATERIAL

Quality	Top Tube	Bottom Tube	Seat Tube	Head Tube	Chain Stay	Seat Stay	Fork Blades	
	1	1	1	1	2	2	2	No.
	22"	22½"	22"	5"	16"	16"	16"	Len.
" B "	1×20	1⅛×19	1⅛×20	1¼×20	⅞×18	⅞×20	.920×18	
	11 oz.	13 oz.	12¼ oz.	3 oz.	19¼ oz. per pair	11 oz. per pair	18¾ oz. per pair	Wt.
" 531 "	1×$\frac{31}{35}$ Double Butt	1⅛×$\frac{49}{33}$ Double Butt	1⅛×$\frac{31}{51}$ Single Butt	1¼×22	⅞×21	.605×24	.920×$\frac{18}{20}$	
	8½ oz.	11¼ oz.	7½ oz.	2½ oz.	12 oz. per pair	7 oz. per pair	15½ oz. per pair	Wt.

Weight of a " B " quality Standard Frame Set .. .. .. 4 lbs. 5½ oz.
Weight of a " 531 " quality Frame set .. .. 3 lbs. 0¾ oz.
Saving in Weight—1 lb. 4¾ oz.—29.8%

Weight of Standard Fork Blades .. .. 18¾ oz.
Weight of " 531 " Quality Fork Blades .. .. 15½ oz.
Saving in Weight—3¼ oz.—17.35%

The great advantage of using " 531 " material for bicycle construction is that being a high strength steel the gauge can be relatively reduced, therefore, making the frame much lighter without sacrifice in strength and rigidity.

When the tubes are built into the frame they still retain their high strength, as this steel has very high mechanical properties after welding and brazing.

It is a general practice when building good quality frames, e.g. " 531 " material, to use lighter lugs and fittings, which show a further saving in weight. The comparative mechanical properties of " B " quality and " 531 " quality are given below.

Quality	" As drawn " Condition		After welding or brazing.	
	Yield Stress	Ultimate Stress	Yield Stress	Ultimate Stress
" B "	26 tons/sq. in.	28 tons/sq. in.	17 tons/sq. in.	24 tons/sq. in.
" 531 "	45 ,,	50 ,,	40 ,,	45 ,,

TYPICAL FRAME SETS USING " A " OR " B " QUALITY AND KROMO S.A.Q.

Quality of Material	B	A	KROMO S.A.Q.	KROMO S.A.Q.
Gauge of Material	18	20	22	21/24 Butted
Set of 4 Frame Tubes : Top Tube	Weight 15¼ oz.	Weight 11¾ oz.	Weight 9¼ oz.	Weight 8¾ oz.
Down Tube	18¼ oz.	13¼ oz.	10¾ oz.	11 oz.
Seat Tube	18¼ oz.	13¼ oz.	10¾ oz.	9½ oz.
Head Tube...	6 oz.	4¼ oz.	3¾ oz.	2¾ oz.
Total weight per set	57¾ oz.	42½ oz.	34½ oz.	32 oz.

1 pair tapered Chain stays, ⅞" o.d....	Gauge ... Weight per pr.	19 14 oz.	20 13 oz.	21 12¼ oz.	21 12¼ oz.
1 pair tapered Seat stays, ½" o.d.	Gauge ... Weight per pr.	20 8½ oz.	22 7 oz.	22 7 oz.	24 6 oz.
1 pair tapered Seat stays, ⅝" o.d.	Gauge ... Weight per pr.	20 11¼ oz.	21 10 oz.	22 8½ oz.	23 7¼ oz.
1 pair D to Round front fork blades open ends ...	Gauge ... Weight per pr.	18 16 oz.	18 16 oz.	19 14 oz.	taper gauge 18/21 13¾ oz.
Total weight per complete set with ⅝" dia. seat stays		99 oz.	81½ oz.	69¼ oz.	65¼ oz.
Total weight per complete set with ½" dia. seat stays		96¼ oz.	78½ oz.	67¾ oz.	64 oz.

OVERSEAS REPRESENTATIVES

ARGENTINE
Tubos Britanicos (Argentina) S.R.L.,
Reconquista 314, Buenos Aires.

AUSTRALIA
B.T.M. Agencies Pty., Ltd.,
Churchill Road, Kilburn, Adelaide.

BRAZIL
Emile H. Staub, P.O. Box 2045, Rio de Janeiro.

BRITISH EAST AFRICA (Tanganyika, Uganda, Kenya and Zanzibar)
Grayson & Company, Ltd., P.O. Box 698,
Nairobi, Kenya Colony.

JAMAICA (B.W.I.)
P. C. Vendryes & Son,
56, Johns Lane, Kingston, Jamaica.

CHINA, CEYLON, F.M.S. AND STRAITS SETTLEMENTS
Levetus Limited, 194, Bishopsgate, London, E.C.2.

DENMARK
Mr. Axel Larsen, Aabjergvej 27, Copenhagen V.

DUTCH EAST INDIES AND SIAM
Mr. J. J. H. Aarsen, c/o Hongkong & Shanghai
Banking Corporation, Singapore.
also at 13-15, Sawah Besar, Batavia-Centrum, Java.

EGYPT
Les Fils de Joseph B. Michaca,
Boite Postale 1359, Alexandrie.

HOLLAND
Mr. Arn. Schruijer, Driehoek 21, Apeldoorn.

INDIA AND BURMA
Indo-British & Continental Agency,
200, Bishopsgate, London, E.C.

NEW ZEALAND
Mr. F. W. Cave, P.O. Box 1685, Auckland.

PALESTINE
Mr. M. Goldberg, P.O. Box 192, Tel Aviv.

PORTUGAL
Mr. Ilidio S. Maia, Rua Costa Cabral 422, Oporto.

RHODESIA AND SOUTH AFRICA
J. A. Phillips Cycles (S.A.) (Pty.) Ltd.,
P.O. Box 7035, Johannesburg.

SWITZERLAND, FRANCE AND BELGIUM
Mr. P. Rietbergen,
39, Weteringkade, The Hague, Holland.

NORWAY
Mr. B. Botolfsen, Kongensgt. 6, Oslo.

CHILE
Flinn Blandford & Co., Ltd.,
Casilla 1837, Santiago de Chile.

Approximate weights of lugs and fittings which are not detailed on the actual page where illustrated. These are intended only as a guide for the calculation of rail and sea freight or postage.

Page	Number	Weight per gross lbs.
4	PTL001	22
	PBL001	25
	PSL001	22½
	PTL006	21
	PBL006	24
	PSL001	22½
	PCN051	35
5	PTL009	25½
	PBL001	25
	PSL009	14
	PLL009	11½
	PST079	4
	PST022	3
	PTL010	24
	PBL006	24
	PSL009	14
	PLL009	11½
6	PTL001	22
	PBL001	25
	PSL001	22½
	PTL006	21
	PBL006	24
	PSL001	22½
	PCN051	38
	PRS007	6
	PRS008	8
	PRS009	6
	PRS010	8½
7	PTL027	18½
	PBL015	21
	PSL009	14
	PLL939	12
	PTL092	17½
	PBL014	20
	PSL009	14
	PLL939	12
8	PTL409	18½
	PBL743	21
	PSL355	36
	MSL292	42
	PCN040	34½
	MBS129	72
	PBP117	5
	PBP205	6
	BSE187	6
9	PTL493	18½
	PBL743	21
	PSL610	28
	PLL908	12
	MSL208	36
	BSE187	6
	SFE286	11
	SFE287	12
	PFE294	18
	BCS256	8
	BSS257	6
10	PTE423	18½
	PBL729	21
	MSL682	42
	BSE187	6
	PSL361	36
	TBP167	3½
	TBP168	7½
	PCN585	28
	MBS586	72
11	PTL504	18
	PBL729	21
	PSL610	28
	PLL914	12
	MSL208	36
	BSE187	6
	SFE287	12
	SFE286	11
	PFE584	18
	BCS256	8
	BSS670	4
12	PTL231	13½
	PBL232	19
	PSL233	30
	BSE187	6
	PCN046	28
	PFE584	18
	MBS235	71
	TBP167	3½
	TBP168	7½
13	PTL099	13½
	PBL674	18
	PSL010	29
	PCN046	24½
	MBS221	71
	TBP168	7½
	TBP167	3½
	SFE584	18
	SFE286	11
14	PTL098	18½
	PBL072	21
	PSL061	30
	MBS586	74
	PCN585	28
	PFE584	18
	TBP168	7½
	TBP167	3½
	BSE187	6
	SFE286	11
15	PTL001	22
	PTL006	21
	PBL196	25
	PSL005	22¼
	PTE166	21½
	PCN051	38
	MBS047	72
	BBC890	30
20	MTL611	84
	MBL612	90
	PSL613	18
	MLL614	36
	MCN615	99
	MBS616	112
	PBP050	6
	PBP140	6
21	MTL619	66
	MBL618	67
	MTL617	38
	PSL622	28
	MBS623	86
	AHC594	67
	BHR667	6
	BCR668	5½
	BCN242	7½
36	BBC890	30
	BBC789	36
	BBC700	33
	BBC049	11
	BBC178	13½
	ACN170	3¼
	ACA157	5½
	ABN226	7

NUMERICAL INDEX

This index contains the symbol number of every product listed in this Catalogue.
Against the symbol number will be found the number of the page for easy reference.

CONDITIONS OF SALE

Our full conditions of trading are printed on separate forms, and it will be presumed that buyers have accepted such terms. A copy will be furnished on request at any time. For the sake of convenience we give the terms below, namely :—

Quotations are given specifically for the quantities named therein and not otherwise. Such quotations are subject to our general terms and conditions of business and no modification will be admitted unless confirmed in writing.

Prices are subject to alteration without notice and will be those ruling on the date of despatch.

All **QUOTATIONS** given, **CONTRACTS** accepted, and **SUPPLIES** made, are subject to the following conditions:—

In case of strike, lock-outs or combinations of workmen, accidents or stoppage of works from any other cause, the supply of Goods contracted for may be suspended during their continuance, but on resumption of work the rate of delivery shall be the same as provided for by contract, and the period of delivery shall be extended so as to enable the suspended deliveries to be made.

If the Buyers shall refuse to take deliveries at the specified times, the Sellers shall not afterwards be obliged to make deliveries unless they think fit to do so.

Goods returned to us " Carriage Paid " and admitted by us to be defective will at our option, be replaced free of charge, or credited at invoice value ; but the Sellers are not to be held responsible for machine work, consequential loss, or any other expenses with faulty material.

REFERENCES are first required before any orders (not accompanied by cash) can be accepted.

PAYMENT :
- (*a*) By arrangement a statement may be sent each week, made up to and including Saturday.
- (*b*) A monthly ledger account will be opened after approval of references. Such account is due for payment within the month following despatch of goods, and no discount is allowed unless specially stated in the quotation, or otherwise agreed in writing.
- (*c*) Accounts for less than £1, and all overdue accounts, **ARE STRICTLY NETT.**
- (*d*) Foreign, Colonial and Shipping accounts are subject to special terms of payment.
- (*e*) Failure to make payment on any due date shall constitute a breach of contract, and the Sellers may treat the whole contract as repudiated, and act accordingly ; or they may before any further delivery against any order require payment thereof and of all other accounts then due.

REMITTANCES : Cheques, Postal Orders and similar remittances, to be crossed " Account Payee—National Provincial Bank, Birmingham," and made payable to **WALTON & BROWN Ltd.**, otherwise no responsibility can be accepted by us.

DELIVERY : Free Birmingham in appreciable quantities.
Goods for despatch by rail will be consigned by goods train, carriage paid, if in lots value £30 and upwards to any station in Great Britain, cases extra (Northern Ireland and Eire excepted).
Northern Ireland and Eire. Orders value £30 or over F.O.B. English port, cases extra (to be paid for with the goods), but credited if returned and received in good condition.
Consignments of less value than as mentioned, or if sent per passenger train, will be subject to the payment of carriage by customers. Foreign and Colonial Shipping Orders are not subject to these terms, and delivery is given at our Works only, unless definitely quoted otherwise.

PACKAGES : Cases and bags are charged for, but full allowance is made if received in good condition, carriage paid, within one month of date of invoice. Customers are desired to properly advise the despatch of all empty packages, which will not be credited until actually received into our Works and examined. (*N.B.*—This clause does not apply to cases for shipment which are non-returnable and will be charged at cost.)

QUANTITIES : The Sellers claim the right to supply 10% more or less than the quantities ordered in the case of goods of special size, shape or design.
Orders may be considered by the Sellers as completed notwithstanding a deficiency of not more than 10%.

DAMAGE OR SHORTAGE : Unless you advise us within three days of damage to goods, or within ten days in case of non-arrival, we cannot entertain any claim as the Railway Companies will not accept responsibility.

EXHIBITIONS : Our goods shall not be exhibited at any show or exhibition which has not the approval of the British Cycle & Motor Cycle Manufacturers' & Traders' Union.

RESTRICTIONS : Goods supplied (whether separately or as part of a bicycle) shall not be offered for sale or sold by auction, nor shall the Buyer adopt such trading methods as are inimical to the best interests of the Trade or of members of the Cycle Trade Union.

INSURANCE OF SHIPMENTS : Unless otherwise agreed, all Marine and Transit Risks (warehouse to warehouse) shall be effected under F.P.A. Policy on behalf of and at the expense of the Buyer. War Risk will also be covered at the expense of the Buyer until further notice.

In the event of Great Britain becoming engaged in war, the Company shall be entitled, if it is prevented on account of Government action from making deliveries to cancel contracts or any unfulfilled balance without prejudice to the Company's right to recover money owing to it in respect to deliveries made prior to the date of such cancellation.

No modification of these conditions will be admitted by us unless confirmed in writing and they shall be deemed to override and be taken in substitution for any which may be given on the Buyer's order form or elsewhere.

GUARANTEE

All lugs, fittings and other goods supplied by us are guaranteed as to material and workmanship, and we undertake to replace or credit at invoice value (at our option) any such goods which are admitted by us to be defective if they are returned carriage paid to our Works, within a reasonable period, but they shall not form the subject of any claim for machine work, consequential loss, or any other expenses. This guarantee is given in lieu of and the exclusion of all other warranties or obligations imposed or implied by Statute or at Common Law, and does not cover goods damaged by accident, fair wear and tear, or by neglect or improper use.

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