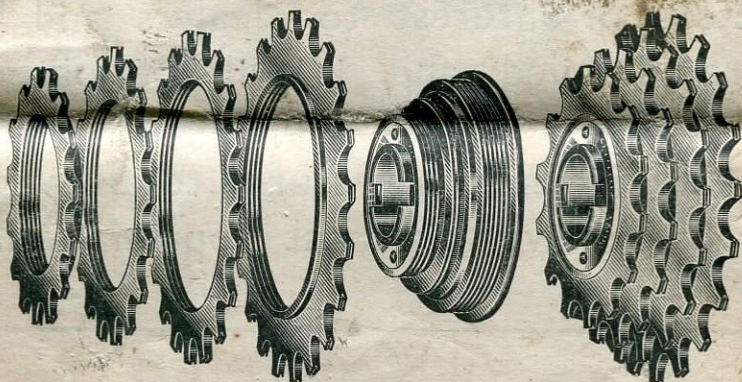


CYCLO

AND

BENELUX



SERVICE DATA

PRICE 6d.

THIS FOLDER has been compiled by the technical staff of the Cyclo Gear Company Ltd., in an endeavour to set out in simple language and easy-to-understand illustrations the methods by which the Benelux gear, in all its ranges, may be fitted and serviced. In addition, many matters of interest to dealers and individual cyclists are detailed, and it will be observed that reasonably priced workshop tools are offered by which quickness and efficiency are assured to all who wish to service or fit the world's most popular variable gear.

Manufactured in England by :

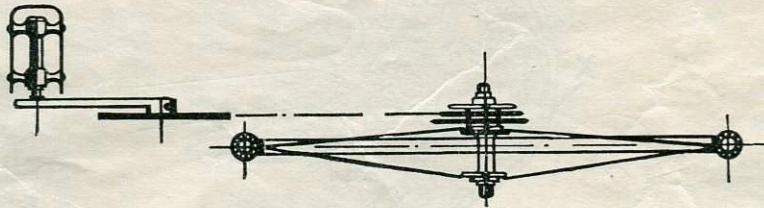
CYCLO GEAR CO. LTD., Aston, Birmingham 6

Telephone: NOR 2951 (2 lines)

Cables: CYCLO GEARS, B'HAM

BENELUX GEARS

Service Data and Fitting Instructions



DISHING REAR WHEEL FOR DERAILLEUR GEARS

First the rear wheel must be dished, with two exceptions—(1) in the case of a 2-speed gear, no dishing at all is required ; (2) when using flush back triple freewheel, it only needs packing either side of the spindle.

If you are dishing a wheel with a single fixed, or freewheel threading on the hub boss, remove the spindle and replace with a No. 61 Cyclo long spindle with long cone. This, of course, is not necessary when the hub is gear sided—the hub will have the long spindle and long cone.



Ref. No. 61. Spindle with Long Cones only.

The procedure for wheel dishing should be carried out as follows :—

Starting from the valve hole, loosen all nipples on the plain side of the wheel one and a half turns, then tighten the spoke nipples on the freewheel side, ONE TURN ONLY, all the way round. Having done this, the rim will run central in the frame, and the middle gear cog, or the middle of the cogs, in the case of a 4-speed freewheel, will run in line with the chainwheel, the outside cog in the case of a double.

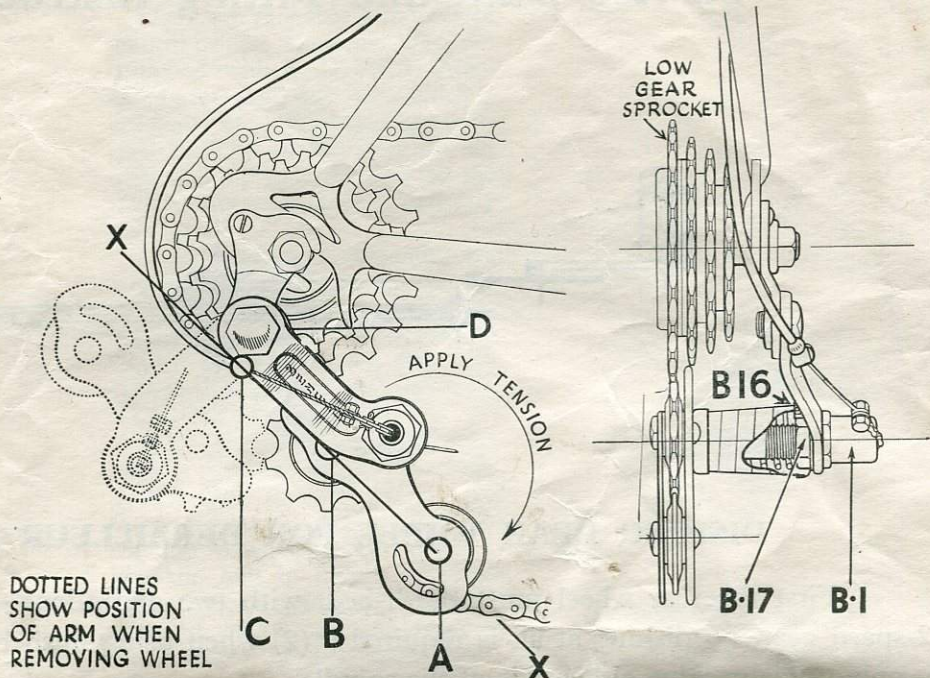
When double chainwheels are to be fitted, the following points must be observed. If the chain-stay has no indentation for double chainwheels, or the double chainwheels are bolted to the inside of the crank arms, a Bayliss-Wiley No. 14 axle or equivalent should be used. In all other cases, use Cyclo No. 32R, Bayliss-Wiley No. 23 or equivalent. With all single chainwheels, use Cyclo No. 51R, Bayliss-Wiley No. 15 or equivalent.

Fitting the Benelux Gear

★ ★

NOTE: The gear is supplied ready set at Point "D" to recommended freewheel sizes.

★ ★



Fit the gear system to the rear fork end; the gear movement adjustment follows. Take an ordinary cone spanner and insert it behind the gear arm and against the large spring retaining cup, depress the tension spring with it until you come to the end of the thread on the adjusting sleeve of the gear, pushing the cone spanner against the end of this thread; the compression of the tension spring will lock the spanner firmly in that position.

Now go ahead with gear adjustment, the tension spring being out of the way.

The next operation is to slacken off the spigot adjusting nut Ref. B17, this will enable you to tighten or slacken the outside domed adjusting nut Ref. B1 to bring the actuating sprocket into line with the low gear cog. The spigot adjusting nut must now be tightened, locking the system in that adjustment, take the cone spanner

away and put the tension on the gear.

Chain Procedure

Now feed the chain through the cage underneath the tension roller, and over the toothed jockey sprocket, then around the low gear cog and chainwheel, or the small chainwheel in the case of a double. Then tighten or loosen the chain around chainwheel to give you ONE COMPLETE LINK from where the chain leaves the low gear cog, to where it meets the jockey sprocket of the gear. By doing this, the three points shown in our fitting instructions, namely the cable stop on the gear arm and the heads of the jockey sprocket, and tension pulley retaining pins, are in line with one another, then join the chain.

Ready for Use

Fix the lever to the head bottom bracket tube with the lever in low gear position, using clips to secure

the cable neatly to both the above mentioned tube and the chain stay. All you have to do now is to insert the cable in to the draw bolt attached to the operating chain on the gear, and the Gear is ready for use.

The only time you will find it necessary to reset the gear at what we refer to in our fitting instructions as point "D" is when the low gear cog is 22T or larger, 24T being the limit. Should this be the case, proceed as follows—slacken off the quick release nut Ref. B15, then make sure that the quick release bolt Ref. B19 is screwed up tight in the gear arm, position the arm to give you the ONE COMPLETE LINK of chain as previously referred to in the detailed instructions for fitting the Benelux Gear, hold the gear arm in that position, making sure as stated, that the quick release bolt is tight in the arm, and LOCK the QUICK RELEASE NUT.

Benelux Spares and Setting Tools

If the gear arm of the Benelux gear should become damaged either in transit or through a rider's mishap, it can now be quickly rectified by means of a pair of tools designed by this firm, and what is equally important, the gear arm can be immediately reset while still attached to the bicycle.

This pair of tools will be found most useful to the manufacturer, dealer and cycle mechanic.

Fig. 1 shows a robust tool made to fit over Domed Nut (Ref. B.1) without fouling the operating chain, enabling the traverse mechanism of the Benelux and Touring gears, to be correctly aligned with the centre line of the hub.

Fig. 2 is a tool made to fit the gear arm (Ref. B.2) so that if the arm becomes bent or twisted it can easily be re-set. This tool can be used also to rectify buckled or damaged three or five-pin chain-wheels and bent or twisted brake arms.



Fig. 1.

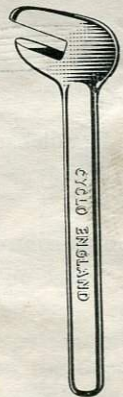
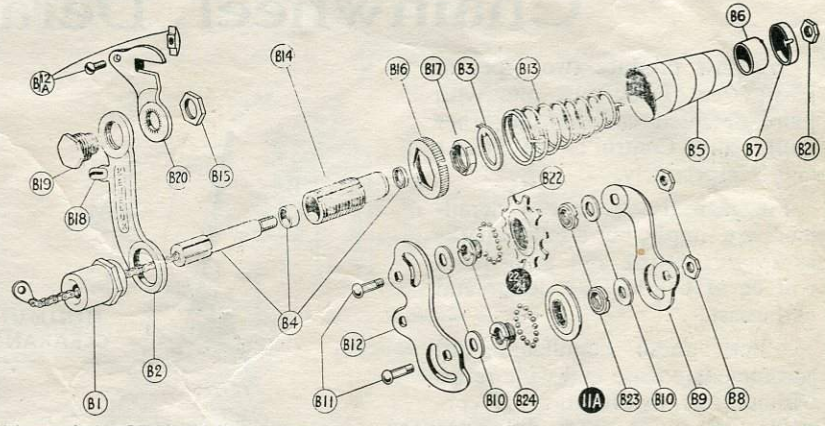
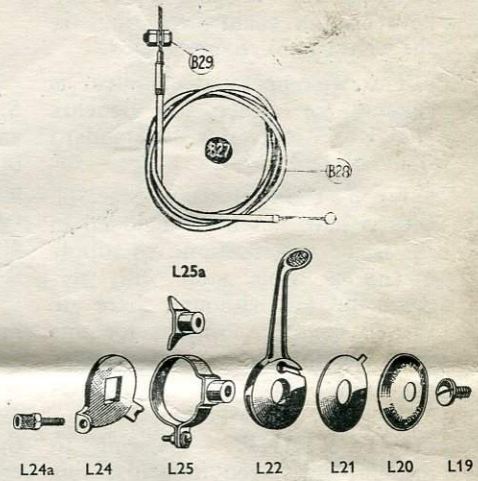


Fig. 2.

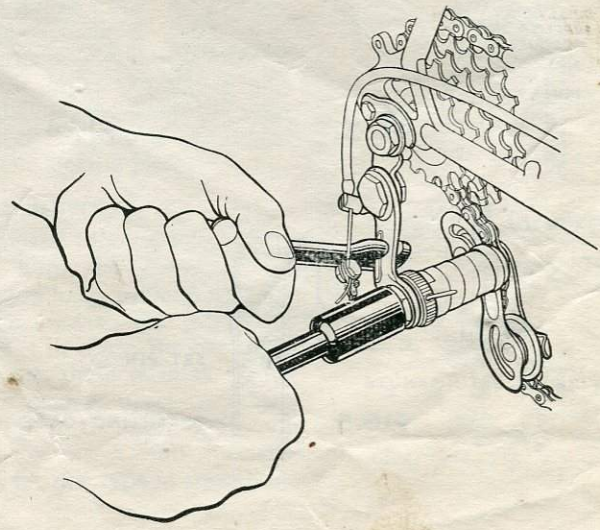


When ordering BENELUX Spares please mention whether for 3 speed 1/8", 4 speed 1/8", 4 speed 3/32", 5 speed 3/32".

Ref No.	Description	Price
B	Outside Domed Adjusting Nut	2/-
1	Ditto — Sport Type	4/6
2	Arm	6/-
3	Tab Washer	4d.
4	Op. Shaft complete with Chain Assembly	3/6
5	Volute Spring	1/6
6	Thimble	6d.
7	Spring Ret. Cup (small)	6d.
8	Pulley Nut	4d.
9	Rear Guide Plate	1/-
10	Packing Washer 1/8" Chain only	2d.
11	Pulley Ret. Pin	6d.
11a	Roller Tension complete	3/9
12	Front Guide Plate	1/6
B12a	Rosa Stop Guide and Pin	5d.
13	Taper Tension Spring	1/6
14	Adj. Sleeve	3/6
15	Quick Release Nut	4d.
16	Spring Ret. Cup (large)	6d.
17	Spigot Adj. Nut	4d.
18	Cable Stop	6d.
19	Quick Release Bolt	1/6
B19a	Spacing Washer	4d.
20	Arm Bracket	1/6
21	Op. Shaft Nut	4d.
22/24	Jockey Sprocket complete	4/-
22	10T Jockey Sprocket	2/6
23	Cone	1/6
24	Cone Screw	6d.
25	Cable complete	3/6
29	Inner Wire only	1/6
29a	Draw Bolt	6d.



Ref. No.	Description	Price
L	Complete Lever	6/-
19	Lever Centre Screw	2d.
20	Spring Friction Plate	6d.
21	Large Washer	6d.
22	Banjo	3/-
25	Clip complete with Boss	1/6
25a	Brazed on type	1/-
24	Back Plate	9d.
24a	Cable Adjuster	4d.



Chainwheel Derailleur

We now produce two types of Chainwheel Derailleur, one with hand operated control, the other with Cable Control; see figs. 1 and 2 respectively.

Mechanically, these two derailleurs are simple, but a few remarks as regards fitting and adjustment will be of help to the dealer and enthusiast.

Both these derailleurs will accommodate close and wide ratios without any modification, if correctly fitted. A 20T difference between the chainwheel rings is the widest ratio recommended.

The cable-operated derailleur is suitable for either the Benelux Handlebar Control or the standard frame control.

When the necessary braze-on fittings have not been included in the frame specification, we supply a clip-on cable stop with this derailleur, and although there are various suitable positions for this stop on the frame, two popular applications are shown in figs. 3 and 4.

IMPORTANT. — Owing to manufacturers' requirements, this type has been re-designed and cannot be operated by running the cable under the bottom bracket.

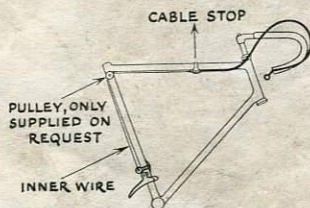


FIG. 3.

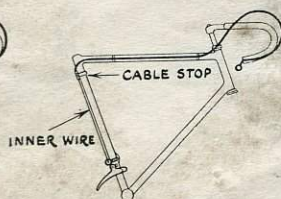


FIG. 4.

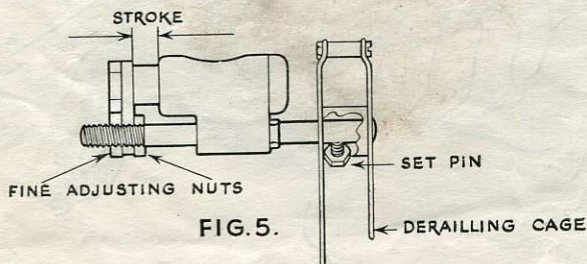


FIG. 5.

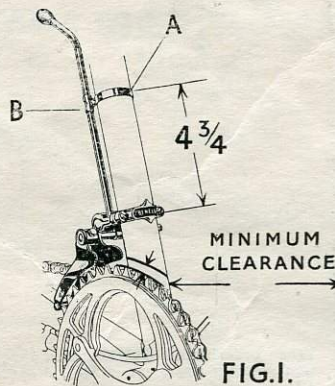


FIG. 1.



FIG. 2.

Dealing with the Hand Control Shifter, friction is applied by use of an adjusting screw (b) in the clip (a) illustrated in fig. 1. This clip also serves as a supporter for the rod control and should be placed approximately $4\frac{3}{4}$ in. from the derailleur body shown in fig. 1.

The following remarks are common to both types:—

When a chain shifter is fitted, although it is set before leaving our works, it is sometimes found that the stroke should be either increased or decreased to compensate for any peculiarities in the chainwheel set being used, and this is easily done by the use of the fine

adjustment nuts illustrated in fig. 5. The derailing cage is set and locked in position by means of the set pin indicated in fig. 5.

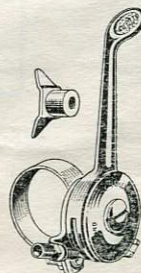
An important point to remember when fitting is to secure the derailleur in such a position on the seat tube that the outside plate of the derailing cage just clears the teeth of the outer chainwheel ring; see figs. 1 and 2.

NOTE.—When ordering these chainshifters please state the type of control required and also the size of the chain with which it is to be used, i.e., $\frac{1}{2}$ in. x $\frac{1}{8}$ in. or $\frac{1}{2}$ in. x $\frac{3}{32}$ in.



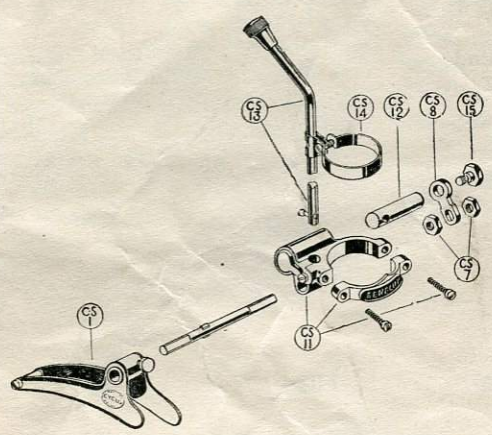
Handlebar control
(above) and (below)

Frame control, showing
braze-on fitting.

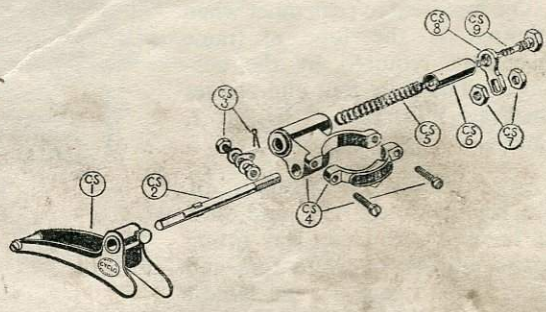


BENELUX CHAIN SHIFTER SPARES

Rod Control—Code Ref. : SHAN
Cable Control—Code Ref. : SHIF



Rod Control



Cable Control

						Price	
						s.	d.
Ref. No. C.S/1	Shifter Cage Assembly	..	..	..	..	7	6
Ref. No. C.S/2	Operating Shaft	..	..	..	..	2	10
Ref. No. C.S/3	Draw Bolt Assembly	..	..	..	..	1	0
Ref. No. C.S/4	System Housing. Complete	..	..	..	..	19	0
Ref. No. C.S/4	System Half Clip	..	..	..	..	3	8
Ref. No. C.S/5	Spring	..	..	..	..		4
Ref. No. C.S/6	Op. Sleeve	..	..	..	..	2	6
Ref. No. C.S/7	Adjusting Nuts	..	..	..	..		8
Ref. No. C.S/8	Connecting Plate	..	..	..	..		6
Ref. No. C.S/9	Op. Chain Assembly	..	..	..	..	3	0
Ref. No. C.S/11	System Housing. Complete	..	..	..	..	20	0
Ref. No. C.S/11	System Half Clip	..	..	..	..	3	8
Ref. No. C.S/12	Op. Sleeve	..	..	..	..	3	0
Ref. No. C.S/13	Op. Rod Assembly	..	..	..	..	3	6
Ref. No. C.S/14	Friction Clip Assembly	..	..	..	..	1	6
Ref. No. C.S/15	Retaining Bolt	..	..	..	..		6

NOTE : When ordering Shifter Cage, Ref. C.S/1 please state whether for $\frac{1}{8}$ -in. or $\frac{3}{32}$ -in. Chain.

Benelux Tourist Gear

WITH the Benelux Tourist Gear a few remarks on the fitting of this gear and some of the component parts will be useful to the Trade.

The first item to remember when ordering, is the type of frame attachment required by the customer. There are four alternatives which are illustrated in figs. 1, 2, 3 and 4.

Any desired combination of sprockets between 13T and 28T can be used with chain-stay fitting (figs. 3 and 4), but with fork-end fitting (figs. 1 and 2), the largest low gear sprocket is restricted to 26T.

The lateral adjustment, i.e., the lining up of the actuating sprocket with the low gear cog, is identical with that of the Benelux gear—see Benelux fitting instructions on page 2 of this brochure.

To obtain correct chain length, the gear must first be placed in a position where the greatest length of chain is needed, i.e., low gear on the freewheel cluster and the largest chain wheel ring if a double chain-wheel is being used. Then shorten or lengthen the chain until the centre of the tension pulley (a) figs. 3 and 4, is approximately $3\frac{3}{4}$ in. from the centre-line of the chain-stay as shown.

Although we shall be sending out this gear with the gear arm in a set position, owing to the wide range of sprocket combinations available, 13T to 26T figs. 1 and 2, and 13T to 28T figs. 3 and 4, it may be necessary to re-set the arm to achieve the best results, depending upon the actual sprocket combination used.

The setting of the arm for the fork-end type is simple and is adequately explained in Benelux

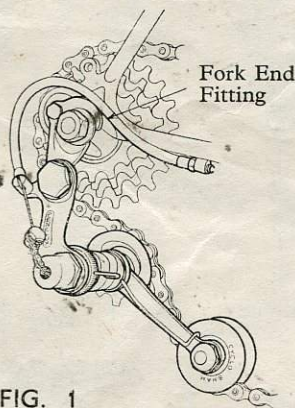


FIG. 1



FIG. 2

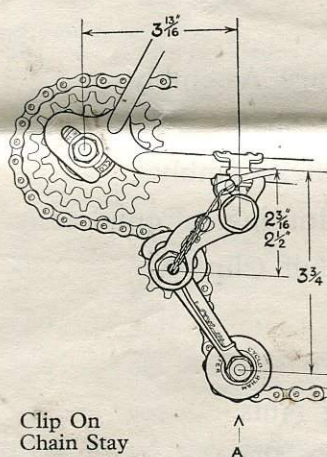


FIG. 3

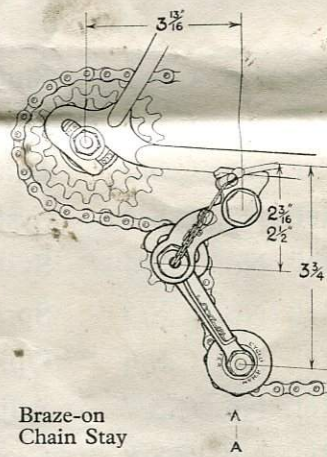


FIG. 4

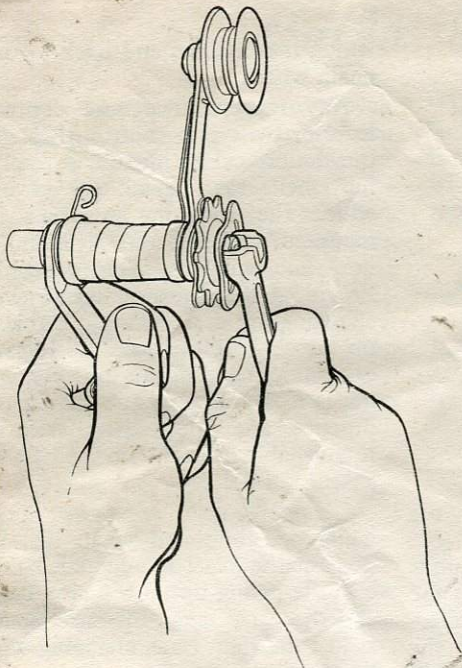
fitting instructions on page 2; however, greater care is needed with the chain-stay type of fitting, and compliance with the pointers given in figs. 3 and 4 will ensure correct fitting.

A useful point to remember about both types of fitting, when setting the arm, is to allow for one complete link of chain to bridge

the gap from where the chain leaves the low gear sprocket to where it meets the actuating sprocket of the gear.

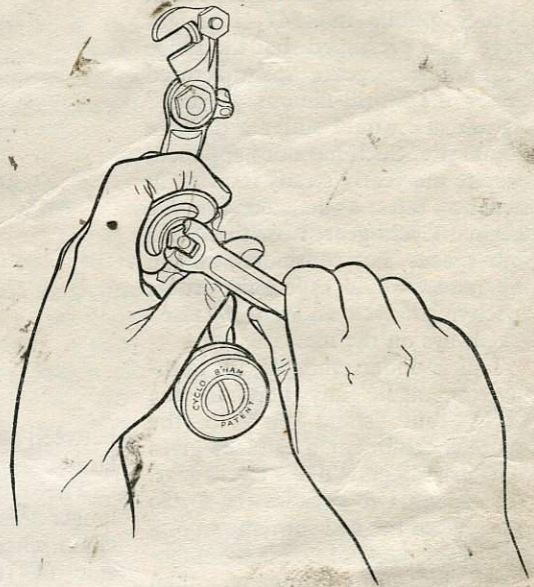
NOTE.—The two types of gear, i.e., fork-end and chain-stay fitting are NOT interchangeable. If a conversion is required, return the gear to our works.

Cone Adjustment



INCORRECT

FIG. 5.



CORRECT

FIG. 6.

IMPORTANT.—When adjusting the cones in the actuating sprocket, the gear arm must on no

account be held when locking the nut (fig. 5), or irreparable damage to the gear system will result.

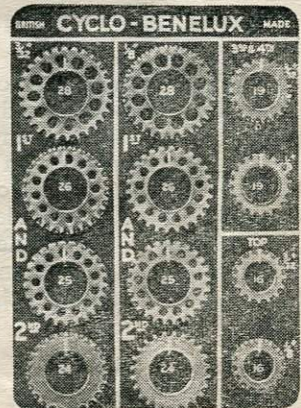
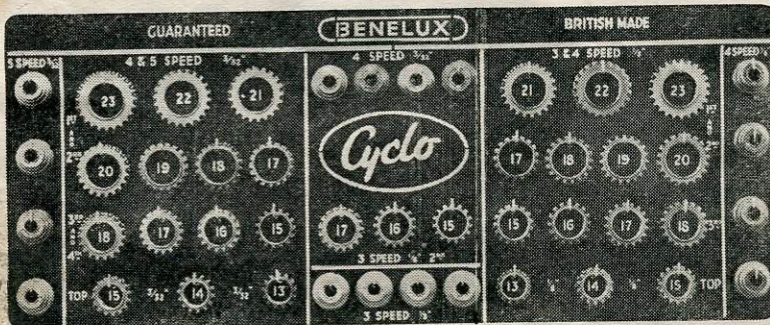
The correct procedure is to hold the two chain guides firmly; see fig. 6.

BENELUX

Freewheel Display Board

No. 1 Board. Size 4' x 1' 8" Ref. 549

No. 2 Board
Size 1' 8" x 1' 2"
Ref. 549

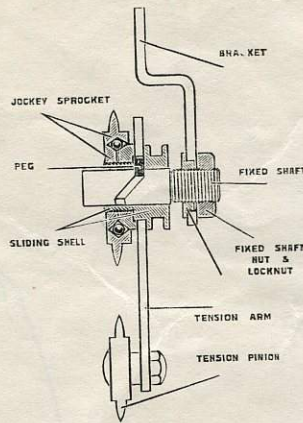


WITH the introduction of the Benelux gear to an expectant cycling public in 1947, it might have been presumed that the range of derailleur gears manufactured under the world-famous "Cyclo" trade-mark would suffer a drop in popularity. Such has not happened; despite the yearly steady increase in Benelux sales a demand for the original Cyclo gear, two, three and four-speeds, has continued, and in the tandem field especially orders specifying "Cyclo and nothing else" are always on the increase.

This is understandable, for nothing obtainable anywhere in the world can "stand up" to the rigorous treatment a tandem gives to its driving parts like a Cyclo gear. For at least two decades the Cyclo three-speed reigned supreme among the varied range of goods manufactured by our Company, then gradually the "four" found increasing favour, particularly among the vast touring army of tourists, and during the present year of 1954 it has been rare indeed to observe a tandem bicycle on the roads of Britain that was not Cyclo-equipped, generally with a "four."

There is no need on this page to stress the quality and long life of the Cyclo range, but a few hints on fitting and maintenance will doubtless be of assistance, not only to newcomers to the cycle trade but to another special class of cyclist who receive copies of our magazine.

The Cyclo derailleur gear consists of a freewheel with two, three or four sprockets, a mechanism for moving the chain into line with the respective freewheel sprockets, controlled by a double cable and lever from the top tube of the cycle or handlebar twist-grip control, and a spring to take up the excess of chain



between the smallest and the largest sprocket.

The chain (six to eight links longer than usual) passes from the chain wheel and round the underside of the tension cog to the actuating sprocket, and from there round the freewheel sprocket, with

which it is in line, and back to the chain wheel.

Any movement of the control lever or twist-grip control, through the double cable, imparts a rotary movement to a quick thread on which the actuating sprocket is mounted, and this moves laterally into line with the cog selected. Providing the adjustment and gear changing are correct, the cog takes up the chain without any suspicion of snatch or noise, but gear changing is to a great extent a matter of practice and the expert is distinguishable from the novice by the absence of noise.

Changing gear must be done while pedalling and when this is done at the exact moment that the chain is taking up on the next cog, and the drive taken up once again at just the right time, changing will be practically noiseless. This is all a matter of practice.

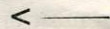
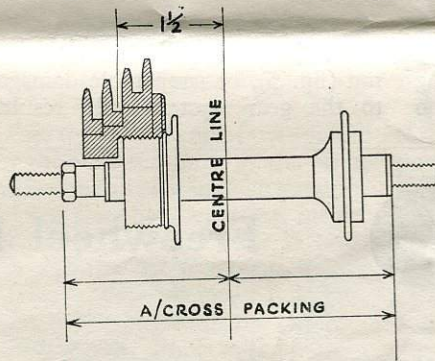
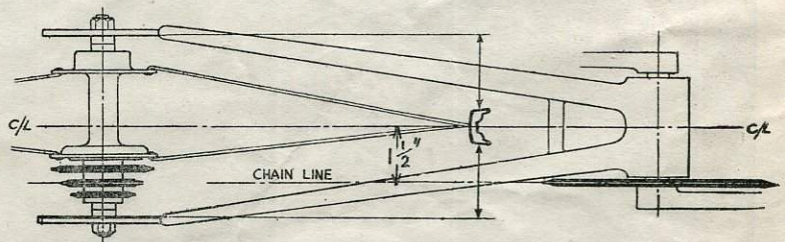


Figure 2, showing how correct chain line is obtained

Figure 2, how centre of cluster will run in line with the chainwheel



Cyclo Fitting Instructions

To fit a Cyclo gear to a cycle wheel it is essential that the rear wheel should be dished, also the freewheel when screwed on to the hub should be in correct chain line.

Hub Chain Line : A freewheel having three or more sprockets is of necessity wider than a standard single speed freewheel and the extra width introduces a problem regarding chain line. Correct chain line is obtained if, when a gear cluster is screwed on to a hub, the distance from the centre line across packing to the centre of the cluster of sprockets is $1\frac{1}{2}$ inches ; see fig. 1.

When the hub is in position, this centre line across packing coincides with the centre line of the frame and since positioning of the chainwheel is $1\frac{1}{2}$ inches from the

centre line of the frame, if the correct position, as shown in fig. 1, is obtained, the centre of the cluster will run in line with the chainwheel; see fig. 2.



Wheel Dishing : First, fit a Cyclo long spindle with a long cone on the freewheel side ; this long spindle with suitable cones is supplied by us. Secondly, loosen all the nipples on the plain side of the wheel one-and-a-half turns, starting from the valve hole, then tighten the nipples on the spokes on the freewheel side ONE TURN ONLY all the way round.

When both these operations have

been completed the rim will run central in the frame, also the middle of the cluster will be in line with the chainwheel ; see fig. 2.

Note.—No wheel dishing is required if using a flush universal type triple or two-speed freewheels; with the flush type a packing washer both sides of the spindle to centralise the wheel between the seat stays will be needed.

Place wheel in frame with the Cyclo freewheel cluster screwed on, and with the spindle as far forward as is possible with safety, then tighten the spindle nuts.

Run chain over chain wheel and the small sprocket (A) to make sure the chain clears the seat stay, paying

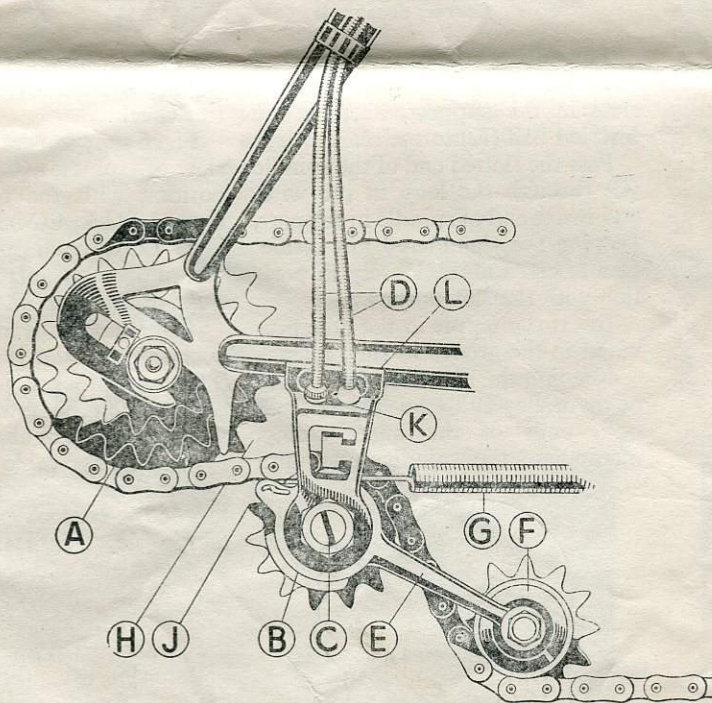


Fig. 3

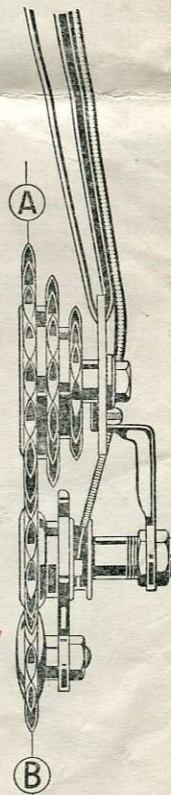


Fig. 4

particular attention to the clearance of the joint.

If it fails to clear, the spindle may be packed out with a washer, but in order to preserve the chain line, a washer of equal thickness should be placed on the other side.

Hubs made specially for derailleur gears by manufacturers will not require this.

Fix support (L) to the chain stay. It is of the utmost importance that the lower part of the support shall be vertical, as shown in illustration, so that when the outside and inside nuts of the slotted spindle (C) are tightened the spindle slot will be as shown.

This spindle must also be parallel to the hub spindle, but as the original setting may vary according to differences in chain stays, the vertical portion of the support (L) may be "set" to bring the flat side parallel to the chain wheel.

Where the clip-on type of support (L) is used, place the support well to the rear, with just sufficient clearance to allow for wheel removal when forward opening drop-out is concerned, or if the fork-ends are rear-opening with sufficient clearance between (H) and (J); fig. 3. When the chain is running on the big sprocket and the hub spindle is in its proper place at the front of the fork-end slots, the clearance between the low gear sprocket and the jockey cog must be as close as possible, the correct distance of the slotted spindle (C) depends on the size of the largest sprocket; see fig. 3.

For the positioning of the braze-on type of support, see fig. 5.

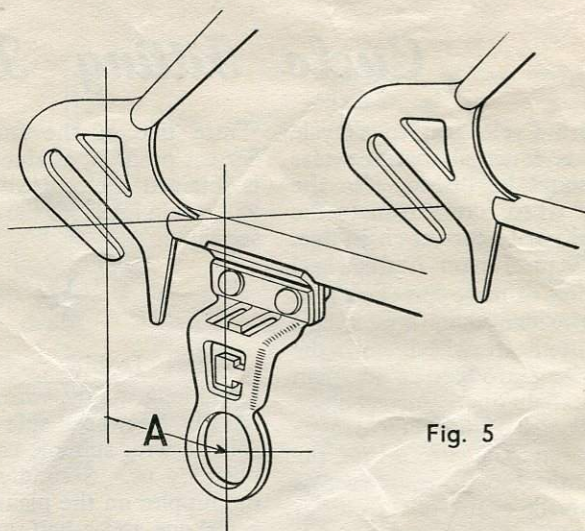


Fig. 5

BRAZED-ON TYPE OF BRACKET PERFECTLY UP-RIGHT

The correct distances from centre of slotted spindle (C) to centre of hub spindle are as follows :-

When largest sprocket is	18	19-20	21	22
Correct distance is	2"	2 $\frac{1}{8}$ "	2 $\frac{5}{16}$ "	2 $\frac{3}{8}$ "
When largest sprocket is	23	24	26	28th
Correct distance is	2 $\frac{7}{16}$ "	2 $\frac{1}{2}$ "	2 $\frac{5}{8}$ "	2 $\frac{3}{4}$ "

Thread the square nipple end of the cable (D) down through the slots in the support, keeping the knurled ball (K) to the rear.

Pass the slotted end of the spindle (C) through the loop in the wire, and insert end of spindle in support, keeping the shouldered nut inside. Secure the spindle loosely in position with the slot as shown.

Insert the nipple in the hole provided in the groove in the pulley.

Keeping the nipple at the bottom of the pulley and equi-distant from both ends of the outer casing, manipulate the spindle nuts until

the jockey sprocket (B) is directly in line with the low sprocket of the freewheel.

Fig. 6 shows operator locating the slot of spindle (C) into correct position with the outside locking nuts, STILL LOOSE, place lever into LOW gear position before attempting to place the transmission adjuster into place (fig. 7).

Tighten spindle nuts and make sure that the slot is still as shown. The low sprocket, jockey sprocket (B) and tension pulley or cog (F) should now be in alignment.

Next fit the cable to the control carrying the rear wire (K) to the top of the control. Insert flat end of top sleeve into the slot of the control plate, and the nipple in its hole in the groove of the pulley. Pull back the bottom sleeve until the inner wire slips through the bottom slot, using the lever to assist.

Work the control lever and see that the jockey sprocket (B) and tension pulley or cog (F) are now in alignment. If fitted correctly the control lever will move freely when

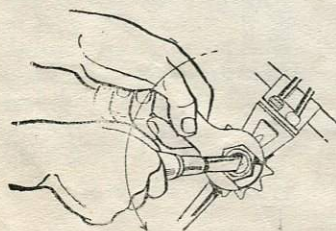


Fig. 6

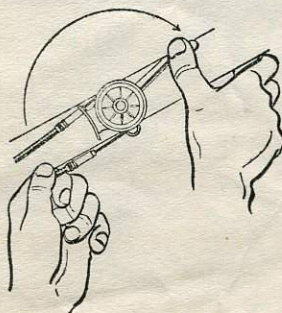


Fig. 7

changing gear, which must only be attempted while pedalling. When the control lever is in the forward position the cogs (B) and (F) should be aligned with the large sprocket, and the cable nipple should be to the rear and level with the centre of the slotted spindle (C)—fig. 3. Fix tension spring (G) to chain stay. Next, test the chain for tight links by running it over the fingers (fig. 8). With the control lever in the rear position, run the chain round the small sprocket (A), over the jockey cog (B), under the tension cog (F) and round the chainwheel, then join the ends.

CHAIN WHEEL : When new make sure the teeth are quite free from burr. If any, remove with file.

SPRING TENSION : On short wheel-base machines the standard length spring as supplied can be shortened up to $1\frac{1}{2}$ inches at the clip end, but not at the hook end.

The chain must have a spring link fastening; the nut and bolt pattern is unsuitable.

Showing Chain Testing

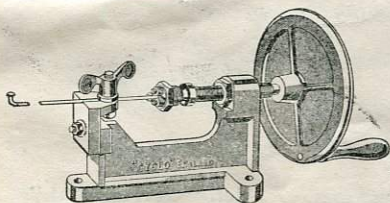


Test the chain for tight links by running it over the fingers. Keep your chain down to minimum length and you will find it then gives maximum results.

The New Spoke Thread Rolling Machine

This article will be mainly of interest to those connected with the Motor Cycle Trade, as it deals with the new 8 and 10 S.W.G. Spoke Thread Rolling Machine designed and produced by this firm following many requests from the Trade at home, and overseas.

Fig. 1



One point to bear in mind is that although in principle the design is the same, the component parts of this machine are NOT interchangeable with the existing thread rolling machine for bicycle spokes.

A new feature of this machine is the introduction of a threaded shaft and bush (Fig. 1) to which the rolling head is attached. This, in effect, takes the place of a master lead screw as the threads on the shaft have been cut to

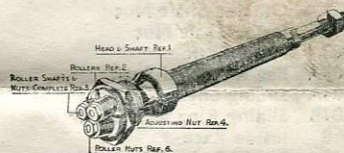
suit the rolled thread produced by the particular head it carries, i.e., 8 S.W.G. 32 T.P.I., or 10 S.W.G. 40 T.P.I. The advantage of this method is the immediate engagement of the Rolling head with the spoke.

On receiving a machine, the customer will note that the handwheel has been stamped "Important, Roll Twice," and may wonder what this means. This instruction is given, for owing to the toughness of the 8 and 10 S.W.G. spokes, on the first pass of the rolling head the roller shafts tend to spring outwards and through this a full thread may not be formed. By making a second pass, the roller shafts re-set themselves and a full thread will be obtained. These rolling heads are despatched pre-set but if it is found a perfect thread is not being obtained, a slight adjustment of the adjusting nut, Fig. 2, may be necessary to achieve this.

Ordering Spares

We would point out that when ordering spares for this new machine, a spare head consists of the actual rolling head, the threaded shaft and bush to suit. These parts constitute one unit and it is **important that they be kept together at all times.**

Fig. 2



To replace one size rolling head for the other, it is necessary to remove the handwheel by unscrewing the nut, Fig. 2, release the grub screw which retains the threaded bush, and slide out the unit towards the spoke bed. To do this the spoke bed will have to be taken off by unscrewing the nut, Fig. 1, at the opposite end of the machine to the handwheel.

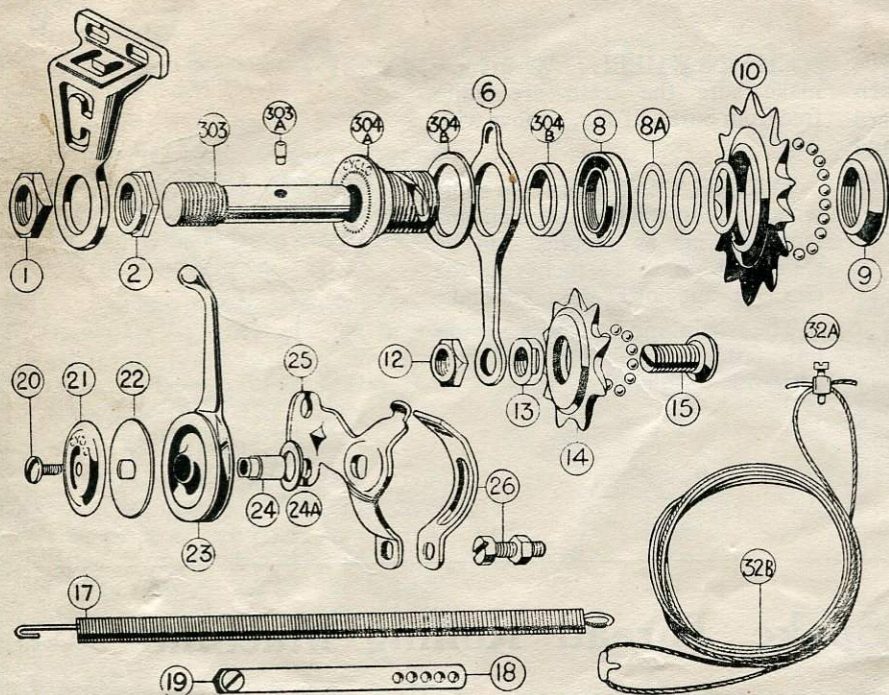
While we think this interchangeability of the heads will appeal to the small dealer, we realise the procedure is somewhat lengthy and for the larger dealers recommend the use of two machines in order to eliminate this time-taking conversion.

NOTE.—We are at the moment only manufacturing TWO rolling head assemblies, i.e., 8 S.W.G. x 32 T.P.I. and 10 S.W.G. x 40 T.P.I.—C.E.I. form and they are not suitable for rolling any metric thread that may be close in size to these two gauges.

GENERAL SERVICE INFORMATION

It would assist our clerical staff and despatch department in saving time besides unnecessary correspondence, by stating on all orders reference number or code word, as mentioned in our catalogue.

CYCLO SPARES AND 4-SPEED CONVERSION



Ref. Nos.

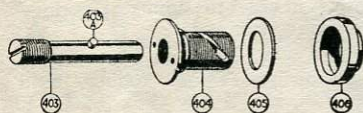
- 1 Outside Shaft Nut
- 2 Inside Shaft Nut
- 303 Fixed Shaft
- 303A Peg for Fixed Shaft
- 304A Sliding Shell
- 304B Sliding Ring and Collar
- 8 Inside Race
- 8A Inside Race Thin Washers
- 9 Outside Race
- 10 Jockey Sprocket (14T.)
- 6 System Arm
- 12 Nut for Tension Sprocket
- 13 Cone for Tension Sprocket
- 15 Spindle for Tension Sprocket
- 14 Tension Sprocket (10T.)
- 14A Tension Sprocket Complete
- 17 Tension Spring
- 18 Strap for Tension Spring

Ref. Nos.

- 19 Nut and Pin for Tension Spring
- 30/37 Cable Complete (Cycle)
- 30/37 Cable Complete (Tandem)
- 32A Patent Nipple
- 32B Patent Nipple with Inner Wire (Cycle)
- 32B Patent Nipple with Inner Wire (Tandem)
- 20/26 Control Lever
- 20 Lever Centre Screw
- 21 " Spring Friction Plate
- 22 " Large Washer
- 23 " Banjo
- 24 " Rivet
- 24A " Small Washer
- 25 " Back Plate
- 26 " Half Clip with Pin and Nut

Mention whether Spares are for 2, 3 or 4-speed when ordering

4-SPEED SPECIAL SPARES



Ref. Nos.

- 403 Fixed Shaft
- 403A Fixed Shaft Peg
- 404 Sliding Shell
- 405 Sliding Shell Ring
- 406 Distance Piece

Remaining parts interchangeable with Standard Cyclo 3-speed

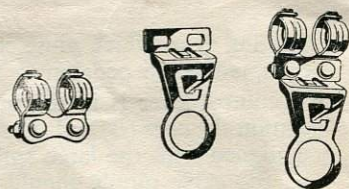
CONVERSION SPINDLES



Ref. No. 60. Complete Spindle as illustration. Standard size : $\frac{3}{8}$ " x 26 thread. Length 7".



Ref. No. 61. Spindle with Long Cones only.



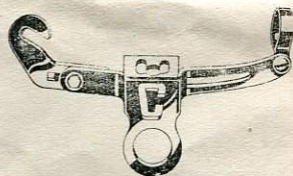
CHAIN STAY CLIPS FOR "CYCLO"

Ref. 01/C and B/L
Round Detachable for $\frac{1}{2}$ " Standard $\frac{3}{8}$ " and $\frac{3}{4}$ ".
Round Tapered Stay, complete with B/L Bracket.



"CYCLO" DETACHABLE AND ADJUSTABLE BRAZED-ON BRACKET

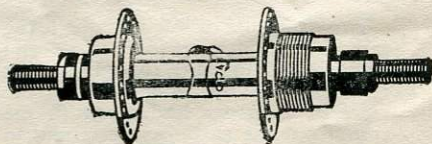
The top part of this bracket (T/E) is supplied free of charge to any manufacturers or builders. The bottom of the bracket to be supplied with the gear when ordered.



Ref. "UNIVERSAL"

Detachable "CYCLO" Bracket for Standard 3 and 4-speed "CYCLO." Will suit any type of fork end or chain stay.

CYCLO HUBS



These hubs are preferable in all cases where the three-speed is needed. No spacing washers are required. They are threaded to give full support to triple freewheel. Ref. 804/B

General Information on Hubs and Freewheels

A FREEWHEEL having three or more sprockets is of necessity wider than a standard single-speed freewheel and the extra width introduces a problem regarding chain line. Correct chain line is obtained if, when a gear cluster is screwed on to a hub, the distance from the centre line across packing to the centre of the cluster of sprockets is $1\frac{1}{2}$ inches; see fig. 1.

When the hub is in position, this centre line across packing coincides with the centre line of the frame and since positioning of the chainwheel is $1\frac{1}{2}$ inches from the centre line of the frame, if the correct position, as shown in fig. 1, is obtained, the centre of the cluster will run in line with the chainwheel; see fig. 2.

NOTES ON CYCLO BENE-LUX SQUARE FORM TEETH FREEWHEELS (BOSS TYPE)

In the past, friends using our Boss Type Freewheels have complained that after a very short period of use, the part of the freewheel centre carrying the extractor slots has sheared off, with the inevitable disastrous results. The purpose of this article is to contradict any suggestions that this breakage is due to a fault in the freewheel and at the same time offer the explanation and remedy.

Comparison of this type of freewheel with the standard Cyclo will reveal that while on the latter the threading which screws onto the hub goes straight through the centre, on the former, this threading is only taken about two-thirds of the way through; see figs. 3 and 4.

When fitting one of these Boss Type Freewheels, it is therefore important to ensure that the length of the threaded portion on the hub does not exceed the depth of the hole in the freewheel centre.

To allow for this, Bayliss, Wiley & Co. Ltd., and British Hub Co. Ltd., are co-operating with us in supplying a complete range of hubs suitable for derailleur gears of our manufacture. Similar remarks apply to Messrs. Blumfield

and Phillips. Therefore it is purely a question of stating your requirements correctly to these manufacturers to obtain the right hub for the gear.

On such hubs the back face of the freewheel, that is the face beneath the low gear sprocket, locks against the hub flange in the correct manner; see fig. 5. If the threading on the hub is too long for the freewheel, it will not be this face which locks against the hub flange, but the "step" inside the freewheel centre will lock against the end of threaded part of the hub; see fig. 6, and when pedalling, the strain will tend to shear off the part of the centre carrying the locking plate.

Use of Washers

To obviate this trouble, when using a hub, the threading on which is too long, packing washers should be used so that when the freewheel is in place, the back face locks against these washers. This might, of course, upset the chain line and it is therefore better, if possible, to use a hub specially designed for this type of freewheel.

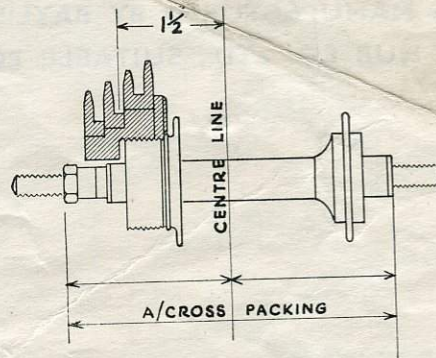


Figure 1.

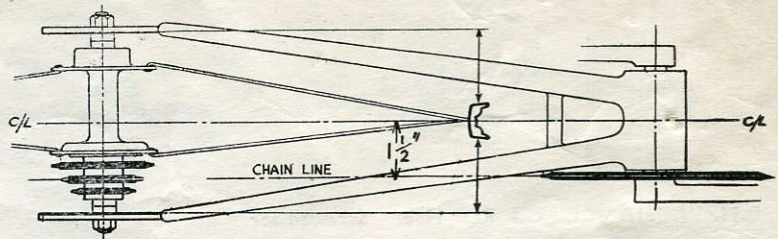
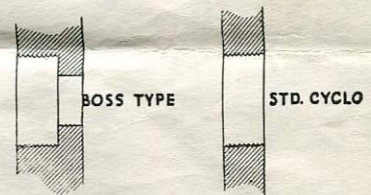


Figure 2.



Figures 3 and 4

Fig. 5 — Correct

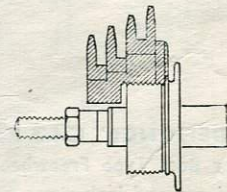
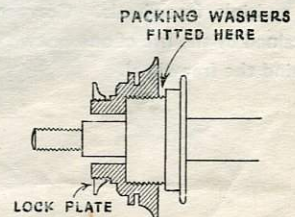
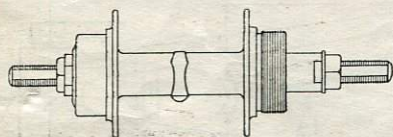


Fig. 6 — Incorrect

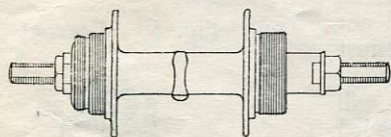


HUBS MANUFACTURED BY BAYLISS-WILEY & CO. LTD. and BRITISH HUB CO. LTD., SUITABLE FOR CYCLO-BENELUX GEARS

British Hub



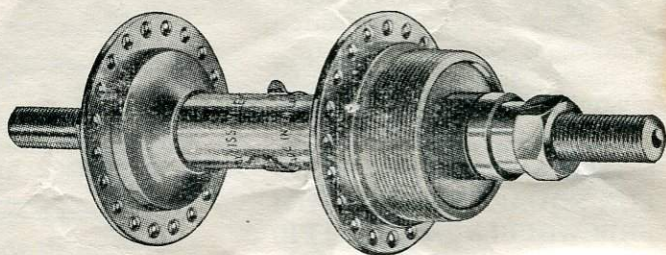
B.H. "DEFIANCE" G.1. Rear Hub. Screwed for Cyclo or Boss Type Freewheel.



B.H. "DEFIANCE" G.1.2. Rear Hub. Screwed for Cyclo or Boss Type Freewheel and offside screwed for fixed cog and lock ring.

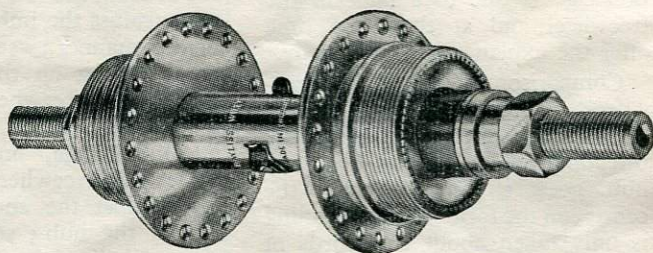
These Hubs have been designed as a universal hub for all multiple freewheels. Correct chain line can be obtained by the use of one or two $\frac{1}{16}$ " packing washers behind the freewheel.

Bayliss-Wiley



No. 300 is single sided to suit Derailleur gear cluster $\frac{9}{16}$ " to $\frac{5}{8}$ " when measured from back face to centre. Drilled 36 or 40 holes. Chrome or Black finish.

No. 300N is exactly as **No. 300** but with spindle nuts.



No. 310 is a double-sided all-steel Derailleur Type Hub. Made to suit gear cluster $\frac{7}{16}$ " to $\frac{1}{2}$ " when measured from back face to centre. This BW Hub gives C/L on the cog and lock nut side when fitted with offset sprocket. Drilled 36 or 40 holes. Chrome or Black finish.

No. 310N is exactly as **No. 310** but with spindle nuts.

OCCASIONALLY, the Repair Shop is faced with the problem of removing a freewheel that refuses to budge even with the Benelux Freewheel Remover Ref. 159 (Workshop model), which is guaranteed to remove a reasonably tight freewheel if correctly used, and providing the freewheel extractor slots have not been damaged.

One way adopted by some mechanics is to strip the freewheel, leaving the centre on the hub, and attack it with a hefty hammer and centre punch concentrating on the pawl shots. This method, although correct in principle, is a sure way to ruin the centre and probably also the hub.

Simple Tool

To overcome this problem, the staff of our Service Department have for many years been using a tool, the simplicity of which is a recommendation in itself. Although we had not previously marketed this tool, in view of the increased popularity of the derailleur type gear, it was decided to make it available to the Trade and it was introduced at the 1953 Cycle Show.

As it is listed in our 1954 Tool List, we consider that a

more detailed description of its use will be of benefit and interest to the Trade.

Correct Method

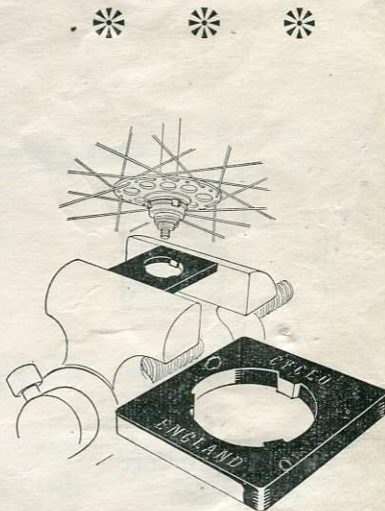
First strip the freewheel, leaving the centre exposed on the hub, then place the tool in a vice with the name CYCLO—ENGLAND on the underside. Insert the centre into the bore of the tool so that the three splines engage in the pawl slots, then, holding the rim firmly and with a slight downward pressure, a sharp turn anti-clockwise should suffice to overcome the tightness.

Three Rules

This difficulty, arising from the freewheel centre being tight on the hub, can be avoided by following these rules:—

- (1) *Do not put the freewheel on to a hub that has damaged threads.*
- (2) *Do not force the freewheel on to a hub where the threaded diameter is oversize.*
- (3) *Do not put the freewheel on to a Continental alloy or steel hub where the threading, being metric, will cause the freewheel to seize up owing to the variation in pitch and form.*

NOTE.—Any hub, having the faults mentioned can be made serviceable by the use of a Cyclo Hub Die, Ref. 117, which is a useful tool for rectifying damaged or tight threads.



Ref. 162

CENTRE REMOVER

Showing the method of application as described in column 2.

Retail price 5/-

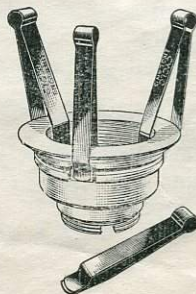


Ref. 159
BENELUX
FREEWHEEL REMOVER

Ref. 130
Sprocket Remover, Less Chain. Will remove the most obstinate sprocket without damage to the teeth.

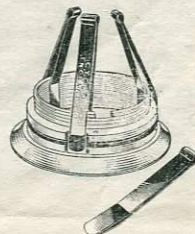
BENELUX FREEWHEEL REMOVER. This is an excellent workshop tool, and will, with the use of the adaptor supplied, remove Benelux freewheels from all hubs, including Quick-Release. For Quick-Release hubs, remove spindle packing pieces from the freewheel side of the hub, then screw the spindle extension adaptor on to the spindle, and place the remover securely into the extractor slots in the freewheel, lock down with the locknut and remove.

Pawl Retaining Clips



Ref. 126/B

Benelux Pawl Retaining Clips are inserted the reverse way to the Cyclo standard pattern. These are supplied in (2) distinct designs and will not interchange.



Ref. 126/C

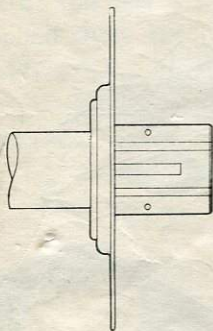
TriVelox Tandem Hub Conversion

There are probably hundreds of tandem owners whose machines are equipped with a TriVelox three-speed gear, $\frac{1}{8}$ -in. hub unit, which is in need of reconditioning, but, quite understandably, they do not wish to part with the hub as the brake attached to it is in perfectly good order.

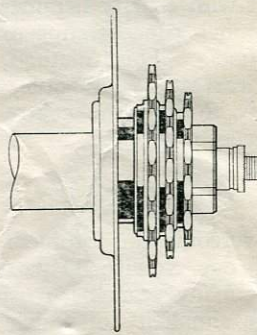
These enthusiastic tandemists are well aware that spare parts for TriVelox hubs are practically unobtainable, and we are pleased to suggest a way by which they may salvage their present TriVelox hub: "Let CYCLO Do It!"

Send your hub, complete with wheel, to Cyclo Gear Co. Ltd., Potters Hill, Birmingham, 6, and for a minimum charge of fifteen shillings we will dismantle and convert the hub to take a standard Cyclo triple or quad $\frac{1}{8}$ -in. freewheel, enabling you to use and enjoy a Cyclo three or four-speed $\frac{1}{8}$ -in. gear.

Note: The hub must be sent complete with the wheel for this conversion to be carried out, the best method of sending being through the post, the wheel centre well protected by thick paper, and labels tied to the rim, clearly addressed to Cyclo.



Hub Shell before conversion.



Hub Shell after conversion.

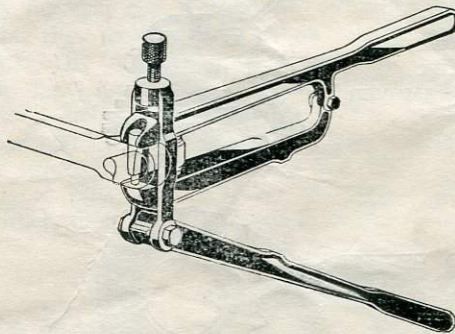
Extracting Tool

An implement of particular interest to cycle mechanics and dealers is the Cyclo Fitting and Extracting Tool for crank cotter pins.

This tool eliminates the use of a hammer, and the consequent damage to the cotter pin and the ball races of the axle and cup.

The long handles give a powerful leverage enabling the easy removal of the most stubborn cotter pin. A milled adjusting screw gives rapid universal use.

Ref. 147. Price 30/-



WORKS REPAIR SERVICE

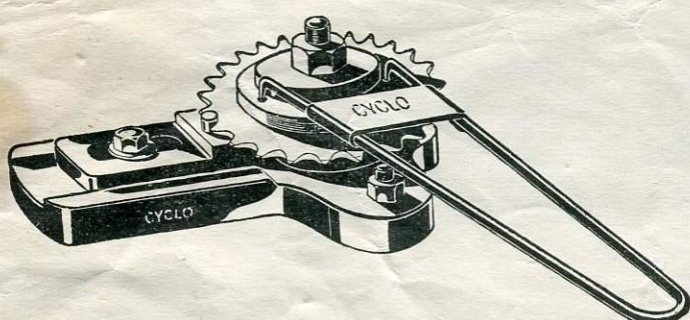
Gears and freewheels, whatever condition they may be in, can be serviced by our Service Department. Charges shown, in all cases, are retail.

BENELUX GEARS. A charge of 12/6, plus 8d. postage and packing, is made for bringing a standard Benelux system up-to-date, including new jockey sprocket complete and new roller tension complete. Same as above, but where the jockey sprocket and roller tension has not worn sufficiently to need renewing, a lesser charge of 9/-, plus 8d. postage and packing, will be made. Note.—Send us the system only. We do not require the cable and lever.

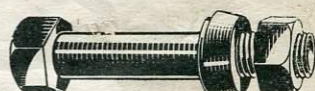
BENELUX FREEWHEELS. The freewheel body can be serviced as follows : 3-speed $\times \frac{1}{8}$ " 9/-, 4-speed $\times \frac{3}{32}$ " 9/6, plus 6d. postage and packing ; 4-speed $\times \frac{1}{8}$ " and 5-speed $\times \frac{3}{32}$ " 9/6, plus 6d. postage and packing.

If, when the freewheel is examined, it only requires cleaning, new pawls, pawl springs, and balls, but no body centre or ratchet needs replacing, the charge will be 3/9, plus 6d. postage and packing.

Note.—Unless you wish us to replace the old sprockets with new ones, in which case they will be charged as per our price list for spare Benelux sprockets, all we need, is the freewheel body.



Ref. 143. Sprocket Jig and Freewheel Holder
Ref. 144. Locking Plate Fork Remover



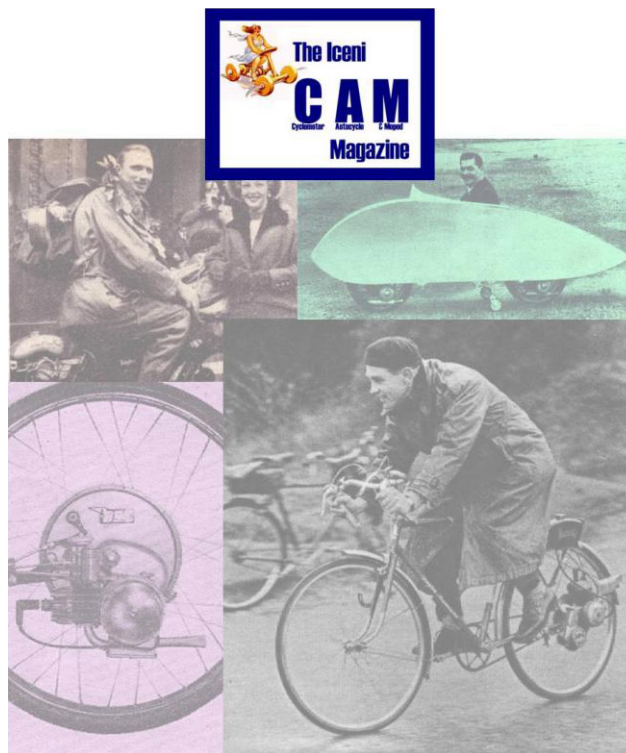
FREEWHEEL SERVICE IN THE DEALER'S WORKSHOP. Illustrated are tools you will find very useful when freewheel work is to be carried out. First—the Freewheel Sprocket Jig and Holder. This is suitable for all types of freewheels, whether "open" or "boss," in dismantling and assembling. The long bolt and plate that you see on the right of the illustration, is for use with Benelux freewheels and should be used as follows : Secure the plate underneath the one shown on the Jig, then place the freewheel on to the boss, making sure the dog on the plate is secured in the slot at the back of the freewheel provided for this purpose. Then lock down with the long bolt. Having done this, you can now remove all sprockets without any difficulty, from the body.

OF INTEREST TO ALL OUR FRIENDS IN THE TRADE

Testing and experimenting with Cyclo-Benelux products is continually being undertaken by our engineering experts, and our wide range of gears and components is constantly being revised and added to. It is to the advantage of every cycle dealer and agent to be kept up-to-date with these sure ways to better trading, and if you are not already on the mailing list of the Cyclo monthly magazine, **POTTERS WHEEL**, in which this firm's products are regularly discussed and illustrated, ask to be placed on it. Like so many, you will soon find it indispensable !



IceniCAM On-Line Library



www.icenicam.org.uk