



**Technical Information  
and Parts List**

**Eight Speed Hub  
Type XRF8**



### Part 1 GENERAL INFORMATION

#### 1.1 Scope of This Leaflet

Congratulations on your purchase of a Sturmey-Archer internal gear hub. For the best performance, please follow instructions in this leaflet. Please contact your local Sturmey-Archer dealer if any problems are experienced with the product.

#### 1.2 Lubrication

No routine lubrication is required. During a major service, the hub greases should be replenished or replaced especially for transmitted parts of internal hub. Please contact your Sturmey-Archer dealer who is equipped to carry this out.

**△ Under no circumstances should any lubricant be applied to the brake drum and brake shoes, as this may prevent the brake from functioning.**

#### 1.3 Gear Changing

Stop pedal and select the gear required, then go on pedaling. If the bicycle is stationary simply select gear required.

#### 1.4 Gear Ratio

Sturmey-Archer 8-speed hub gears have the following ratios:

1 <sup>st</sup> gear	1.0	2 <sup>nd</sup> gear	1.28
3 <sup>rd</sup> gear	1.45	4 <sup>th</sup> gear	1.64
5 <sup>th</sup> gear	1.86	6 <sup>th</sup> gear	2.10
7 <sup>th</sup> gear	2.38	8 <sup>th</sup> gear	3.05

#### 1.5 Brake Operation

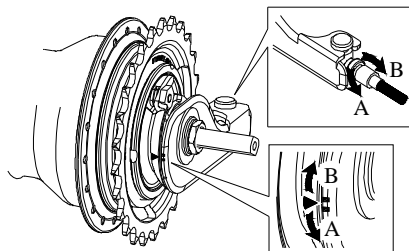
To activate the drum brake, pull the appropriate brake lever on the handlebar. If the wheel does not run free, or cannot be locked by a full application of the brake, then adjustment is necessary (See section 2).

### Part 2 ROUTINE MAINTENANCE

When service problems arise they usually occur outside the hub, and the following checks must be made before removing the wheel from the bicycle:

#### 2.1 Gear Adjustment

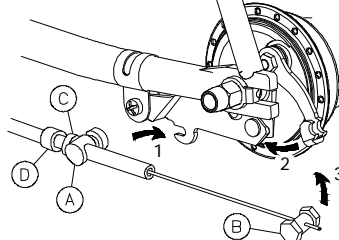
1. Select 4<sup>th</sup> gear on the shifter.
2. Turn the cable-adjusting screw until the yellow arrow on the pulley is aligned within the yellow indicator of the fulcrum lever. Tighten the cable-adjusting locknut to locate the gear changing system.
3. Select 1<sup>st</sup> gear, rotate the pedal crank, change back to 4<sup>th</sup> gear and check the gear adjustment.
4. Retry the stages description above when the gear changing is not correct.



**▲ WARNING:** The hub must not be ridden out of adjustment as this may damage the internal parts and cause the hub to malfunction.

#### 2.2 Drum Brake Adjustment

1. Slacken the brake adjuster locknut (C).
2. Turn the adjuster (D) counter clockwise until the brake is applied.
3. Rotate the adjuster (D) clockwise (about four revolutions) until the wheel just spins freely.
4. Tighten the locknut (C).



**△ The brake adjustment must be checked or replaced if necessary before first using the bicycle, and after removing or replacing the wheel.**

Notice: During the first few miles brake linings “bed-in” and may require re-adjustment. Should braking efficiency become impaired beyond adjustment, brake shoes or linings may need replacement. Contact your Sturmey-Archer dealer who is equipped to replace these.

### Part 3 ASSEMBLY/DISASSEMBLY INSTRUCTIONS

When service problems occur which cannot be corrected by attention to external maintenance, a close inspection of the working parts inside the hub will be necessary.

#### 3.1 Disassembly

1. Remove the C-clip, washer, fulcrum lever, sprocket circlip and sprocket.

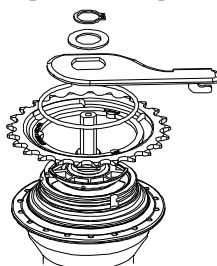


Fig 1

2. Unscrew the left hand cone locknut. Remove the cone.

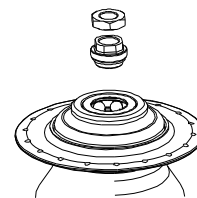


Fig 2

3. Unscrew the fulcrum lever base locknut. Remove the fulcrum lever base, dust cap and cable pulley.

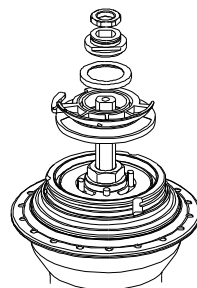


Fig 3

4. Unscrew the cone locknut, and then remove the cone anchor, cone and shift actuator.

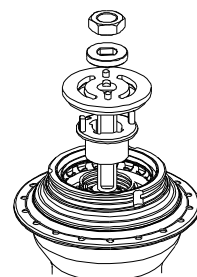


Fig 4

5. Remove the driver and spring.

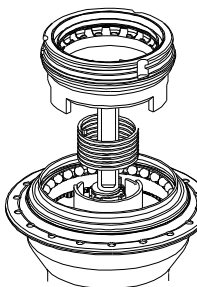
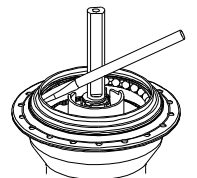


Fig 5

6. Using a small screwdriver to take off the plastic dust cap and ball cage.



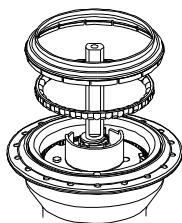


Fig 6

7. Loosen the ball ring counterclockwise with a ball ring spanner.

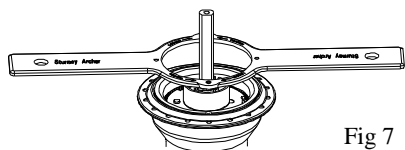


Fig 7

8. Unscrew the ball ring to release the internal assembly from the hub.

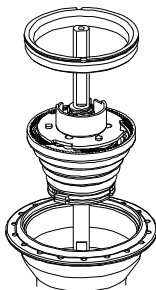


Fig 8

9. Using a circlip pliers remove circlip and discard. Remove the gear units and axle assembly.

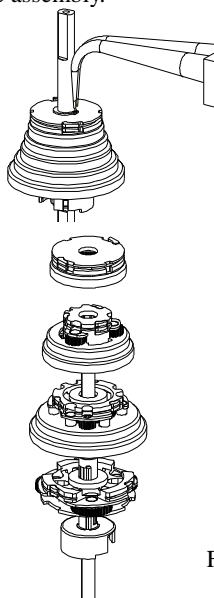


Fig 9

10. Using a circlip pliers remove circlip and discard. Remove the cams and pawls.

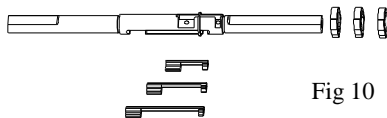


Fig 10

### 3.2 Inspection of the Internal Parts

Thoroughly clean all the internal parts, and replace any which are damaged or worn. In particular, check the following:

1. Check the axle for straightness and the axle slots and threads for damage.
2. Examine all gear teeth for signs of wear and chipping.
3. Check all bearing surfaces for wear and pitting.
4. Check all gear assembly units are riveted firmly.
5. Check the pawls and ratchets for signs of wear. Always fit new pawl springs on re-assembly.

### 3.3 Assembly

**NB** The hub greases must be replenished during assembly using lubricants to the following Sturmey-Archer Technical Standards.

For Bearings internal parts-SA103B  
For all other internal parts-SA103A

1. Fit the three pawls into the slots on the axle. Put the three cams on the axle with text outside. Fit a new C-clip.

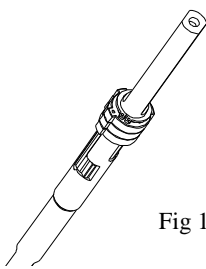


Fig 11

**Note the order of cam A, B, C.**

2. Put the spring base through the left side of the axle and keep the notch align with the short pawl.

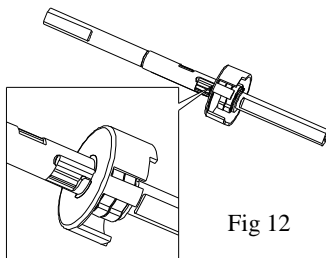


Fig 12

3. Insert the gear assembly units onto the axle assembly in order and fit a new C-clip. (Fig.9)
4. Put the internal assembly into the hub shell and tighten the ball ring to a

torque of 40Nm. (Fig.8 and Fig.7)

5. Place the ball cage assembly on the ball ring ensuring that the balls are positioned downwards. Fit the plastic dust cap on the ball cage assembly. (Fig.6)
6. Put the spring and ensure the leg inserts into the bigger notch of the spring base.

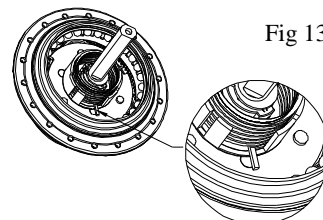


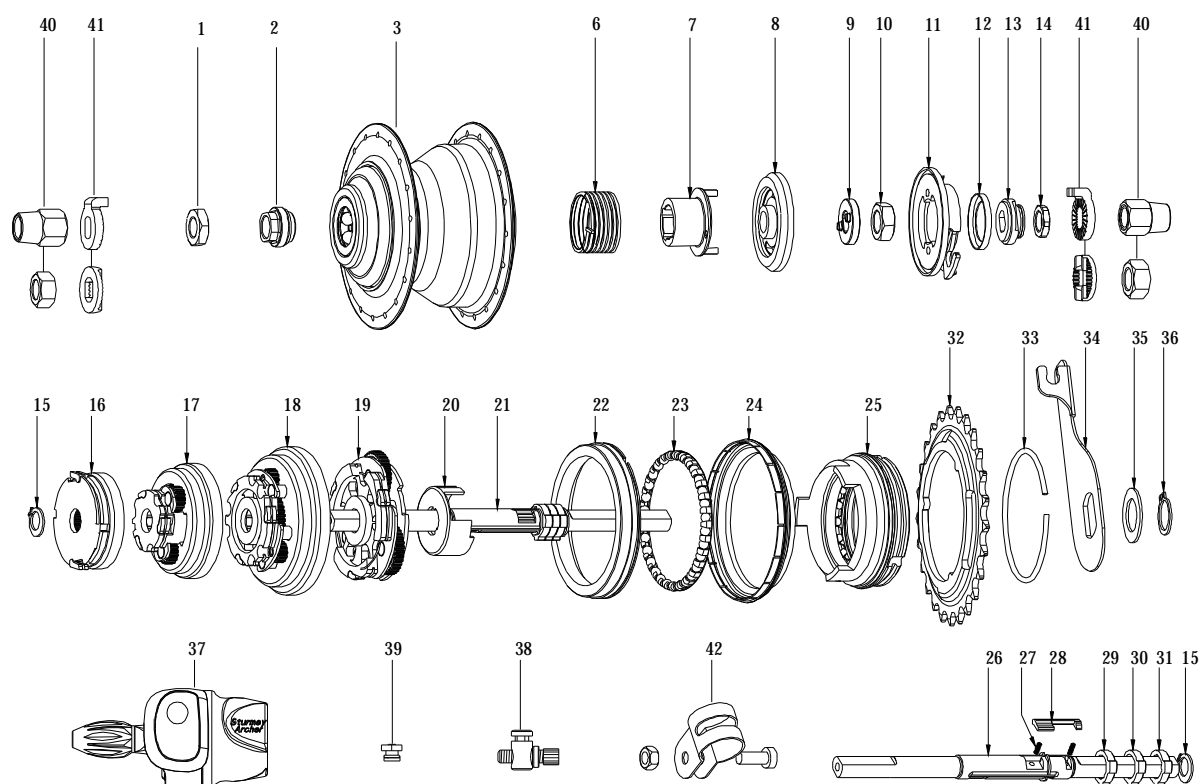
Fig 13

7. Fit the driver and ensure that the three protrusions on the driver engage with the first gear unit. (Fig 5)
8. Fit the shift actuator such that its central splines engage with the three cams.
9. Fit the cone ensuring that the two columns of the shift actuator are through the two slots of the cone. Turn the cone clockwise until two spots are parallel with the milling surface of the axle. Locate the cone anchor and screw the cone locknut. (Fig 4)
10. Fit the cable pulley such that the two columns of shift actuator insert the two holes of the cable pulley. (Fig 3)
11. Locate the dust cap, fulcrum lever base, and then screw down the fulcrum lever base locknut. (Fig 3)
12. Fit left hand cone. Fit cone locknut. (Fig.2)
13. Adjust left hand cone until minimum play is felt at the wheel rim, ensuring hub runs free. Tighten locknut.
14. Fit the sprocket, circlip, fulcrum lever, washer, and a new C-clip.

**NB** Under no circumstances must the cone be unscrewed by more than 5/8 of a turn as this could adversely affect the gear alignment.



## Part List – XRF8 Eight Speed Hub



Item No.	Sales No.	Description	Item No.	Sales No.	Description	Item No.	Sales No.	Description
1	HMN405	4.8 Nut	21	HSA644	Axle Assembly	35	HMW520	Washer
2		L.H. Cone	22	HSA632	Ball Ring	36	HSL789	C Type Clip
3	HSB429	X-RF8 Hub Shell Assembly	23	HSA633	Ball Cage Assembly	37	HSJ911	TSS80 Shifter
6	HSA622	Spring	24	HSL875	Outer Dust Cap	38	HSL801	Cable Adjuster Assembly
7	HSA623	Gear Change	25	HSA634	Drive Assembly	39	HSL802	Cable Anchor Unit
8	HSA624	8 Speed RH Cone	26	HSA635	Axle	40	HMN128	Axle Nut
9	HMW525	Cone Lockwasher	27	HSA636	Axle Pawl Spring		HMN388	Dome Nut New - SA logo
10	HMN407	6.4 Nut	28	HSA637	Control Pawl For Short	41	HMW518	Lockwasher 4.0t - 9.5mm Slot
11	HSJ933	Gear Selector Pulley(Make 0)		HSA638	Control Pawl For Middle		HMW515	Lockwasher 1.8t - 9.5mm Slot
	HSJ934	Gear Selector Pulley(Make 1)		HSA639	Control Pawl For Long		HMW494	Serrated Lockwasher – 9.5mm Slot
	HSJ935	Gear Selector Pulley(Make 2)	29	HSA640	Cam A	42	HCB101	Brake Arm Clip – 15.9mm w/2 screws
	HSJ936	Gear Selector Pulley(Make 3)	30	HSA641	Cam B		HSL767	Brake Arm Clip – 15.5mm
12	HSA625	Dust Cap	31	HSA642	Cam C		HSL768	Brake Arm Clip – 15.9mm
13	HSA626	Fulcrum Lever Cage	32	HSL822	Sprocket 1/8" 25T		HSL769	Brake Arm Clip – 22.0mm
14	HMN382	3.2 Nut		HSL821	Sprocket 1/8" 23T		HSL791	Brake Arm Clip – 17.0mm w/2 screws
15	HSL729	C Type Clip		HSL867	Sprocket 3/32" 25T		HSL761	Brake Arm Clip – 19.1mm w/2 screws
16	HSA627	60T Gear Ring Assembly		HSL868	Sprocket 3/32" 23T			
17	HSA628	73T Gear Ring Assembly		HSL873	Sprocket 3/32" 19T			
18	HSA629	96T Gear Ring Assembly	33	HSL788	Sprocket Circlip			
19	HSA630	Module Planet Cage Assembly	34	HSL910	Fulcrum Lever (Standard Fork End)			
20	HSA631	Spring Cage		HSL938	Fulcrum Lever (Reversed Fork End)			

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