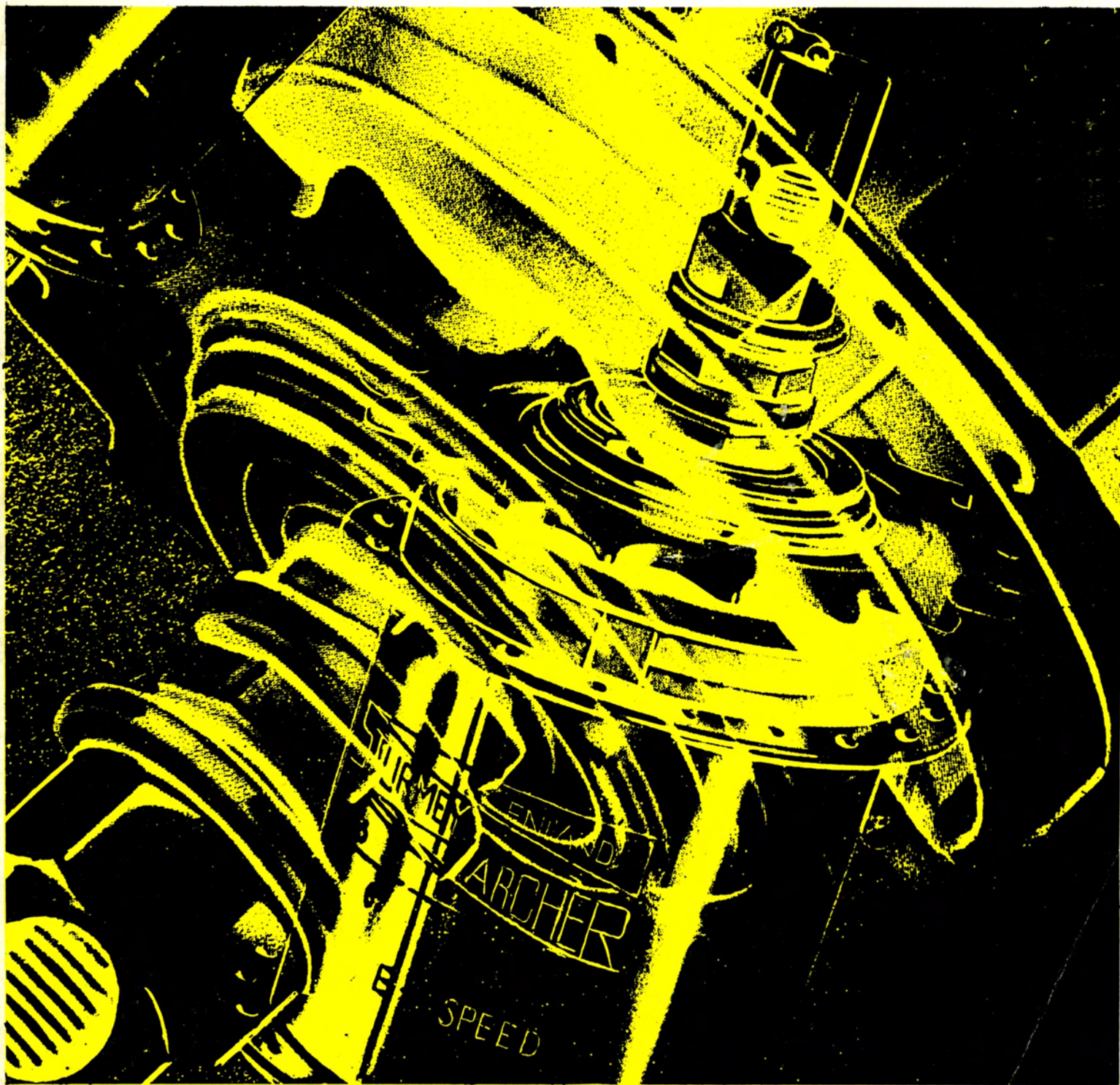


AW 3 Speed Wide Ratio Gear



STURMEY

ARCHER

THE GEAR THAT
MAKES CYCLING
EASIER

STURMEY

ARCHER

GET INTO TOP GEAR WITH STURMEY-ARCHER

AW 3 SPEED WIDE RATIO GEAR

Sturmey-Archer - pioneers in bicycle hub gears, brakes and lighting equipment - lead the world with the famous AW 3 speed gear. This supreme example of precision engineering needs no introduction to over sixty million riders for whom Sturmey-Archer has made cycling easier.

Discerning cyclists choose this modern 'built-in' hub gear. Fully enclosed in chrome plated shell with oil-bath protection from water and dirt - providing smooth running and easy gear change.

Sturmey-Archer offer a choice of three different gear controls -

- Trigger Control - handlebar fitting with reliable simplicity.
- Auto Twistgrip - consistently controlled adjustment and 'slick' gear change.
- Sportshift - the latest 'shift' control for 'fun' cycling.

All these features are provided to ensure the modern cyclist enjoys trouble free precision gear change.

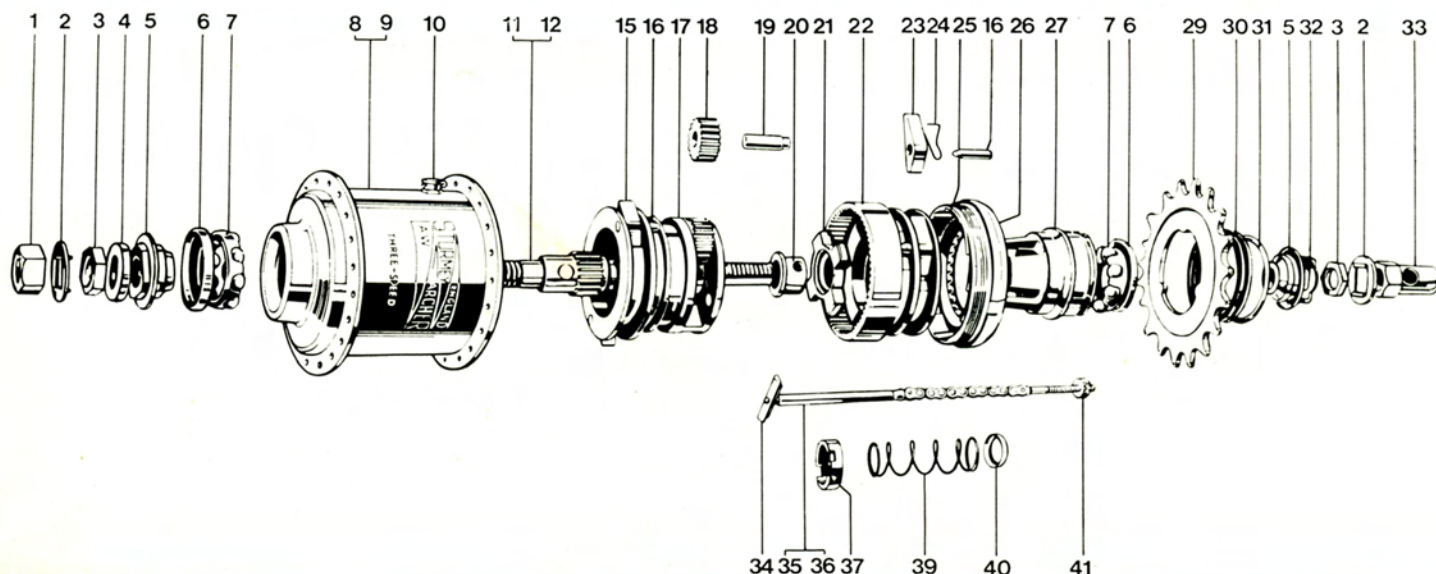


Photo No.	Sales No.	Description
1	HMN 128	L.H. Axle Nut
2	HMW 145	Axle Lock Washer
3	HMN 132	Lock Nut
4	HMW 129	Axle Washer, $\frac{1}{8}$ " (3.2 m.m.) thick
5	HSA 101	Cone with Dust Cap
6	HSA 102	Outer Dust Cap
7	HSA 103	Ball Cage (with Ball Bearings)
8	HSA 104	Shell - 40 hole - and Ball Cup Combined
9	HSA 105	Shell - 36 hole - and Ball Cup Combined
10	HSA 106	Lubricator (Plastic)
11	HSA 107	Axle - $5\frac{3}{4}$ " (146 m.m.)
12	HSA 108	Axle - $6\frac{1}{4}$ " (159 m.m.)
15	HSA 111	Low Gear Pawl
16	HSA 112	Pawl Pin
17	HSA 113	Planet Cage
18	HSA 115	Planet Pinion
19	HSA 114	Pinion Pin
20	HSA 116	Clutch Sleeve
21	HSA 117	Clutch
22	HSA 118	Gear Ring

Photo No.	Sales No.	Description
23	HSA 119	Gear Ring Pawl
24	HSA 120	Pawl Spring
25	HSA 121	R.H. Ball Ring
26	HSA 122	Inner Dust Cap
27	HSA 123	Driver
29	HSL 716/ HSL 720 HSL 722	Sprocket, 16-20 plus 22T
30	HMW 127	
31	HSL 721	Sprocket Spacing Washer (2 off)
32	HMW 147	Sprocket Circlip
33	HMN 129	Cone Lockwasher
34	HSA 124	R.H. Axle Nut
35	HSA 125	Axle Key
36	HSA 126	Indicator Coupling - $5\frac{3}{4}$ " (146 m.m.) Axle
37	HSA 127	Indicator Coupling - $6\frac{1}{4}$ " (159 m.m.) Axle
39	HSA 128	Thrust Ring
40	HSA 129	Clutch Spring
41	HMN 134	Clutch Spring Cap
		Indicator Coupling Connection Lock Nut

TO DISMANTLE THE AW HUB. (See exploded view)

1. Remove *left-hand* locknuts 1 and 3, washers 2 and 4 and cone 5.
2. Unscrew right-hand ball ring 25 from hub shell 9 (use hammer and punch) and withdraw gear unit.
3. Detach the low gear pawls 15, pins 16 and springs 24. Take off the right-hand locknut 3, washers 32, 2 and cone 5.
4. Lift off clutch spring cap 40, and spring 39, driver 27, ball ring 25, and gear ring 22.
5. Detach gear ring pawls 23, pins 16 and springs 24.
6. Remove thrust ring 37, unscrew indicator rod 36.
7. Push out axle key 34, take off sliding clutch 21 and sleeve 20.
8. Lift off planet cage 17, remove planet pinions 18 and pins 19.

POINTS TO CHECK.

1. Freedom of clutch in driver. This should slide up and down easily.
2. Axle between centres for straightness.
3. All gear teeth for wear or chipping.
4. All races for wear (6 in all).
5. Pinion pins, sliding clutch and gear ring dogs for rounding off on engagement points.
6. Pawls and pawl ratchets for wear.

TO ASSEMBLE THE AW HUB.

1. Hold axle 11 in a vice (slot for axle key above the sun pinion) fit the planet cage 17.
2. Add the planet pinions and pins 18 and 19.
3. Fit sleeve 20, clutch 21, axle key 34, and screw in the indicator rod 36.
4. Locate thrust ring 37 over axle key 34.
5. Place pawls 23, pins 16 and springs 24 into gear ring 22, See Fig. 'A', and fit this over planet cage 17.
6. Position the right-hand ball ring 25 over gear ring 22.
7. Add the driver 27 complete with fittings. See Fig. 'B'.
8. Slide clutch spring 39 and cap 40 over the axle.
9. Screw up the right-hand cone 5 finger-tight. Then slacken it *half a turn* and lock in that position with lock washer 32 and locknut 3.
NOTE. Cone *must not* be unscrewed more than half a turn as that would throw the gear mechanism out of adjustment.
10. Fit the planet cage pawls 15, pins and springs 23 and 24. See Diagram 'C'.
11. Screw the gear unit into the hub shell and tighten ball ring 25.
12. Screw on left-hand cone 5, and add washers 4 and 2 and locknut 3 and adjust the hub bearings.

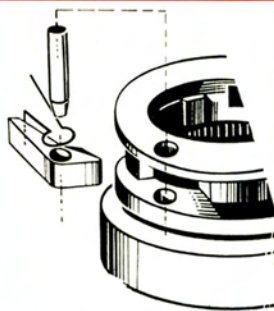


Fig. A

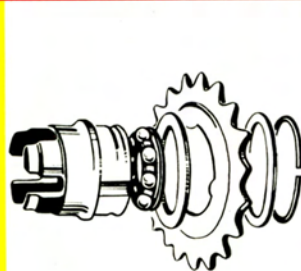


Fig. B

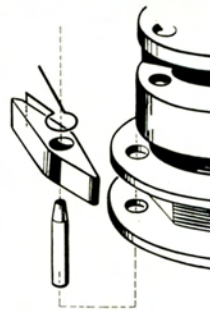


Fig. C

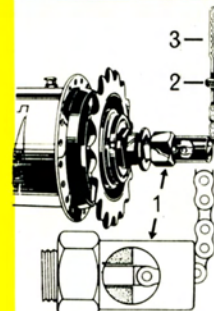


Fig. D

GEAR ADJUSTMENT. See Fig. 'D'.

Place the gear control in No. 2 position. Screw the cable connection (3) until the end of the indicator rod is exactly level with the *extreme end* of the axle. This can be seen through 'window' in the right-hand nut (see 1). Now tighten locknut (2).

ALL GEARS ARE NOW SET.

BEARING ADJUSTMENT.

Right side cone adjustment. Screw cone down finger-tight, then slacken half a turn and lock in this position. **NOTE.** Turning it back more than this will affect the gear engagement.

On the left side loosen locknut and adjust the cone suitably then retighten locknut. A correctly adjusted wheel has a trace of side play at the rim.

GEAR CORRECTION GUIDE (AW GEAR).

NOTE. The major cause of trouble is faulty gear adjustment. Check to see that the end of the indicator rod is level with end of axle when gear control is in No. 2 position. If the complaint is sluggish gear change or stiffness this may point to lack of oil.

SYMPTOM	FAULT	REMEDY
Slipping in low gear (1).	1. Sliding clutch worn. 2. Indicator not screwed in fully. 3. R.H. cone wrongly adjusted. 4. Kinks in control wire. 5. Twisted indicator chain.	1. Replace. 2. Re-adjust. 3. Re-adjust. 4. Replace. 5. Replace
Self-changing gear action between 1st gear and 2nd gear.	1. Worn gear ring pawls.	1. Replace.
Slipping in normal gear (2nd).	1. Gear ring dogs and/or clutch worn.	1. Replace.
Slipping in top gear (3).	1. Pinion pins and/or clutch worn. 2. Weak or distorted axle spring. 3. Incorrect R.H. cone adjustment. 4. Grit between clutch sleeve and axle.	1. Replace. 2. Fit new spring. 3. Re-adjust. 4. Clean.
Hub runs stiffly. Drag on pedals.	1. Too many balls in ball-ring. 2. Cones too tight. 3. Chainstay ends not parallel. 4. Corrosion. 5. Distorted dust caps.	1. Fit 24 only. 2. Re-adjust. 3. Correct. 4. Clean and use S.A. oil. 5. Replace.
Sluggish gear change.	1. Distorted axle spring. 2. Bent axle. 3. Worn indicator chain link. 4. Lack of oil, or frayed wire.	1. Replace. 2. Replace. 3. Replace. 4. Oil or replace.

GENERAL NOTES

1 GEAR RATIOS:—

The AW hub provides three gears – (1) Low Gear – decrease of 25%. (2) Normal Gear, i.e. direct drive. (3) High Gear – increase of $33\frac{1}{3}\%$.

2 SPROCKETS:—

A range of sprockets from 16T to 20T, and also 22T, is available for this hub.

3 LUBRICATION:—

A NEW HUB MUST BE OILED BEFORE USE through the lubricator on the hub shell. Afterwards add a few drops of oil every fortnight. USE ONLY STURMEY-ARCHER OIL – DO NOT use thick oil or grease.

- 4 It is important that the axle should be prevented from rotating in the chainstay slots and the flats on the axle are provided for this purpose. If the chainstay ends are too wide for the axle, special lock washers are supplied.

