

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

1.5 Brake Operation

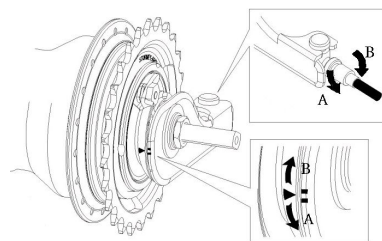
To activate the drum brake, pull the appropriate brake lever on the handlebar. If the wheel does not run free, or cannot be locked by a full application of the brake, then adjustment is necessary (See section 2).

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

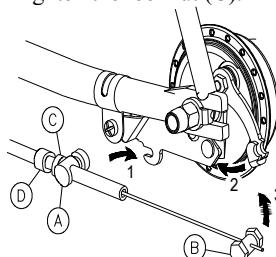
1. Select 4th gear on the shifter.
2. Turn the cable-adjusting screw until the yellow arrow on the pulley is aligned within the yellow indicator of the fulcrum lever. Tighten the cable-adjusting locknut to locate the gear changing system.
3. Select 1st gear, rotate the pedal crank, change back to 4th 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.

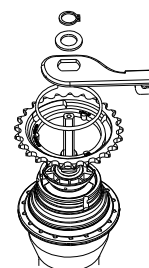


Fig 1

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

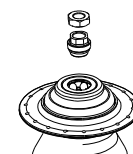


Fig 2

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

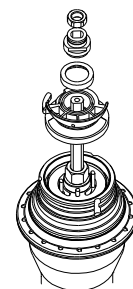


Fig 3

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



Fig 4

5. Remove the driver and spring.

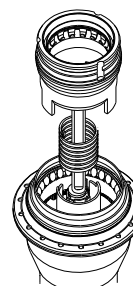


Fig 5

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

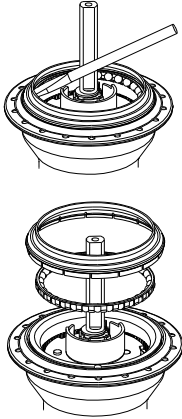


Fig 6

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

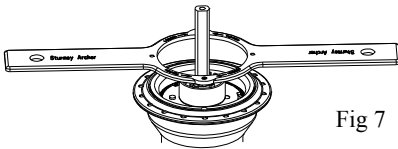


Fig 7

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.

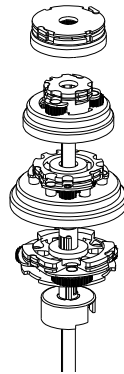
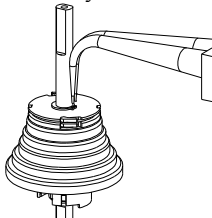


Fig 9

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

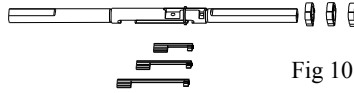


Fig 10

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.

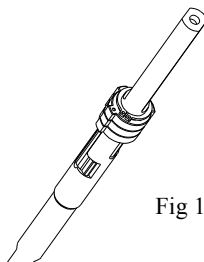


Fig 11

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.

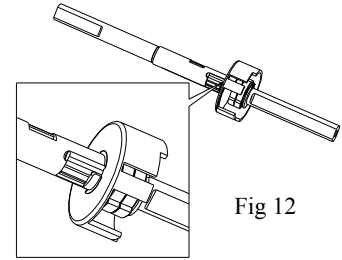


Fig 12

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.

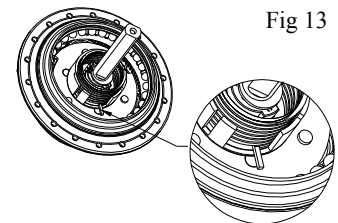


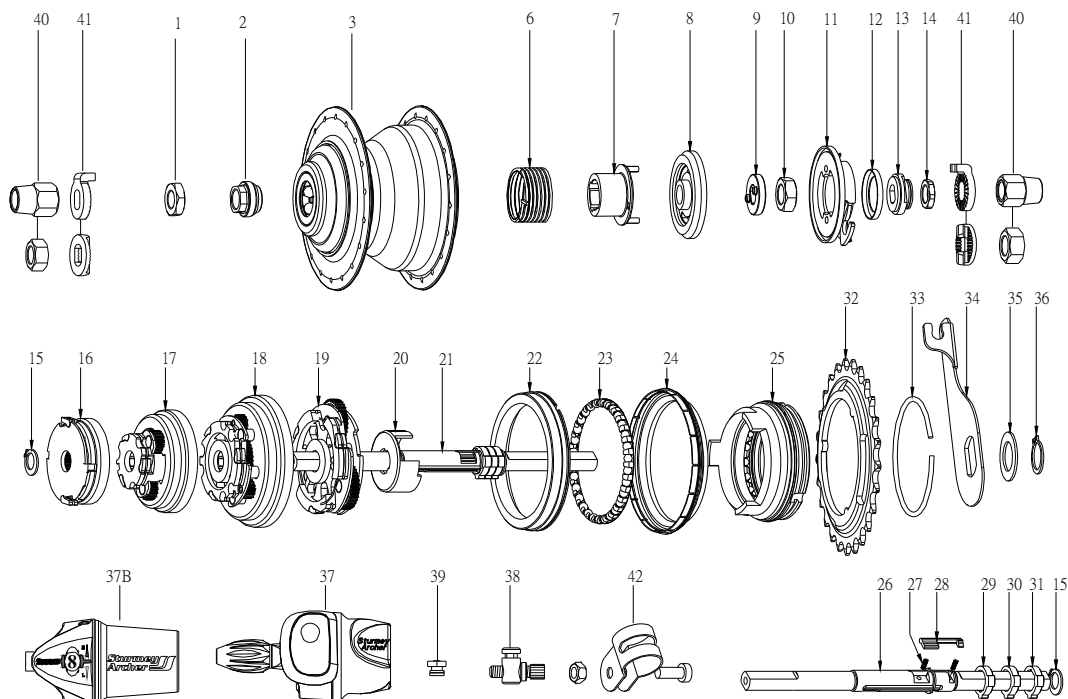
Fig 13

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 counterclockwise 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.



Technical Information – XRF8 Eight Speed Hub

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.



Item No.	Sales No.	Description	Item No.	Sales No.	Description	Item No.	Sales No.	Description
1	HMN 405	4.8 Nut	21	HSA 644	Axle Assembly	35	HMW 520	Washer
2		L.H. Cone	22	HSA 632	Ball Ring	36	HSL 789	C Type Clip
3	HSB 429	X-RF8 Hub Shell Assembly	23	HSA 633	Ball Cage Assembly	37	HSJ 911	TSS80 Shifter
6	HAS 622	Spring	24	HSL 875	Outer Dust Cap	37B	HSJ 949	TSS81 Shifter
7	HAS 623	Gear Change	25	HSA 634	Drive Assembly	38	HSL 801	Cable Adjuster Assembly
8	HAS 624	8 Speed RH Cone	26	HSA 635	Axle	39	HSL 802	Cable Anchor Unit
9	HMW 525	Cone Anchor	27	HSA 636	Axle Pawl Spring	40	HMN 128	Axle Nut
10	HMN 407	6.4 Nut	28	HSA 637	Control Pawl For Short	HMN 388		Dome Nut New - SA logo
11	HSJ 933	Gear Selector Pulley (Make 0)		HSA 638	Control Pawl For Middle	41	HMW 518	Lockwasher 4.0t - 9.5mm Slot
	HSJ 934	Gear Selector Pulley (Make 1)		HSA 639	Control Pawl For Long	HMW 515		Lockwasher 1.8t - 9.5mm Slot
	HSJ 935	Gear Selector Pulley (Make 2)	29	HSA 640	Cam A	HMW 494		Serrated Lockwasher – 9.5mm Slot
	HSJ 936	Gear Selector Pulley (Make 3)	30	HSA 641	Cam B	42	HCB 101	Brake Arm Clip – 15.9mm w/2 screws
12	HSA 625	Dust Cap	31	HSA 642	Cam C	HSL 767		Brake Arm Clip – 15.5mm
13	HSA 626	Fulcrum Lever Cage	32	HSL 822	Sprocket 1/8" 25T	HSL 768		Brake Arm Clip – 15.9mm
14	HMN 382	3.2 Nut		HSL 821	Sprocket 1/8" 23T	HSL 769		Brake Arm Clip – 22.0mm
15	HSL 729	C Type Clip		HSL 867	Sprocket 3/32" 25T	HSL 791		Brake Arm Clip – 17.0mm w/2 screws
16	HSA 627	60T Gear Ring Assembly		HSL 868	Sprocket 3/32" 23T	HSL 761		Brake Arm Clip – 19.1mm w/2 screws
17	HSA 628	73T Gear Ring Assembly		HSL 873	Sprocket 3/32" 19T			
18	HSA 629	96T Gear Ring Assembly	33	HSL 788	Sprocket Circlip			
19	HSA 630	Module Planet Cage Assembly	34	HSL 910	Fulcrum Lever (Standard Fork End)			
20	HSA 631	Spring Cage		HSL 938	Fulcrum Lever (Reversed Fork End)			

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