MODEL K.

E:\Hubs\Model-K.Sam

Ratios. High Gear. +33% Slack wire.
Normal. Direct.
Low Gear. -25%

Introduced in 1922.
Single gear train. 20T Sun, Four x 20T Planet Pinions, 60T Gear Ring.
Control cable at right hand end and Indicator at left hand end of Axle.
Gear selection was by a sliding Clutch driven by a screwed Driver K.7 which had six straight prongs. This Driver had two notches on the outer face.
The raceway of this Driver was undercut and was fitted with 20 x 7/32" loose Balls.
Being undercut these balls had to be mounted in grease for assembly of the Driver.
A variant of the K7 had a left hand thread on the outer edge to take the K.36 Lockring for use with the KC coaster hubs. In the parts list this is shown as K.7C.
The L.H. Ball Cup had two pawls with coil springs engaging the ratchets on the Planet Cage.
The Pawl Pins were riveted into the Ball Cup.
The Pawls in the Gear Ring for normal and high gears also had coil springs, with split pins in the Pawl Pins.

Various changes were made as follows.
1931. When the KB was introduced the thread at the left hand end of the K.1 Axle had to be lengthened by 1/2" to 2.1/8". The new Axle number was K.101. This Axle was then used on many of the standard K range hubs.
c.1931. High Gear Pawl Pins changed to K.58 with spring-clips K57 to retain them.

1933. A major change was made. A new R.H. Ball Ring K.60 was fitted having 24 x 3/16" balls in a retaining ring. The matching new Clutch K.61 could thus be dropped straight into the hub for assembly.
K.61 had straight prongs like the K.7 until the end of **1933** when these were changed to taper.
A few K.61 Drivers have also been noted with a notch on the outer face.
1933. "R" Springs K.64 introduced for the normal and high gear Pawls K.12A.
Up to **1935** the Wavy Emblem was marked "Sturmey Archer 3 Speed Gear".
From **1935 - 1937** Wavy Emblem marked "Sturmey Archer Gears England."
From mid **1935** the six splines in the Gear Ring were shortened which meant there was a "no drive" position between High and Normal gears. (See later N.I.G. explanation.)
I936 - 1937. A felt seal was introduced for the L.H. Cone.

Planet Cages.
From **1922 - 1932** the inner flange was 0.100" thick. Holes for the Planet Pins passed right through. These cages had square cut dogs. They had twelve-tooth ratchets for low gear.
From **1933 - 1937** the inner flange increased in thickness to 0.180" so that the pinion pins fitted into blind holes. Dogs on the Cage now ramped.
1934. The left hand low gear ratchet now with six teeth.

Two hubs in my collection are marked "A" on the shell. In both cases the internals conform exactly to "K" hubs of the **1922 - 1932** period.

Dating of the hubs began in 1932. K2 denoting 1932, K5 denoting 1935 etc. J.G. 1997.

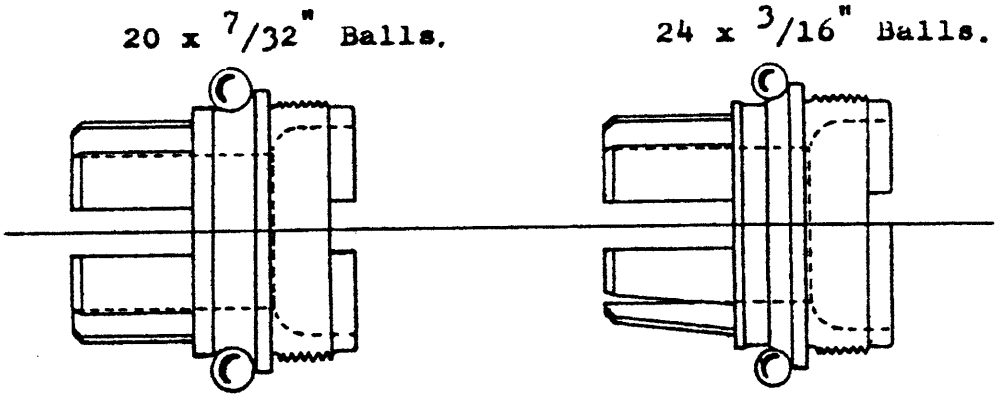
Note.

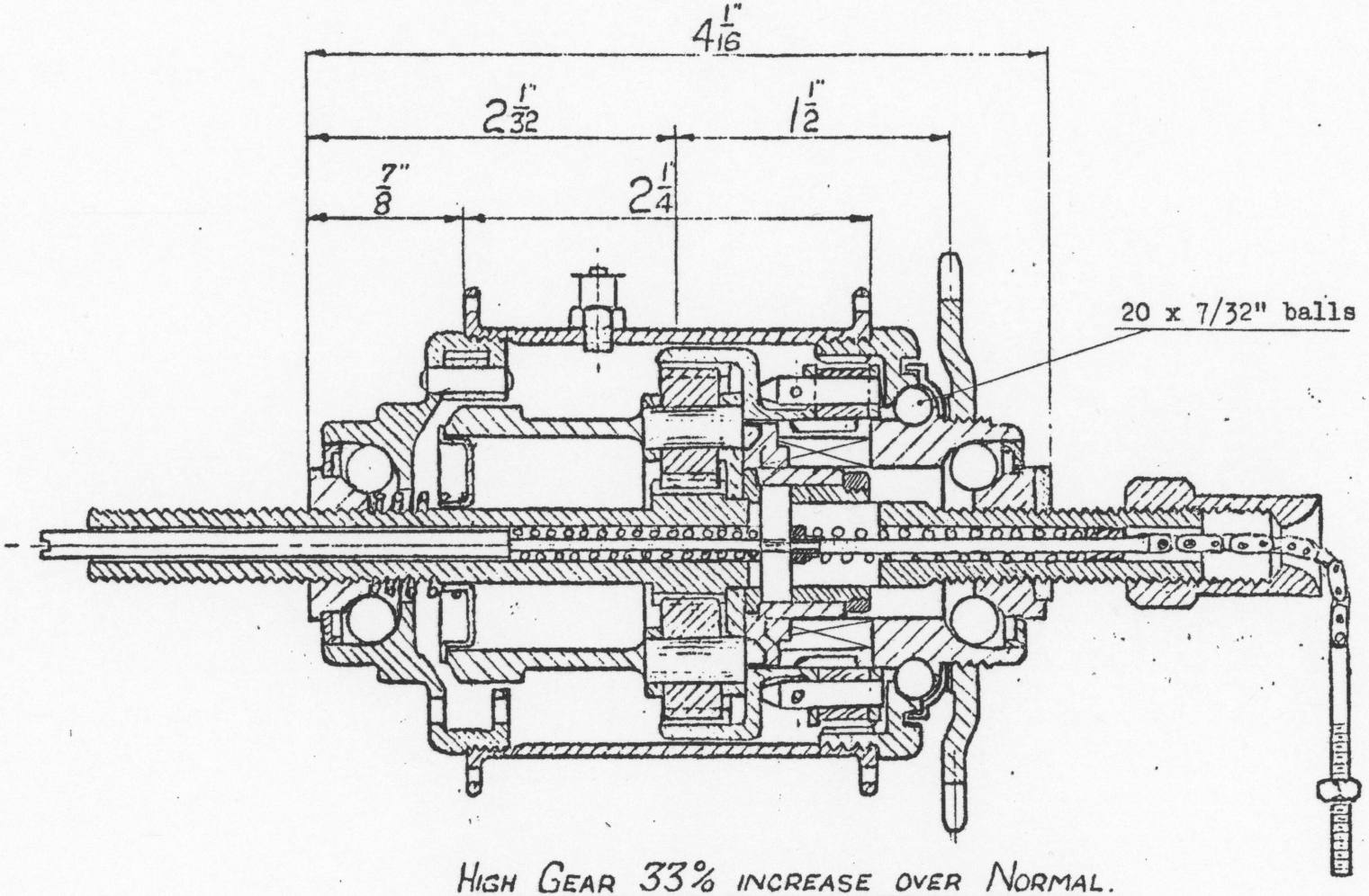
The above description applies to K hubs from 1933 - 1937. The main difference was with the Driver.

From 1922 - 1933 the Ball Ring had 20 x 7/32" balls. The raceway of the Driver was undercut, this meant the balls had to be mounted in grease to enable the Driver to be fitted into the Ball Ring.

From 1933 - 1937 the Ball Ring had 24 x 3/16" balls. These were retained by a Dust Cap, K.63. The Driver could thus be fitted or removed without the balls being disturbed.

Driver K.7 had a slot cut in the outer face. Some of the K.61 Drivers with straight prongs also had a slot.

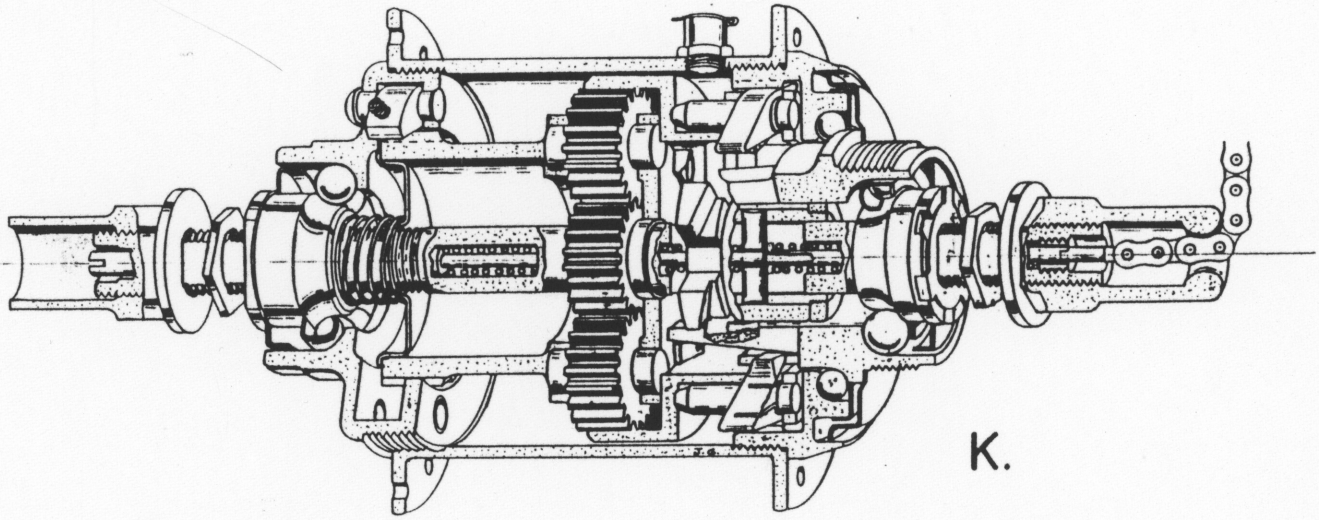




HIGH GEAR 33% INCREASE OVER NORMAL.
LOW GEAR 25% DECREASE FROM NORMAL.

STURMEY ARCHER 3 SPEED HUB
TYPE K.

1922 - 1933 Model.



TO DISMANTLE THE K HUB. (It is an advantage if the hub is mounted in a wheel.)

1. Remove left-hand Locknut and Cone. Drop out the Ball Cage and the Pressure Plate Spring.
2. Unscrew the right-hand Ball Ring using a flat ended punch. It has a two-start right-hand thread.
3. All the internals can now be withdrawn.
4. Grip the axle in a vice and remove the Locknut, Lock Washer and Cone.
5. Holding the Axle vertically, lift off the Driver, the Ball Ring and the Gear Ring.
6. The Clutch is removed by unscrewing the collar of the Clutch Sleeve. This is a normal right-hand thread.
7. Now unscrew the Indicator Rod protruding from the left-hand end of the axle. The right-hand coupling and chain can then be withdrawn from the axle. The Indicator Spring will probably come out of the axle on the Indicator when it is removed. If not, a jar will shake it out.
8. The Main Spring is removed by unscrewing the Grub Screw in the right-hand end of the axle. These grub screws can be very difficult to remove. The screwdriver blade should be 9/64" wide if possible.
9. The Axle Key will now drop out allowing the Clutch Sleeve and the Planet Cage to be removed.
10. From 1933 the Pinion Pins were fitted into blind holes. A sharp jar is sometimes needed to remove them.
11. Early hubs had split pins in the Gear Ring Pawl Pins, later they had circlips and then nothing.
12. Gear Ring Pawls in early hubs had coil springs but from 1933 "R" springs were used.
13. The left-hand Ball Cup has a left-hand thread and can be removed by gripping the two flats in a vice and turning the wheel clockwise. The Pawls have coil springs and the pins are riveted into the ball cup.

TO RE-ASSEMBLE THE K HUB.

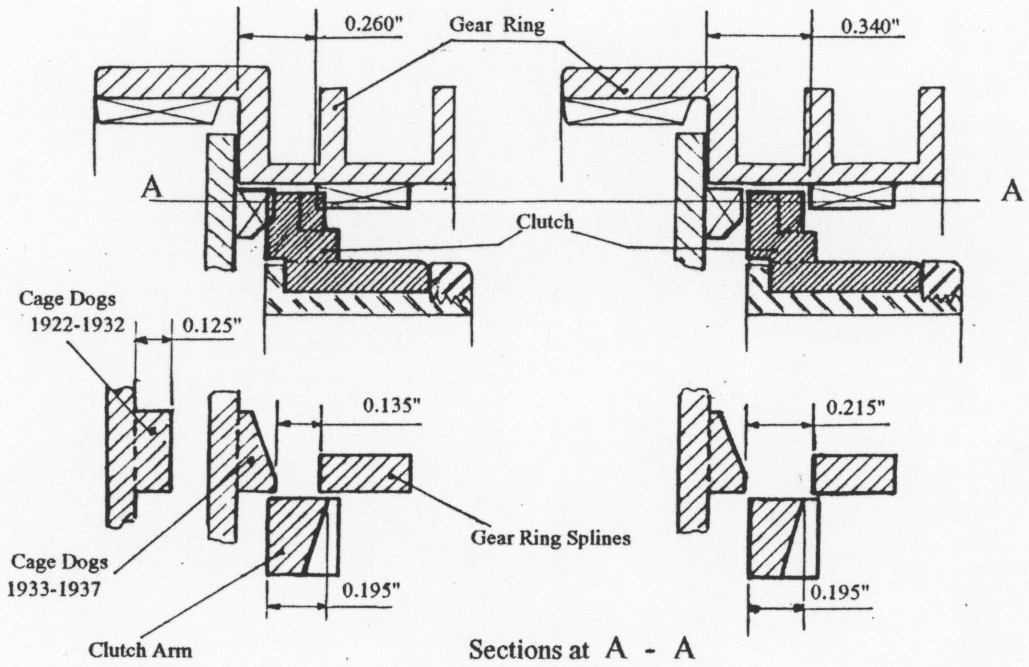
1. Screw the left-hand Ball Cup into the shell. It has a left-hand thread.
2. Holding the Axle by the left-hand end, fit the Planet Cage with its Pinions over the Sun Pinion.
3. Fit the Clutch Sleeve and insert the Key after lining up the hole to take the Indicator Rod.
4. Insert the Axle Spring with its Collar from the right-hand end and screw in the Grub Screw. Insert the Coupling Rod and chain at the same end.
5. Screw in the Indicator Rod with its Spring at the left-hand end of the Axle.
6. Fit the Clutch to the Sleeve and screw on its Collar.
7. Refit the Pawls and Springs in the Gear Ring. Fit the Gear Ring over the Planet Cage.
8. Check that the 24 balls in the Ball Ring are free, then fit over the Gear Ring.
9. Fit the Driver and Sprocket, drop in the Ball Cage with the ring of the cage facing outwards.
10. Fit the Castellated Cone, screw up finger tight then back off half a turn.
11. Fit the three armed Lock Washer and tighten up the Locknut.
12. Fit the Pressure Plate and slide the complete assembly into the shell, screw in the right-hand Ball Ring.
13. From the left-hand end, drop in the Pressure Plate Spring, the Ball Cage and screw up the Cone.
14. Finally fit the Cone Locknut. All subsequent adjustments are carried out with this left-hand Cone.

J.G. 1998.

N.I.G. (No In-between Gear) on the "K" Hubs.

It has always been assumed that the K range of hubs did not slip between the high and normal gears. That is, when changing down, the normal gear took the drive before the high gear released. However, unless precautions were taken lock-up could occur if the clutch was held midway between the two gear positions. To overcome this, the arms of the clutch were ramped and after 1933 the cage dogs were also ramped.

The N.I.G. worked as follows, see left hand diagram below. In high gear the Clutch drove the Planet Cage dogs and the Gear Ring and its splines rotated at a faster rate. If the Clutch was moved slowly towards the normal gear position it reached a point as shown in the diagram where the dogs and the splines were both being engaged. However, the Gear Ring rotates faster than the Cage so that the splines would quickly overtake the arms of the Clutch, which, if the rear face had been square would have resulted in lock-up. However because of the ramping, the Clutch was momentarily forced to the left into greater engagement with the dogs of the Cage, thus permitting the continued rotation of the Gear Ring. In practice, if the Clutch is moved smartly to the right, engagement is quickly made with the splines of the Gear Ring.



1922-1935 1935-1937

The above description has not previously been questioned, however my own Raleigh bicycle, bought for me new in 1936 and fitted with a K5 hub did not seem to conform to this description. Holding the cross-bar lever between high and normal did produce slip, in fact as a schoolboy with a new bicycle no-one had explained that the left hand indicator was used for setting up the gears. (The left hand axle nut did not have a sight hole.) It became standard practice to set up the gear by getting slip as described above.

The anomaly was solved by stripping down over twenty K and KB hubs. From 1922 to 1934 the splines were 0.260" from the inner face, see L.H. diagram. Hubs dated 1936 and 1937 were all 0.340" from the inner face, see R.H. diagram. The 1935 hubs showed some of each dimension. It would therefore appear that the change took place during 1935. Mine included!

J.G. 1993.

"K" HUBS EXAMINED.

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All hubs have coil springs in the L.H. Pawls.
After 1933 all standard hubs had 24 x 3/16" balls for the main race.
After 1933 all standard hubs had blind holes for Planet Pins.
After 1933 all standard hubs had "R" springs for Gear Ring Pawls.
After 1934 all standard hubs had six ratchet teeth on Planet Cage.
Any differences to the above usually means that a repair has taken place and is listed.
All hubs have Indicators.
All have 6" Axles.

K.816966. c.1925. Nickel. Wavy Emblem, *Sturmey Archer 3 Speed Gear.*
40Holes. 1.3/4" thread. L.H. end. 12 ratchet teeth. Coil springs on R.H. Pawls.
20 x 7/32" balls. Split pins in Pawl Pins. 1922 - 1931 Cones.
Square Dogs on Cage. Holes for Planet Pins right through. K7 Driver with straight Prongs and slot.
Lubricator in L.H. Ball Cup. All races good. No Nuts.

A. (Version of the K.) c.1927. Nickel. Slightly pitted shell. Wavy Emblem, *Sturmey Archer 3 Speed Gear.*
40Holes. 1.11/16" thread L.H. end. 12 ratchet teeth. Coil springs on R.H. Pawls.
20 x 7/32" balls. Split Pins in Pawl Pins. 1922 - 1931 Cones.
Square Dogs. Holes for Planet Pins right through. K7 Driver with straight Prongs and slot.
Lubricator in L.H. Ball Cup. No Nuts.

A. (Version of the K.) c.1932. V. Good Chrome. Wavy Emblem, *Sturmey Archer 3 Speed Gear.*
36Holes. 1.3/4" thread. L.H. end. 12 ratchet teeth . "R" springs on R.H. Pawls.
20 x 7/32" balls. Spring Clips on Pawl Pins. 1932 - 1935 Cones.
Square Dogs. Blind holes for Pinion Pins. K7 Driver with straight Prongs and slot.
Lubricator in L.H. Ball Cup. No Nuts.

K.3. 1933. V. Good appearance. Wavy Emblem, *Sturmey Archer 3 Speed Gear.*
36Holes. 1.5/8" thread L.H. end. 12 ratchet teeth. "R" springs on R.H. Pawls.
24 x 3/16" balls. Spring Clips on Pawl Pins. !932 - 1935 Cones.
Ramped Dogs, worn. Blind holes for Pinion Pins. K.61 Driver with straight Prongs and slot.
No lubricator in L.H. Ball Cup. All races good. Correct Nuts fitted.

K.3. 1933. Black Shell. Wavy Emblem, *Sturmey Archer 3 Speed Gear.*
36Holes. 1.5/8" thread L.H. end. 12 ratchet teeth. "R" springs on R.H.Pawls.
24 x 3/16" balls. Spring Clips on Pawl Pins. !932 - 1935 Cones.
Ramped Dogs, worn. Blind holes for Pinion Pins. K61 Straight Prong Driver without slot.
No lubricator in L.H. Ball Cup. All races good.
Has N.I.G.

K.5. 1935. From my bike. All in as new condition. Wavy Emblem, *Sturmey Archer 3 Speed Gear.*
No lubricator in L.H. Ball Cup. Spring Clips fitted to Pawl Pins. 1932-1935 Cones.
Does not have N.I.G. K61 Taper Prong Driver without slot.

"K" HUBS EXAMINED.

K.5/a. 1935. V.Good Chrome. Wavy Emblem,
40Holes. 2.1/8" thread. *Sturmey Archer 3 Speed Gear.*
No lubricator in L.H. Ball Cup. Spring Clips fitted to Pawl Pins. 1932-1935 Cones.
Poor L.H. Bearing. Splines of Gear Ring worn. Correct Nuts fitted.
Does not have N.I.G.

K.5/b. 1935. Chrome generally good but slight pitting at one point. Wavy Emblem,
40Holes. 2.1/8" thread. *Sturmey Archer 3 Speed Gear.*
No lubricator in L.H. Ball Cup. Spring Clips fitted to Pawl Pins. 1932-1935 Cones.
All races good. 6 teeth ratchet. Two "repair" Pins fitted.
Has N.I.G. but wear of Splines in Gear Ring give impression of slip. Correct Nuts fitted.

K.6. 1936 Black Shell with gash. Main raceway poor. Wavy Emblem,
40Holes. 2.1/8" thread. *Sturmey Archer Gears England.*
Grooves in Pawl Pins but Clips not fitted. Felt seal cones fitted, but seal missing
Lubricator in L.H. Ball Cup. No Nuts.
Does not have N.I.G.

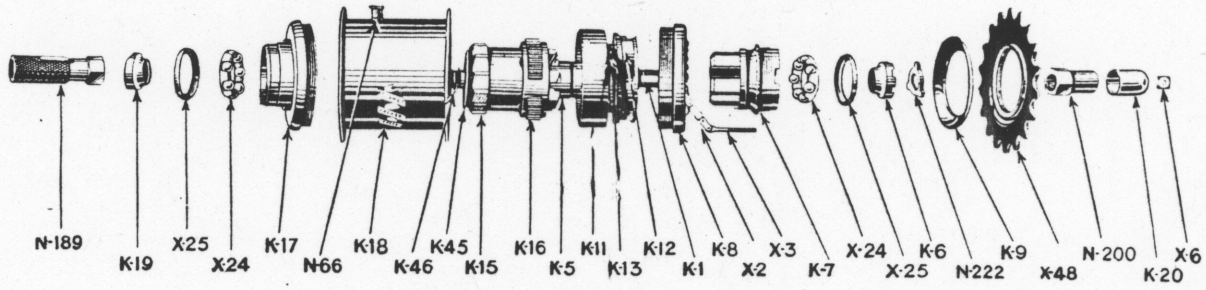
K.6/a. 1936. Good Chrome. Wavy Emblem,
40Holes. 1.3/4" thread. *Sturmey Archer Gears England.*
Spring Clips fitted to Pawl Pins. Poorish races. Felt seal cones fitted.
Lubricator in L.H. Ball Cup. Correct Nuts fitted.
Does not have N.I.G.

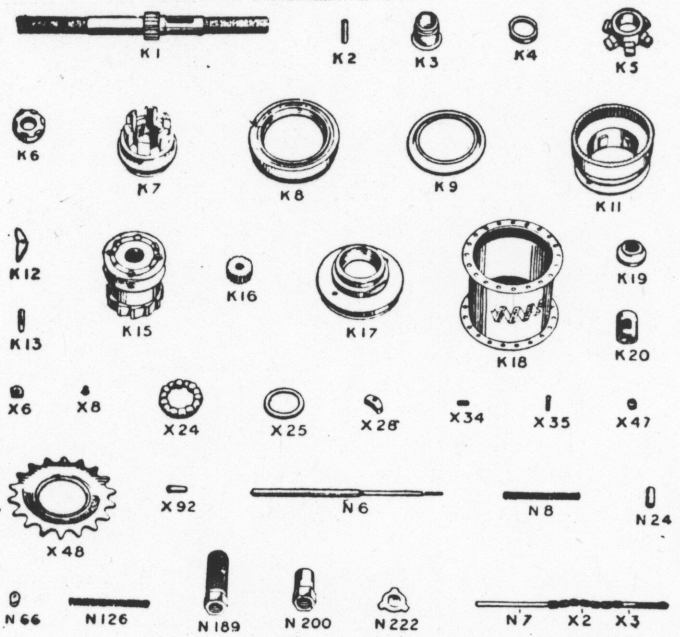
Wavy Emblem,
K.6/b. 1936. Chrome slightly marked. *Sturmey Archer Gears, England.*
40Holes. 2.1/8" thread. Poorish races.
Pawl pins with grooves but clips not fitted. Two long "repair" Pinion Pins fitted.
Lubricator in L.H. Ball Cup. Felt seal cones fitted.
Does not have N.I.G. No Nuts.

K.7/a. 1937. Good chrome. Wavy Emblem,
40Holes. 1.3/4" thread. *Sturmey Archer Gears England.*
Pawl pins with grooves but clips not fitted. Two long "repair" Pinion Pins fitted.
Badly worn splines in Gear Ring.
Lubricator in L.H. Ball Cup. Good races. Felt seal cones fitted.
Does not have N.I.G. Correct Nuts fitted.

K.7/b. 1937. Poor chrome. Wavy Emblem,
40Holes. 2.1/8" thread. *Sturmey Archer Gears England.*
Plain AW type Pawl Pins.
Lubricator in L.H. Ball Cup Felt seal cones fitted.
Does not have N.I.G. Correct Nuts fitted.

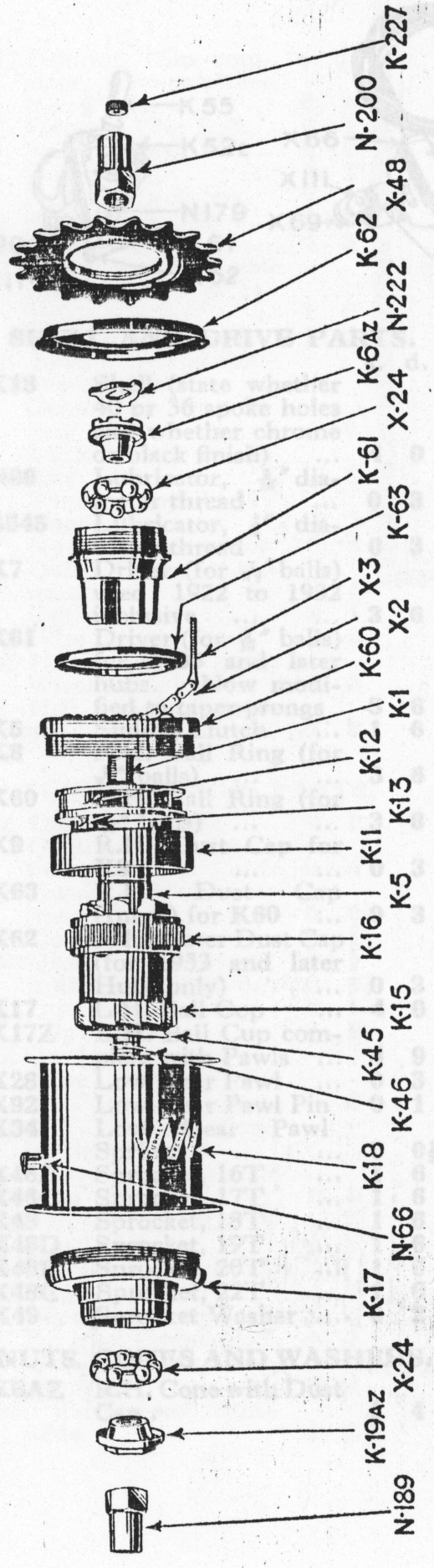
"K" PATTERN 3-SPEED HUB.





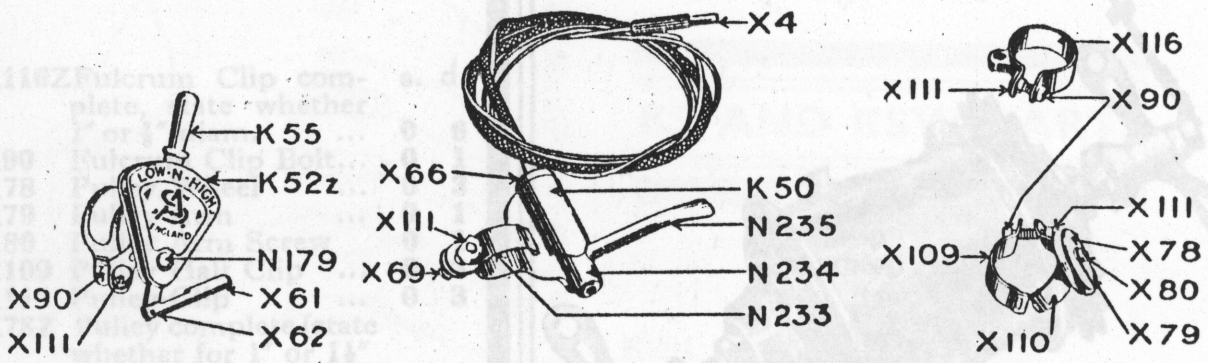
MARK "K" PARTS.

		s.	d.
K1	Axle	4	6
K2	Axle Key	0	2
K3	Axle Sleeve	0	8
K4	Sleeve Nut	0	3
K5	Sliding Clutch	2	0
K6	Right Hand Cone	1	4
K7	Driver	5	0
K8	Right Hand Ball Ring	4	6
K9	Right Hand Dust Cap	0	3
K11	Gear Ring	5	6
K12	Gear-Ring Pawl	0	5
K13	Pawl Pin	0	1
K15	Planet Cage	5	0
K16	Planet Pinion	0	9
K17	Left Hand Ball Cup	5	0
K17	Left Hand Ball Cup fitted with 2 Pawls X28, 2 Pawl Springs X34, and 2 Pawl Pins X92	6	0
K18	Hub Shell	5	0
K19	Left Hand Cone	1	3
K20	Chain Protector	0	3
X6	Screwed Connection Lock Nut	0	1
X8	Main Spring Collar	0	1
X24	¼in. Ball Retainer	0	4
X25	Ball Race Cap	0	1
X28	Inner Pawl	0	4
X34	Pawl Spring per doz.	0	6
X35	Split Pin ,,	0	6
X42	Spacing Washer (*not illustrated*)	0	1
X44	Spanner (*not illustrated*)	1	0
X47	Spring Nut	0	1
X48	Sprocket	2	0
X49	,, Washer (*not illust.*)	0	1
X92	Left Hand Pawl Pin	0	1
N6	Indicator Screw	0	7
N8	Axle Spring	0	3
N24	Pinion Pin	0	2
N66	Lubricator	0	3
N126	Indicator Spring	0	3
N189	Step	0	9
N190	Left Hand Nut, Lady's (*not illustrated*)	0	6
N200	Right Hand Nut	0	9
N222	Star Washer	0	2
N7	Coupling Spindle	0	7
X2	Chain	0	7
X3	Screwed Connection	0	3
K45	Cage End Cap fits in K15	0	3
K46	,, ,, ,, Spring	0	1



MARK K PARTS

	AXLE.	s.	d.
K1	Axle only, 6″ long ...	4	0
K1A	Axle only, 6 5/16″ long	4	0
K2	Axle Key	0	2
K3	Axle Sleeve... ...	0	8
K4	Sleeve Nut	0	3
N8	Axle Spring ...	0	2
X47	Axle Spring Screw	0	1
X8	Main Spring Collar	0	1
KZ7	Axle K1 fitted up with above	5	3
KZ8	Axle K1A fitted up with above	5	3
N6	Indicator Screw ...	0	6
N7	Coupling Spindle	0	5
X2	Chain	0	4
X3	Screwed Connection	0	2
K227	Lock Nut for Screwed Connection ...	0	1
N126	Indicator Spring ...	0	2
KZ1	Axle (K1), complete with Sleeve and Indicating Spindle ...	7	0
KZ2	Axle (K1A), complete with Sleeve and Indicating Spindle...	7	0
N6Z	Indicating Spindle complete, N6, N7, X2, X3, K227, N126	1	8
N7Z	Coupling Spindle, complete with Chain, Screwed Connection and Lock Nut ...	1	0
	GEAR PARTS.		
K11	Gear Ring	3	6
K12A	Gear Ring Pawl (for High and Middle Gears)	0	4
K58	Pawl Pin for Gear Ring	0	1
K57	Pawl Pin Clip for Gear Ring	0	0½
K64	Gear Ring Pawl Spring (R shape) ...	0	0½
K11Z	Gear Ring fitted with Pawls	4	6
K15	Planet Cage ...	3	6
K16	Planet Pinion ...	0	6
N24	Pinion Pin	0	2
K15Z	Planet Cage complete with Pinions	6	0
K45	Cage End Cap ...	0	3
K46	Cage End Cap Spring	0	1



SHELL AND DRIVE PARTS.

		s.	d.
K18	Shell (state whether 40 or 36 spoke holes and whether chrome or black finish) ...	4	0
N66	Lubricator, $\frac{3}{16}$" diameter thread ...	0	3
S545	Lubricator, $\frac{1}{4}$" diameter thread	0	3
K7	Driver (for $\frac{7}{32}$" balls) used 1922 to 1932 inclusive	3	6
K61	Driver (for $\frac{3}{16}$" balls) for 1933 and later hubs. Now modified to taper prongs	3	6
K5	Sliding Clutch ...	1	6
K8	R.H. Ball Ring (for $\frac{7}{32}$" balls)	3	6
K60	R.H. Ball Ring (for $\frac{3}{16}$" balls)	3	6
K9	R.H. Dust Cap for K8	0	3
K63	R.H. Dust Cap (Inner) for K60 ...	0	3
K62	R.H. Outer Dust Cap (for 1933 and later Hubs only) ...	0	3
K17	L.H. Ball Cup ...	4	0
K17Z	L.H. Ball Cup complete with Pawls ...	4	9
X28	Low Gear Pawl ...	0	3
X92	Low Gear Pawl Pin	0	1
X34	Low Gear Pawl Spring	0	0½
X48E	Sprocket, 16T ...	1	6
X48C	Sprocket, 17T ...	1	6
X48	Sprocket, 18T ...	1	6
X48D	Sprocket, 19T ...	1	6
X48F	Sprocket, 20T ...	1	6
X48G	Sprocket, 22T ...	1	6
X49	Sprocket Washer	0	2

NUTS, CONES AND WASHERS.

		s.	d.
K6AZ	R.H. Cone with Dust Cap .	1	4
K19AZ	L.H. Cone with Dust Cap	1	3
K47A	Cone Lock Nut ...	0	2
K48	Lip Washer for securing Axle in frame (not necessary in all cases) ...	0	2
X24	Ball Retainer with 7 Balls, $\frac{1}{4}$" diameter ...	0	4
X25	Ball Race Cap (not used since 1931) ...	0	1
X42	Axle Nut Spacing Washer	0	1
N189A	Step	0	9
N190	L.H. Nut	0	8
N200	R.H. Nut with Chain Guide	0	9
N222	Star Washer for locking R.H. Cone ...	0	2
K231Z	Wing Nut (per pair)	2	0
K234	Chain Guide (for R.H. Wing Nut) ...	0	2

TOOLS.

X44A	Cone and Nut Spanner	0	6
DD1670	Tool for holding Driver to remove Sprocket	2	9
DD911	Box Spanner for L.H. Ball Cup with Tommy Bar ...	4	0

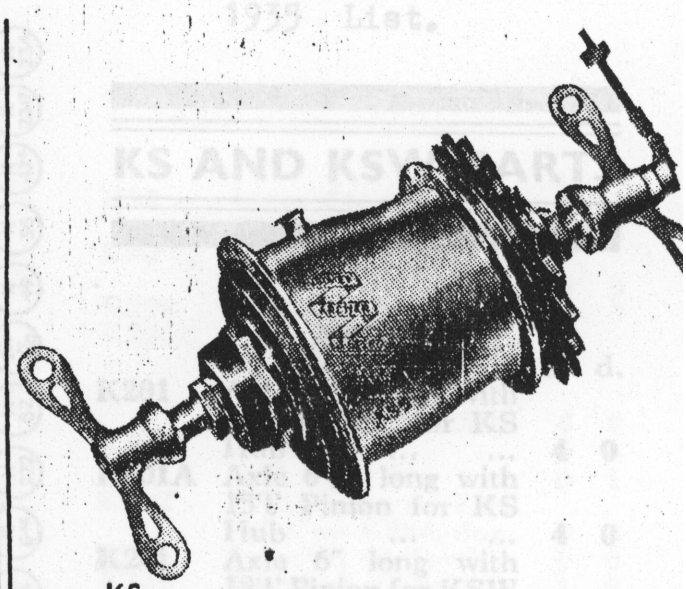
HANDLEBAR CONTROL PARTS.

K50	Outer Cam	0	9
N234	Inner Sleeve ...	0	9
N235	Control Lever ...	0	9
K65	Cam Cap	0	2
K66	Cable Stop	0	1
N233	Half Clip	0	3
X69	Clip Bolt	0	1
X111	Clip Nut	0	2
K50Z	H.B. Control, less wires and pulley as above ...	3	0

		s.	d.
X116Z	Fulcrum Clip complete, state whether 1″ or ⅞″ diam. ...	0	6
X90	Fulcrum Clip Bolt...	0	1
X78	Pulley Wheel ...	0	3
X79	Pulley Arm ...	0	1
X80	Pulley Arm Screw	0	1
X109	Pulley Half Clip ...	0	3
X110	Pulley Clip ...	0	3
X78Z	Pulley complete (state whether for 1″ or 1⅛″ bar)	1	0
X82	Outer Cable, Black	1	0
X81Z	Inner Wire and Connection, Black : Gent's—up to 58″ long	1	0
	Ladies'—up to 78″ long	1	3
	Tandem—up to 79″ long	1	3
X4	Knurled Connection	0	4
X4A	Quick Release Connection	0	4
X83	Cable Ferrule ...	0	1
X105	Wire Nipple, doz.	0	5
X82Z	H.B. Inner and Outer Wires complete ...	2	3
KC2	H,B. Control complete	6	9

TOP TUBE CONTROL PARTS.

K55Z	Quadrant Lever ...	0	9
K61	Quad Lever Connection	0	4
X62	Quad Lever Connection Pin	0	0½
N120	Quad Lever Spring	0	1
N179	Quad Lever Swivel	0	1
X35	Split Pin for N179...	0	0½
X90	Quad Clip Screw ...	0	1
X111	Clip Nut	0	2
K52Z	Quadrant complete (state whether for ⅞″, 1″, or 1⅛″ bar) ...	2	6
X81Z	T.T. Wire and Connection, Black : Gents'—up to 36″ long	0	9
	Ladies'—up to 54″ long	1	0
	Tandem—up to 58″ long	1	0
X105	Wire Nipple, doz.	0	5
X4	Knurled Connection	0	4
X4A	Quick Release Connection	0	4
KC1	T.T. Control complete	4	3



KS
CLOSE RATIO HUB

KS AND KSW PATTERNS

●

FEATURES. The KS hub is essentially a sports hub, having the ratios close together, while the KSW is designed for the rider who requires the ratios somewhat closer than the standard K pattern. Both provide three gears.

The ratios of these two hubs are as below :—In the KS the high gear is 12.5% above normal and low gear is 11.1% below. In the KSW the high gear is 16.6% above and low gear is 14.3% below. Middle gear is direct drive in each case.

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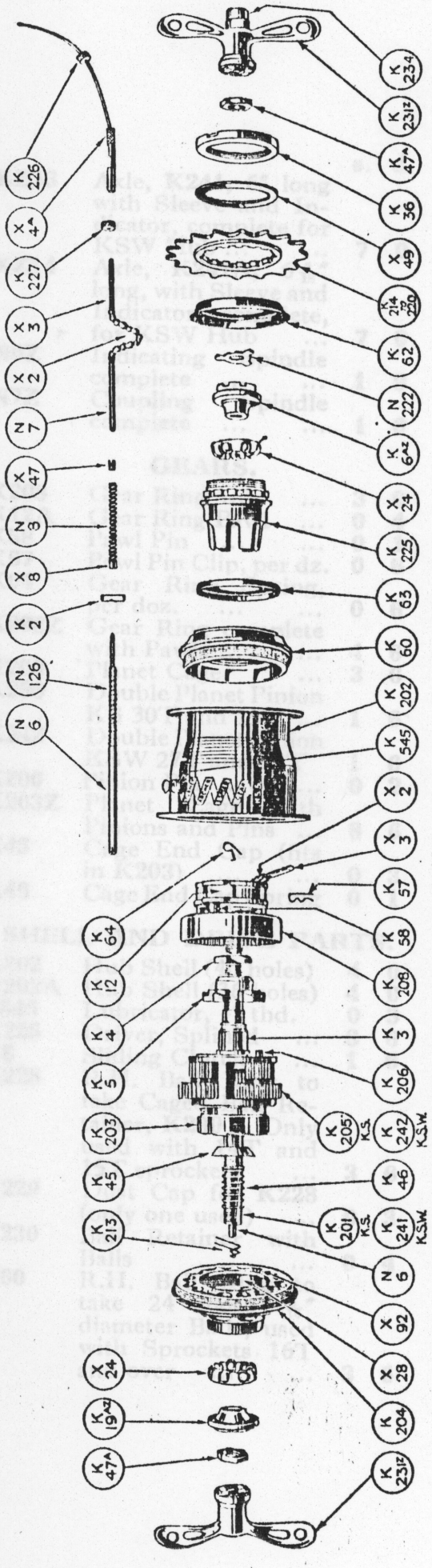


KS AND KSW PARTS

AXLE.

		s.	d.
K201	Axle 6″ long with 15T Pinion for KS Hub	**4**	**0**
K201A	Axle 6 5/16″ long with 15T Pinion for KS Hub	**4**	**0**
K241	Axle 6″ long with 18T Pinion for KSW Hub	**4**	**0**
K241A	Axle 6 5/16″ long with 18T Pinion for KSW Hub	**4**	**0**
K2	Axle Key	**0**	**2**
K3	Axle Sleeve... ...	**0**	**8**
K4	Sleeve Nut ...	**0**	**3**
N8	Axle Spring ...	**0**	**2**
X8	Main Spring Collar	**0**	**1**
X47	Axle Spring Screw	**0**	**1**
KZ11	Axle, **K201**, 6″ long with Sleeve less Indicator, for KS Hub	**5**	**3**
KZ12	Axle, **K201A**, 6 5/16″ long, with Sleeve, less Indicator for KS Hub	**5**	**3**
KZ15	Axle, **K241**, 6″ long with Sleeve, less Indicator for KSW Hub	**5**	**3**
KZ16	Axle, **K241A**, 6 5/16″ long, with Sleeve, less Indicator for KSW Hub	**5**	**3**
N6	Indicator Screw ...	**0**	**6**
N126	Indicator Spring ...	**0**	**2**
N7	Coupling Spindle	**0**	**5**
X2	Chain	**0**	**4**
X3	Screwed Connection for Chain	**0**	**2**
K227	Screwed Connection Lock Nut, Knurled	**0**	**1**
KZ5	Axle, **K201**, 6″ long, with Sleeve and Indicator, complete for KS Hub ...	**7**	**0**
KZ6	Axle, **K201A**, 6 5/16″ long, with Sleeve and Indicator, complete for KS Hub ...	**7**	**0**

		s.	d.
KZ13	Axle, K241, 6″ long with Sleeve and Indicator, complete for KSW Hub	7	0
KZ14	Axle, K241A, 6 5/16″ long, with Sleeve and Indicator complete, for KSW Hub ...	7	0
N6Z	Indicating Spindle complete	1	8
N7Z	Coupling Spindle complete	1	0

GEARS.

K208	Gear Ring	3	6
K12A	Gear Ring Pawl ...	0	4
K58	Pawl Pin	0	1
K57	Pawl Pin Clip, per dz.	0	6
K64	Gear Ring Spring, per doz.	0	6
K208Z	Gear Ring complete with Pawls	4	6
K203	Planet Cage ...	3	6
K205	Double Planet Pinion KS 30T and 15T ...	1	6
K242	Double Planet Pinion KSW 27T and 15T	1	6
K206	Pinion Pin	0	2
K203Z	Planet Cage with Pinions and Pins ...	8	6
K45	Cage End Cap (fits in K203)	0	3
K46	Cage End Cap Spring	0	1

SHELL AND DRIVE PARTS.

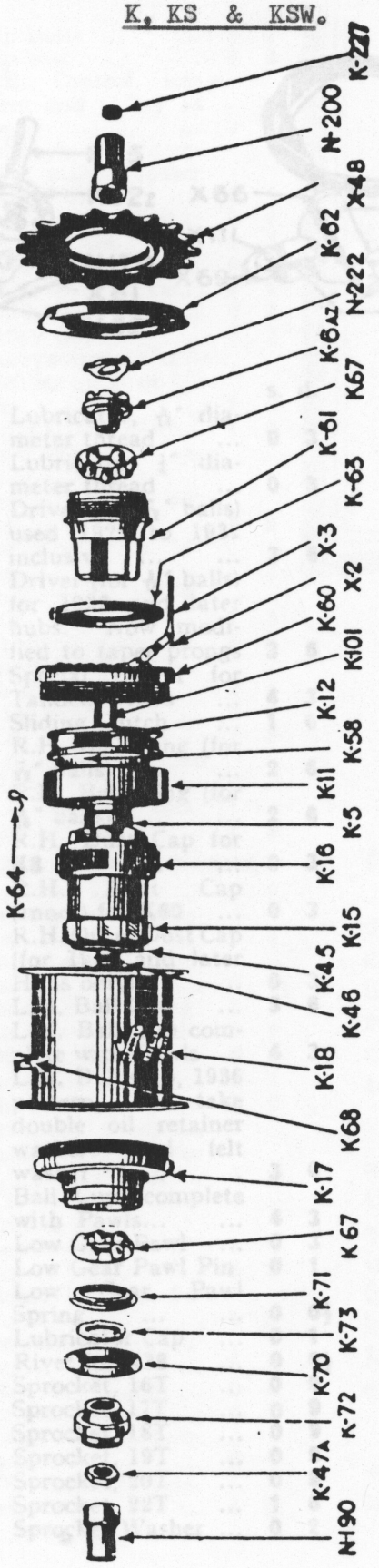
K202	Hub Shell (40 holes)	4	0
K202A	Hub Shell (36 holes)	4	0
S545	Lubricator, ¼″ thd.	0	3
K225	Driver, Splined ...	3	6
K5	Sliding Clutch ...	1	6
K228	R.H. Ball Ring to take Caged Ball Retainer, K230. Only used with 14T and 15T sprockets ...	3	6
K229	Dust Cap for K228 (only one used) ...	0	3
K230	Ball Retainer with Balls	0	4
K60	R.H. Ball Ring to take 24 loose 3/16″ diameter Balls, used with Sprockets 16T and over	3	6
K63	Inner Dust Cap for K60	0	3
K62	Outer Dust Cap for K60	0	3
K204	L.H. Ball Cup ...	4	0
K204Z	L.H. Ball Cup, fitted with 2 Pawls X28, 2 Pawl Springs K213, and 2 Pawls Pin X92	4	9
X28	Inner Pawl ...	0	3
X92	L.H. Pawl Pin ...	0	1
K213	Pawl Spring for L.H. Ball Cup K204, doz.	0	6
K214	Sprocket 14 Teeth...	1	6
K215	Sprocket 15 Teeth...	1	6
K216	Sprocket 16 Teeth...	1	6
K217	Sprocket 17 Teeth...	1	6
K218	Sprocket 18 Teeth...	1	6
K219	Sprocket 19 Teeth...	1	6
K220	Sprocket 20 Teeth...	1	6
K222	Sprocket 22 Teeth...	1	6
X49	Sprocket Packing Washer	0	2
K36	Sprocket Lock Nut	0	6

NUTS, CONES AND WASHERS.

K8AZ	R.H. Cone with Cone Cover Cap K59 ...	1	4
K19AZ	L.H. Cone with Cone Cover Cap K59 ...	1	3
K47A	Lock Nut for L.H. Cone	0	2
K48	Axle (locking) Lip Washer	0	
X24	¼″ Ball Retainer ...	0	4
X42	Spacing Washer ...	0	1
N190	L.H. Nut	0	8
N200	R.H. Chain Nut ...	0	9
N222	Star Washer ...	0	2
K231Z	Wing Nuts complete, per pair	2	0
K234	Chain Guide for R.H. Wing Nut	0	2

TOOLS.

K235	Spanner for Sprocket Lock Nut	0	6
X44A	Spanner	0	6
DD1670	Sprocket Removing Tool	2	9
DD911	Spanner for L.H. Ball Cup	4	0

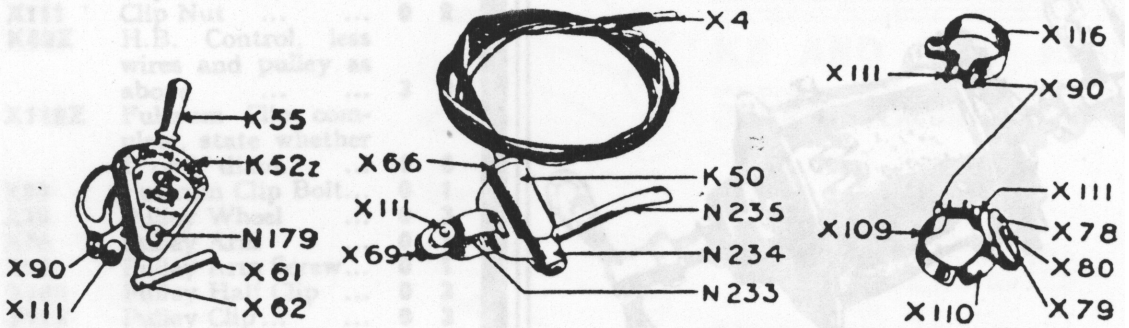


MARK K PARTS

	AXLE.	s.	d.
K1	Axle only, 6" long ...	4	0
K1A	Axle only, 6½" long	4	0
K2	Axle Key	0	2
K3	Axle Sleeve... ...	0	8
K4	Sleeve Nut	0	3
N8	Axle Spring ...	0	2
X47	Axle Spring Screw	0	1
X8	Main Spring Collar	0	1
KZ7	Axle K1 fitted up with above	5	3
KZ8	Axle K1A fitted up with above	5	3
N6	Indicator Screw ...	0	6
K227	Lock Nut for Screwed Connection	0	1
N126	Indicator Spring ...	0	2
KZ1	Axle (K1), complete with Sleeve and Indicating Spindle ...	7	0
KZ2	Axle (K1A), complete with Sleeve and Indicating Spindle...	7	0
N6Z	Indicating Spindle complete, N6, N7Z, N126	1	8
N7Z	Coupling Spindle, complete with Chain, Screwed Connection and Lock Nut ...	1	0

	GEAR PARTS.		
K11	Gear Ring	3	6
K12A	Gear Ring Pawl (for High and Middle Gears)	0	4
K58	Pawl Pin for Gear Ring	0	1
K57	Pawl Pin Clip for Gear Ring	0	0½
K64	Gear Ring Pawl Spring (R shape) ...	0	0½
K11Z	Gear Ring fitted with Pawls	4	6
K15	Planet Cage ...	3	6
K16	Planet Pinion ...	0	6
N24	Pinion Pin	0	2
K15Z	Planet Cage complete with Pinions...	6	0
K45	Cage End Cap ...	0	3
K46	Cage End Cap Spring	0	1

	SHELL AND DRIVE PARTS.		
K18	Shell (state whether 40 or 36 spoke holes and whether chrome or black finish) ...	4	0



		s.	d.
N66	Lubricator, $\frac{3}{16}$" diameter thread ...	0	3
K68	Lubricator, $\frac{1}{4}$" diameter thread ...	0	3
K7	Driver (for $\frac{7}{32}$" balls) used 1922 to 1932 inclusive	3	6
K61	Driver (for $\frac{1}{16}$" balls) for 1933 and later hubs. Now modified to taper prongs	3	6
K361	Special Driver for Tandem Hubs ...	4	3
K5	Sliding Clutch ...	1	6
K8	R.H. Ball Ring (for $\frac{7}{32}$" balls)	2	6
K60	R.H. Ball Ring (for $\frac{1}{16}$" balls)	2	6
K9	R.H. Dust Cap for **K8**	0	3
K63	R.H. Dust Cap (Inner) for **K60** ...	0	3
K62	R.H. Outer Dust Cap (for 1933 and later Hubs only) ...	0	3
K17	L.H. Ball Cup ...	3	6
K17Z	L.H. Ball Cup complete with Pawls ...	4	3
K17E	L.H. Ball Cup, 1936 pattern, to take double oil retainer washers and felt washer	3	6
K17EZ	Ball Cup, complete with Pawls... ...	4	3
X28	Low Gear Pawl ...	0	3
X92	Low Gear Pawl Pin	0	1
X34	Low Gear Pawl Spring	0	0½
X38	Lubricator Cap ...	0	1
N75	Rivet for **X38** ...	0	0½
X48E	Sprocket, 16T ...	0	9
X48C	Sprocket, 17T ...	0	9
X48	Sprocket, 18T ...	0	9
X48D	Sprocket, 19T ...	0	9
X48F	Sprocket, 20T ...	0	9
X48G	Sprocket, 22T ...	1	6
X49	Sprocket Washer ...	0	2

NUTS, CONES AND WASHERS.

		s.	d.
K6AZ	R.H. Cone with Dust Cap	1	0
K70	Inner Oil Retainer	0	1
K71	Dished (outer) Oil Retainer Cap ...	0	1
K72	L.H. Cone, 1936 pattern	0	9
K73	Felt Washer ...	0	1
K19AZ	L.H. Cone with Dust Cap	1	0
K47A	Cone Lock Nut ...	0	1
K48	Lip Washer for securing Axle in frame (not necessary in all cases) ...	0	2
K67	Ball Retainer with 8 Balls, $\frac{1}{4}$" diameter ...	0	3
X25	Ball Race Cap (not used since 1931) ...	0	1
X42	Axle Nut Spacing Washer	0	1
N189A	Step	0	9
N190	L.H. Nut	0	8
N200	R.H. Nut with Chain Guide	0	9
N222	Star Washer for locking R.H. Cone ...	0	2
K231Z	Wing Nut (per pair)	2	0
K234	Chain Guide (for R.H. Wing Nut) ...	0	2

TOOLS.

X44A	Cone and Nut Spanner	0	6
DD1670	Tool for holding Driver to remove Sprocket	2	9
DD911	Box Spanner for L.H. Ball Cup with Tommy Bar ...	4	0

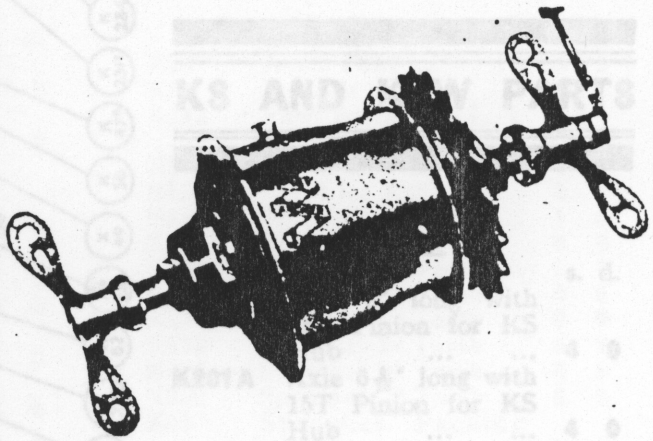
HANDLEBAR CONTROL PARTS.

K50	Outer Cam ...	0	9
N234	Inner Sleeve ...	0	9
N235	Control Lever ...	0	9
K65	Cam Cap	0	2
K66	Cable Stop	0	1
N233	Hal f Clip	0	3

X69	Clip Bolt	0	1
X111	Clip Nut	0	2
K50Z	H.B. Control, less wires and pulley as above	3	0
X116Z	Fulcrum Clip complete, state whether 1" or ⅞" diam. ...	0	6
X90	Fulcrum Clip Bolt...	0	1
X78	Pulley Wheel ...	0	3
X79	Pulley Arm ...	0	1
X80	Pulley Arm Screw...	0	1
X109	Pulley Half Clip ...	0	3
X110	Pulley Clip	0	3
X78Z	Pulley complete (state whether for 1" or 1⅛" bar	1	0
X82	Outer Cable, Black	1	0
X81Z	Inner Wire and Connection, Black:		
	Gent's—up to 58" long	1	0
	Ladies'—up to 78" long	1	3
	Tandem—up to 79" long	1	3
X4	Knurled Connection	0	4
X4A	Quick Release Connection	0	4
X83	Cable Ferrule ...	0	1
X105	Wire Nipple, doz. ...	0	5
X82Z	H.B. Inner and Outer Wires complete ...	2	3
KC2	H.B. Control complete	6	9

TOP TUBE CONTROL PARTS.

K55Z	Quadrant Lever ...	0	9
X61	Quad Lever Connection	0	4
X62	Quad Lever Connection Pin	0	0½
N120	Quad Lever Spring	0	1
N179	Quad Lever Swivel	0	1
X35	Split Pin for N179 ...	0	0½
X90	Quad Clip Screw ...	0	1
X111	Clip Nut	0	2
K52Z	Quadrant Complete (state whether for ½", 1", or 1⅛" bar) ...	2	6
X81Z	T.T. Wire and connection, Black:		
	Gent's—up to 36" long...	0	9
	Ladies'—up to 54" long...	1	0
	Tandem—up to 58" long...	1	0
X105	Wire Nipple, doz. ...	0	5
X4	Knurled Connection	0	4
X4A	Quick Release Connection	0	4
KC1	T.T. Control complete	4	3



KS
CLOSE RATIO HUB

KS AND KSW PATTERNS

●

FEATURES. The KS hub is essentially a sports hub, having the ratios close together, while the KSW is designed for the rider who requires the ratios somewhat closer than the standard K pattern. Both provide three gears.

The ratios of these two hubs are as below :—In the KS the high gear is 12.5% above normal and low gear is 11.1% below. In the KSW the high gear is 16.6% above and low gear is 14.3% below. Middle gear is direct drive in each case.

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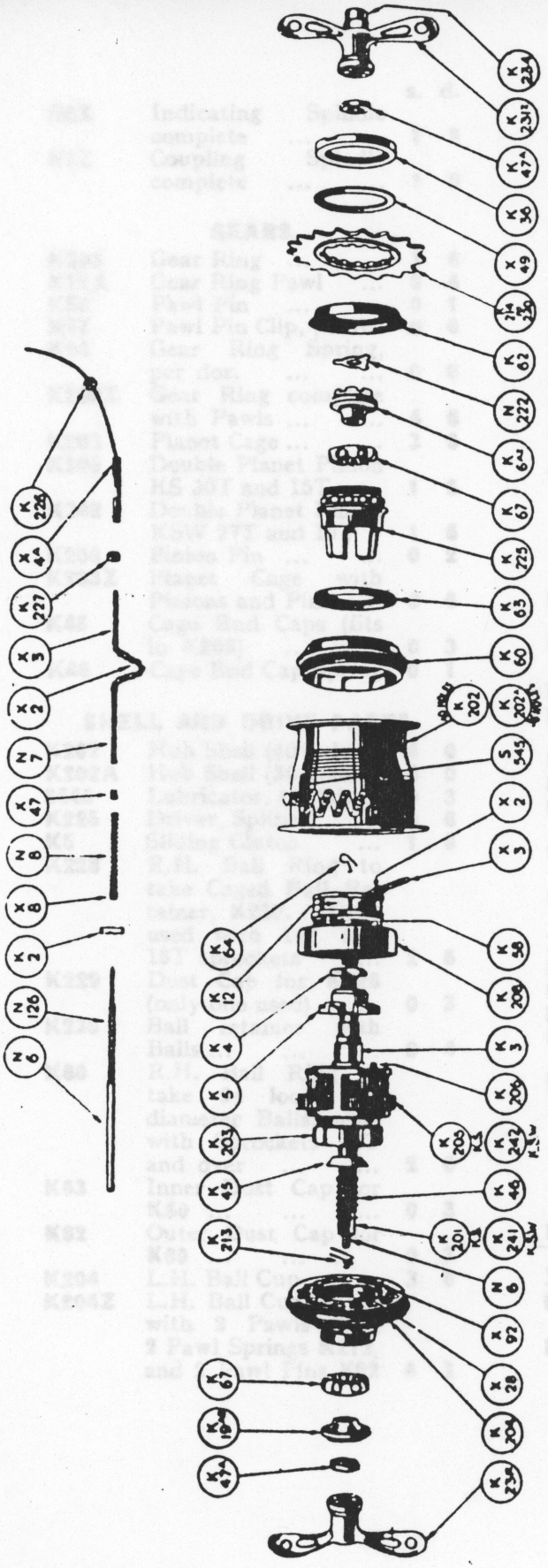

KS AND KSW PARTS

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		s.	d.
K201	Axle 6″ long with 15T Pinion for KS Hub	**4**	**0**
K201A	Axle 6 1/16″ long with 15T Pinion for KS Hub	**4**	**0**
K241	Axle 6″ long with 18T Pinion for KSW Hub	**4**	**0**
K241A	Axle 6 1/16″ long with 18T Pinion for KSW Hub	**4**	**0**
K2	Axle Key	**0**	**2**
K3	Axle Sleeve ...	**0**	**8**
K4	Sleeve Nut	**0**	**3**
N8	Axle Spring ...	**0**	**2**
X8	Main Spring Collar	**0**	**1**
X47	Axle Spring Screw...	**0**	**1**
KZ11	Axle, **K201**, 6″ long with Sleeve less Indicator, for KS Hub	**5**	**3**
KZ12	Axle, **K201A**, 6 1/16″ long, with Sleeve, less Indicator for KS Hub...	**5**	**3**
KZ15	Axle, **K241**, 6″ long with Sleeve, less Indicator for KSW Hub...	**5**	**3**
KZ16	Axle, **K241A**, 6 1/16″ long, with Sleeve, less Indicator for KSW Hub... ...	**5**	**3**
N6	Indicator Screw ...	**0**	**6**
N126	Indicator Spring ...	**0**	**2**
K227	Screwed Connection Lock Nut, Knurled	**0**	**1**
KZ5	Axle, **K201**, 6″ long, with Sleeve and Indicator, complete for KS Hub	**7**	**0**
KZ6	Axle, **K201A**, 6 1/16″ long, with Sleeve and Indicator, complete, for KS Hub ...	**7**	**0**
KZ13	Axle, **K241**, 6″ long with Sleeve and Indicator, complete for KSW Hub	**7**	**0**
KZ14	Axle, **K241A**, 6 1/16″ long, with Sleeve and Indicator complete, for KSW Hub ...	**7**	**0**

		s.	d.
N6Z	Indicating Spindle complete	1	8
N7Z	Coupling Spindle complete	1	0

GEARS.

K208	Gear Ring	3	6
K12A	Gear Ring Pawl ...	0	4
K58	Pawl Pin	0	1
K57	Pawl Pin Clip, per dz.	0	6
K64	Gear Ring Spring, per doz.	0	6
K208Z	Gear Ring complete with Pawls	4	6
K203	Planet Cage	3	6
K205	Double Planet Pinion KS 30T and 15T ...	1	6
K242	Double Planet Pinion KSW 27T and 15T	1	6
K206	Pinion Pin	0	2
K203Z	Planet Cage with Pinions and Pins ...	8	6
K45	Cage End Caps (fits in **K203**)	0	3
K46	Cage End Cap Spring	0	1

SHELL AND DRIVE PARTS.

K202	Hub Shell (40 holes)	4	0
K202A	Hub Shell (36 holes)	4	0
S545	Lubricator, ¼" thd. ...	0	3
K225	Driver, Splined ...	3	6
K5	Sliding Clutch ...	1	6
K228	R.H. Ball Ring to take Caged Ball Retainer, **K230.** Only used with 14T and 15T sprockets ...	2	6
K229	Dust Cap for **K228** (only one used) ...	0	3
K230	Ball retainer with Balls	0	4
K60	R.H. Ball Ring to take 24 loose ⅛" diameter Balls, used with Sprockets 16T and over	2	6
K63	Inner Dust Cap for **K60**	0	3
K62	Outer Dust Cap for **K60**	0	3
K204	L.H. Ball Cup ...	3	6
K204Z	L.H. Ball Cup, fitted with 2 Pawls **X28**, 2 Pawl Springs **K213**, and 2 Pawl Pins **X92**	4	3

		s.	d.
X28	Inner Pawl	0	3
X92	L.H. Pawl Pin ...	0	1
K213	Pawl Spring for L.H. Ball Cup **K204**, doz.	0	6
X38	Lubricator Cap ...	0	1
N75	Rivet for **X38** ...	0	½
K214	Sprocket 14 Teeth ...	1	0
K215	Sprocket 15 Teeth ...	0	9
K216	Sprocket 16 Teeth ...	0	9
K217	Sprocket 17 Teeth ...	0	9
K218	Sprocket 18 Teeth ...	0	9
K219	Sprocket 19 Teeth ...	0	9
K220	Sprocket 20 Teeth ...	0	9
K222	Sprocket 22 Teeth ...	0	9
X49	Sprocket Packing Washer	0	2
K36	Sprocket Lock Nut...	0	6

NUTS, CONES AND WASHERS.

K6AZ	R.H. Cone with Cone Cover Cap **K59** ...	1	0
K19AZ	L.H. Cone with Cone Cover Cap **K59** ...	1	0
K70	Oil Retainer (inner)	0	1
K71	Dished (outer) Retainer Cap	0	1
K72	L.H. Cone	0	9
K73	Felt Washer... ...	0	1
K47A	Lock Nut for L.H. Cone	0	1
K48	Axle (locking) Lip Washer	0	2
K67	¼" Ball Retainer (8 Balls)...	0	3
X42	Spacing Washer ...	0	1
N190	L.H. Nut	0	8
N200	R.H. Chain Nut ...	0	9
N222	Star Washer ...	0	2
K231Z	Wing Nuts complete, per pair	2	0
K234	Chain Guide for R.H. Wing Nut	0	2

TOOLS.

K235	Spanner for Sprocket Lock Nut	0	6
X44A	Spanner	0	6
DD1670	Sprocket Removing Tool	2	9
DD911	Spanner for L.H. Ball Cup	4	0