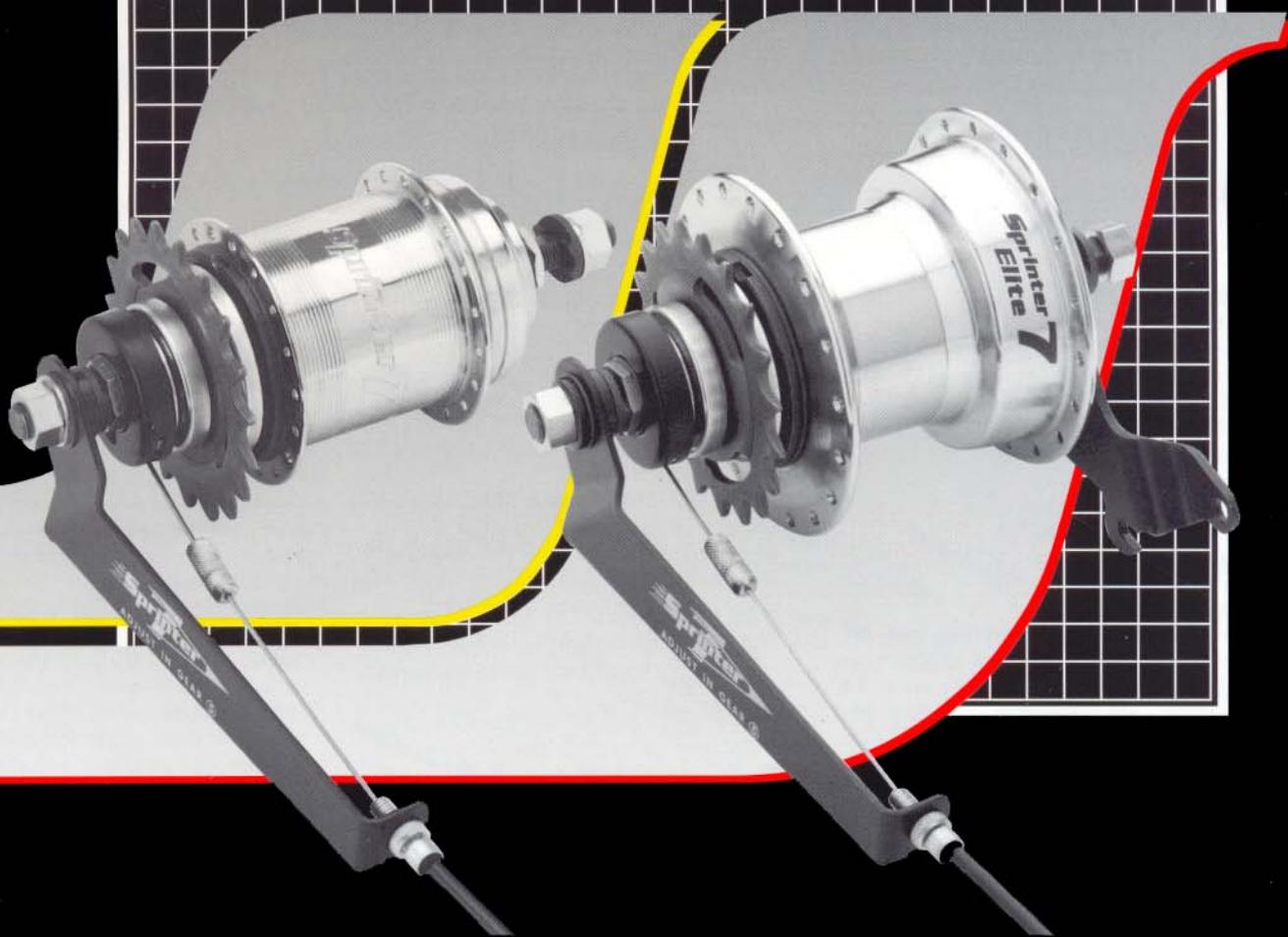


S Sturmey Archer

Technical Information
and Parts List

Sprinter 7 & Sprinter 7 Elite
Seven Speed Brake Hub



Part 1 GENERAL INFORMATION

1.1 SCOPE OF THIS LEAFLET

Congratulations upon your purchase of a Sturmey-Archer SPRINTER 7-SPEED HUB. To enjoy this hub at its best please follow these few simple instructions. Remember, during the first few miles the cable system will "bed-in", which may necessitate adjustment to ensure the hub is working to its maximum potential and to prevent possible hub damage (See Part 2.).

This leaflet refers to the SPRINTER 7 and SPRINTER 7 ELITE, two of the SPRINTER family of 7-SPEED HUB GEARS. The SPRINTER ELITE has a combined 70mm diameter DRUM BRAKE for safe progressive braking. Please contact your local approved dealer if any problems are experienced with these products.

NB. These hubs are not designed to be used with dropout angles in excess of 25°.

1.2 LUBRICATION

No routine lubrication is required. During a major service the greases should be replenished to prolong the life of the gearbox. Please contact your approved dealer who is equipped to carry this out.

The following types of greases meeting Sturmey-Archer Technical Standards should be used.

For Bearings - SA103B

For Internal Parts - SA103A

WARNING:- UNDER NO CIRCUMSTANCES SHOULD ANY LUBRICANT BE APPLIED TO THE BRAKE DRUM OR BRAKE SHOE, AS THIS MAY PREVENT THE BRAKE FROM FUNCTIONING.

Part 2 GEARS

2.1 GEAR CHANGING

Ease pedal backwards and select the gear required.

2.2 GEAR RATIOS

The Sturmey-Archer SPRINTER 7 range has the following ratios:-

Distance travelled in metres (44T c/w. 22T Sprocket, 27" Wheel) with one revolution of the pedal.

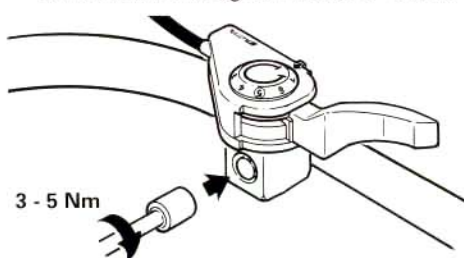
- 1st Gear - 2.88 metres
- 2nd Gear - 3.20 metres
- 3rd Gear - 3.80 metres
- 4th Gear - 4.50 metres
- 5th Gear - 5.60 metres
- 6th Gear - 6.50 metres
- 7th Gear - 7.50 metres

The overall distance travelled can be altered by changing the size of the rear sprocket. A range of sprockets from 14 to 22 tooth are available suitable for 1/2" pitch x 1/8" chain. Always maintain at least a 2:1 ratio between the numbers of teeth on the chainwheel and those of the sprocket.

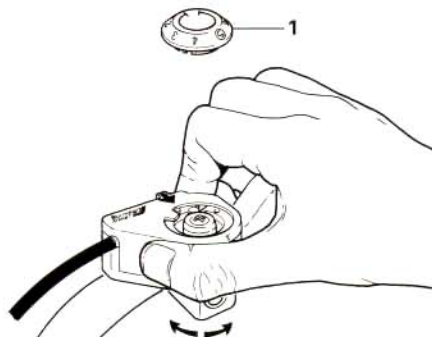
2.3 SPRINTER CONTROL FITMENT

1. Fit control set in 1st gear onto RH side

of handlebar and tighten bolt to 3 - 5 Nm.



2. The control orientation can be altered to suit individual needs by removing the plastic screw cover (1) at the control centre and loosening the cross head screw. Rotate the control to the desired position before tightening the screw and replacing the cover. The control can be positioned either in front of or behind the handlebar.



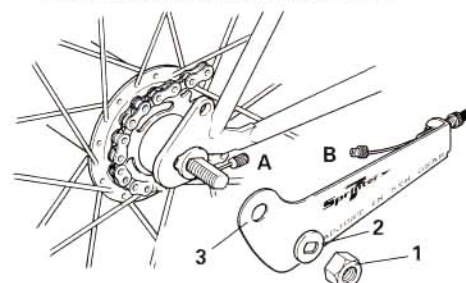
3. Run cable, as diagram, along frame and secure with clips/ties. Do not fasten too tight - the outer cable should be retained but not clamped. Smallest possible cable bend 100mm radius. Fit fulcrum lever to cable by screwing adjuster into fulcrum. To fit the fulcrum lever see Part 4.3. Adjust the gears as in Part 3.



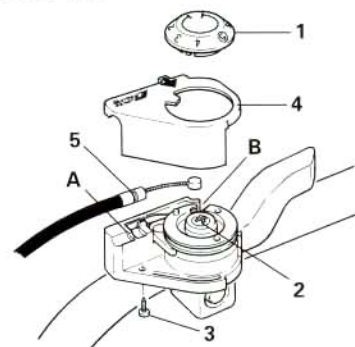
2.4 GEAR CONTROL CABLE REPLACEMENT

To remove cable:

1. Remove axle nut (1) from axle along with axle washer (2) and fulcrum lever (3). Disconnect cable connectors A & B.

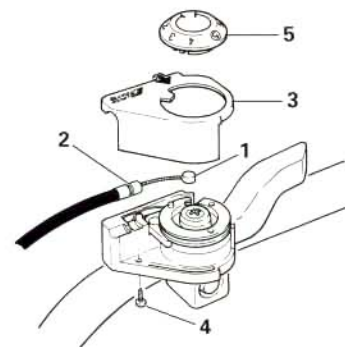


2. Remove cable from frame.
3. Select 1st gear.
4. Remove control orientation screw cover (1), but do not loosen the control orientation screw (2). Undo the small cross head screw (3) on underside of control and lift off plastic panel (4) from the top of the control. Remove outer cable (5) from recess (A) and then remove inner cable nipple from control pulley (B).



2.5 TO FIT NEW CABLES:

1. Select 1st Gear.
2. Expose inner cable.
3. Engage inner cable nipple (1) into the nipple recess in the control pulley then engage the outer cable (2) in the cable recess. Replace the top panel (3) and secure with screw (4) then replace control orientation screw cover (5).



NOTE:- In the event of damage to the control the whole unit should be replaced.

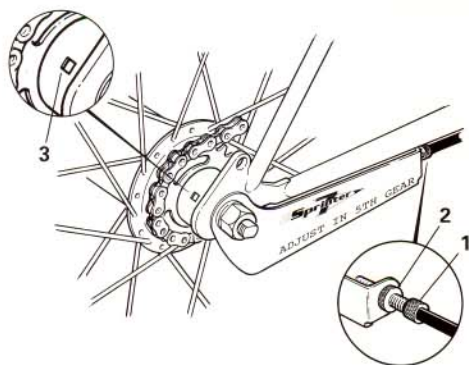
4. To complete installation of the new cable repeat point 3 in Part 2.3 ensuring cable connectors are securely tightened.

Part 3 ADJUSTMENT

3.1 GEAR ADJUSTMENT

All types of cycle gear systems must not be ridden out of adjustment as this may damage the internal components and cause the gear to malfunction.

1. Select 5th gear and rotate the pedals. Turn the cable adjuster (1), until the white mark is in full view through the adjustment window (3). Rotate pedals and select all gears. Move the control to 4th gear then select 5th gear, rotate the pedals and re-check adjustment. If the white mark is central within the window, adjustment is correct and the adjuster can be locked in place with the adjuster locknut (2). If not, repeat the procedure.

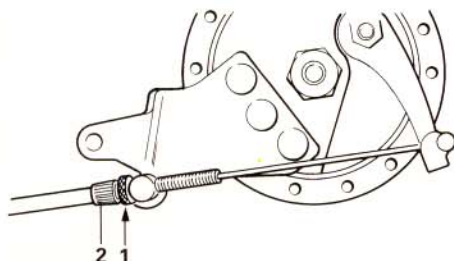


3.2 SPRINTER 7 ELITE BRAKE ADJUSTMENT

If the wheel will not rotate freely or cannot be locked by a full application of the lever then adjustment is necessary.

1. Slacken the brake adjuster locknut (1). Turn the adjuster (2) until the brake is applied. Rotate the adjuster until the wheel just spins freely. Tighten the locknut.

NB: During the first few miles brake linings "bed-in" and may require adjustment. Should braking efficiency become impaired beyond adjustment, contact your local approved dealer who is equipped to replace the brake plate and shoe assembly.

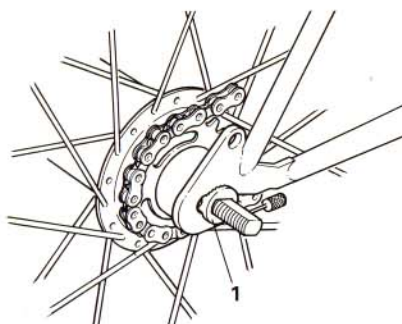


Part 4 WHEEL FITTING

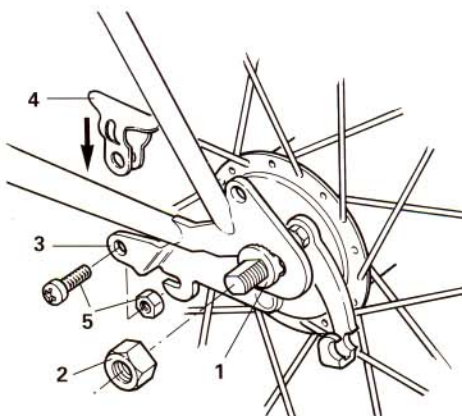
SPRINTER-7 ELITE

The SPRINTER-7 ELITE Hub has a 135mm overlocknut dimension.

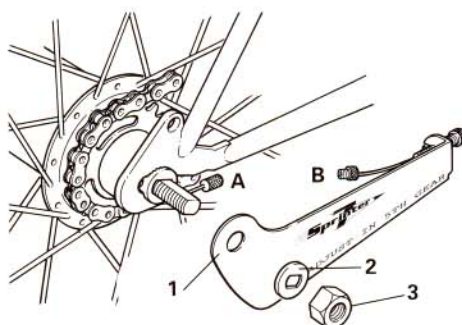
1. Fit the wheel - with chain tensioners, if fitted - into the bicycle frame and place the chain around the sprocket. Locate the anti-rotation washers (1) over both ends of the axle ensuring the lugs fit into the chainstay ends. Sturmey-Archer manufactures two sizes of anti-rotation washer (7.9mm and 9.5mm): ensure the correct one is fitted.



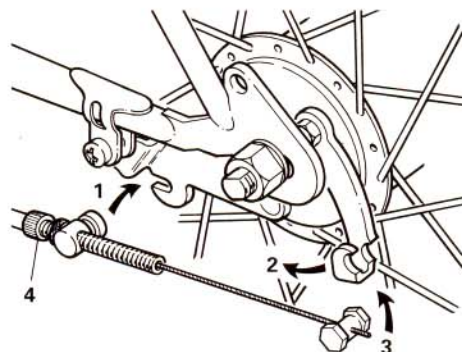
2. Fit LH axle nut (2) finger tight, and loosely fit brake arm (3) into brake arm clip (4) with nut & bolt (5). Do not tighten at this point.



3. Select gear position 1 on control and then join cable connectors A & B securely. Locate the fulcrum lever (1) over the axle. Fit the washer (2) and axle nut (3). Align the wheel, tension chain and tighten the axle nuts to 30Nm ensuring the fulcrum lever is parallel to the chainstay. Tighten the nut securing the brake arm clip to 7Nm.



4. After fitment of the brake cable to frame: -
 - a. Locate the brake cable adjuster into brake arm (1).
 - b. Rotate the brake lever (2).
 - c. Locate brake cable nipple (3) into the brake lever.
 - d. Adjust brake by rotating the adjuster (4).



5. Replace chainguard/gear case (if fitted) in accordance with cycle manufacturers instructions.

NB: Before use check and make necessary adjustments to brakes (See Part 3.2) and re-adjust gears (See Part 3.1).

4.6 Sprinter 7 Hub

The overlocknut dimension for this hub is 129mm.

See Section 4

Replace instruction 2 by:

2. Fit LH axle nut finger tight, but do not tighten at this point.

3. "Tighten brake arm to 7Nm" does not apply.
4. Instruction 4 does not apply.

Part 5 SERVICE - DEALER INSTRUCTIONS - ASSEMBLY/DISASSEMBLY

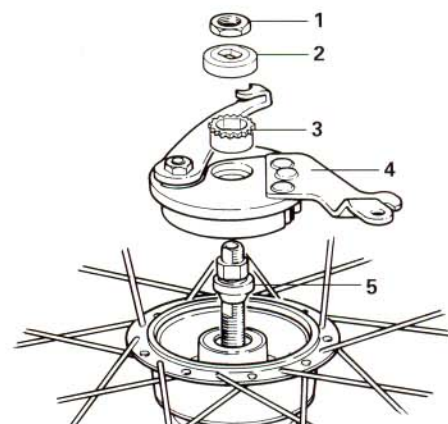
5.1 If service problems arise, they usually occur outside the hub. Check gear adjustment and fitment are correct before removing the wheel from the bicycle.

5.2 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. This should be carried out by a trained bicycle mechanic.

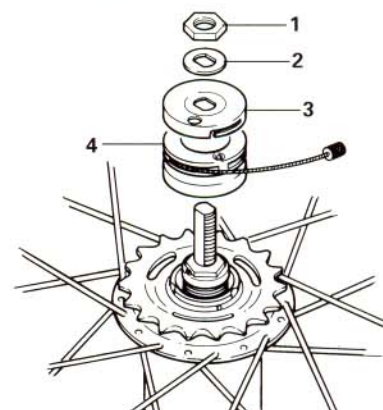
NB: The right hand end of the axle is the sprocket end. The axle should be clamped across the flats taking care not to damage the threads.

5.3 DISASSEMBLY

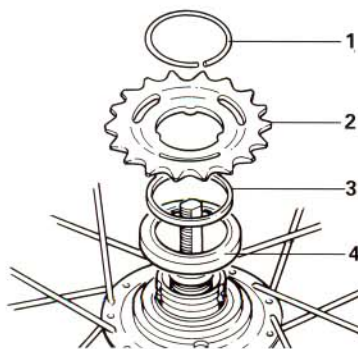
1. Clamp R.H. (sprocket) end of axle in vice. Remove L.H. locknut (1) (cone locking spacer (2), cone adjuster (3) and brake plate (4) - ELITE ONLY) and cone (5).



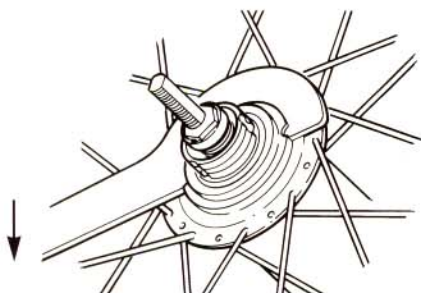
2. Remove hub from vice. Re-clamp L.H. end of axle in vice, remove locknut (1) & washer (2), adjuster cover (3) & cable drum (4).



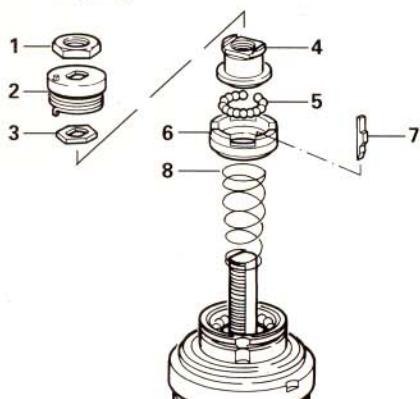
3. Using a small screwdriver, remove the sprocket circlip (1), sprocket (2), spacing washer (3), & dustcover (4). To ensure the chain alignment is maintained, carefully note the order of removal and the dishing of the sprocket.



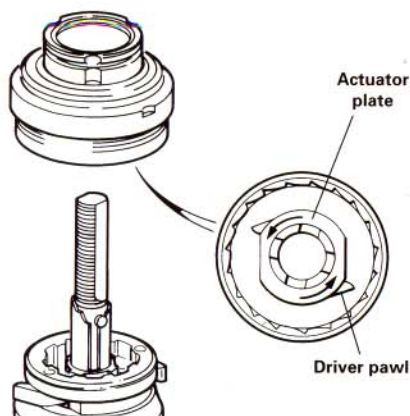
4. Remove from vice and, using a "C" spanner or hammer and punch, unscrew the internal from the hub shell anti clockwise.



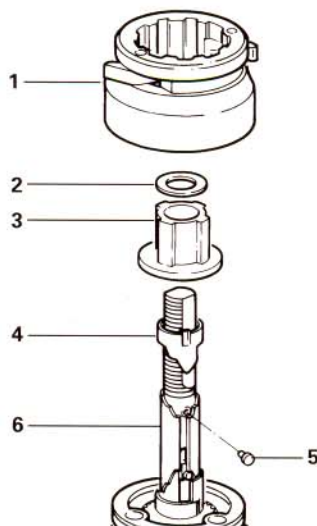
5. Re-clip L.H. end of axle in vice. Remove locknut (1), support cap & torsion spring (2), lockwasher (3). Unscrew the threaded cone (4), remove gearchange cone (6) and ball bearings (5) together, and remove selector key (7) and spring (8).



6. Remove balling & driver assembly. To separate these rotate the actuator plate anti-clockwise to close driver pawls, and remove driver assembly & ballcage from balling.

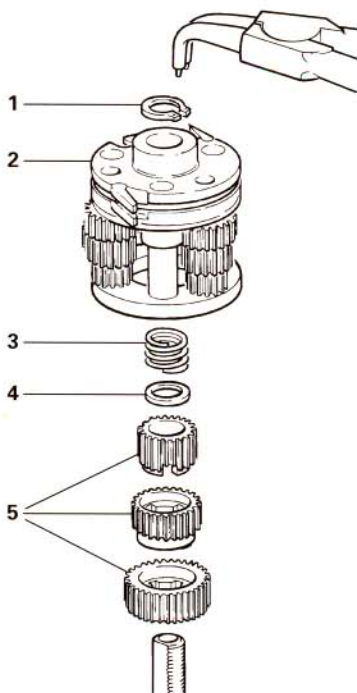


7. Remove gear ring assembly (1), clutch washer (2), & clutch (3). Slide off cam selector (4) and remove pin (5) and inner selector (6).



8. Remove internal from vice.

9. Re-clip R.H. end of axle in vice. Using circlip pliers, remove circlip (1) and discard. Remove planet cage assembly (2), spring (3), washer (4) & sun pinions (5). Note the order for re-assembly.



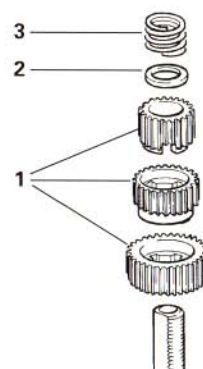
This completes disassembly. Do not attempt to remove the axle key assembly from the axle.

5.4 INSPECTION

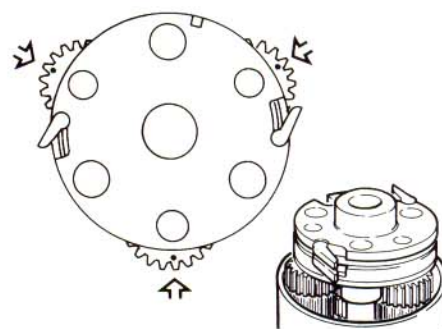
Thoroughly clean all the internal parts and inspect all components for wear or damage. Any worn or damaged components must be replaced.

5.5 ASSEMBLY

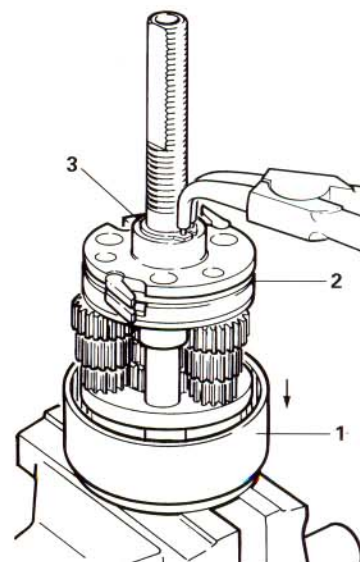
1. Re-clip solid end of axle in vice with circlip groove uppermost. Re-fit sun pinions (1) on axle, as shown in diagram. Fit washer (2) & spring (3) and lubricate.



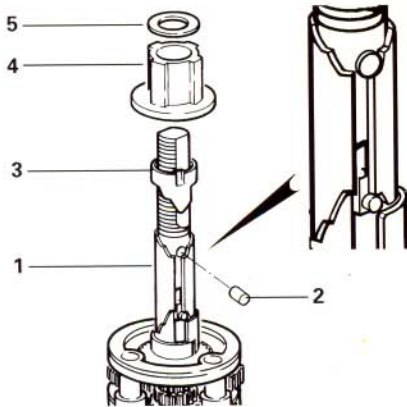
2. Set timing marks on planet pinions. Use the gear ring (1) to hold position when fitting over sun pinions.



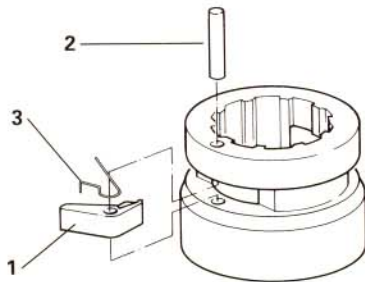
3. Fit planet cage onto axle, ensuring sun pinion teeth are in line. Ensure planet cage is located over all 3 sun pinions. Slide gear ring (1) down onto the vice. Check that the planet cage (2) rotates easily, then, using circlip pliers, fit new circlip (3) (sharp side up) into its groove. Do not overstretch.



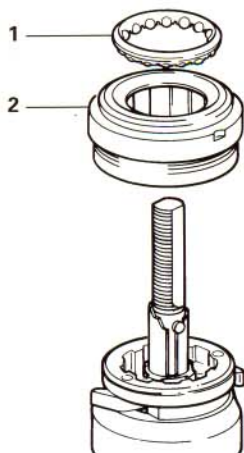
4. Remove internal and loose gear ring from vice. Re-clip L.H. end of axle. Fit inner selector (1) and locate pin (2) in hole, locating selector on pin and key as shown in diagram (this gives gear position 7). Slide on cam selector (3) and locate in groove, slide on clutch (4), ensuring it locates inside the planet cage, and fit washer (5). Ensure clutch slides freely.



5. Take gear ring and fit the pawls (1), pawl pins (2) & springs (3). Lubricate pinions & gear ring teeth and locate gear ring over planet pinions.



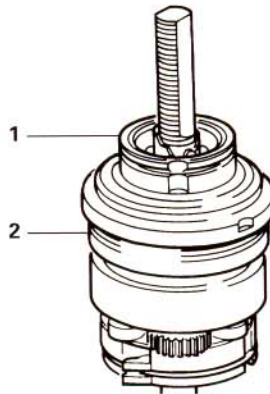
6. Lubricate the ball cage assembly (1). Place the ball cage assembly on the balling (2), ensuring the balls are positioned downwards, and locate over the gear ring assembly.



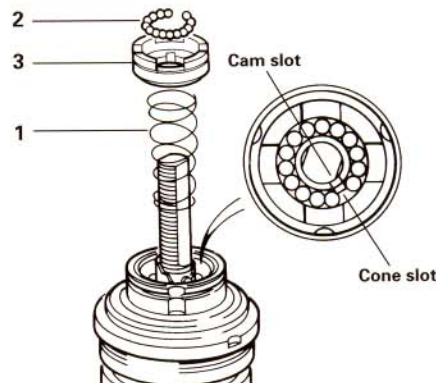
7. Grease and replace the 19 loose ball bearings in the driver. Rotate the actuator plate clockwise to compress the pawls.



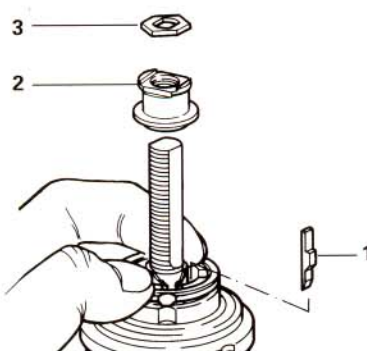
8. With the actuator in this position fit the driver assembly (1) into the ball ring assembly (2).



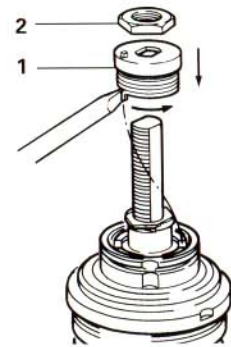
9. Fit conical spring (1) small end down. Grease and replace the 14 ball bearings (2) into cone (3), locate onto spring and line up the slot inside cone with slot in cam.



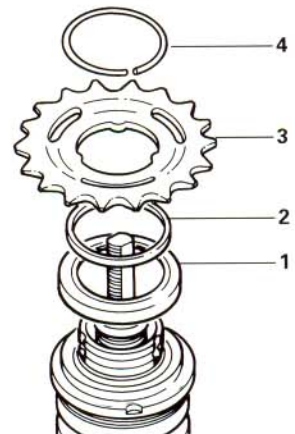
10. Hold in place and locate key (1) (short end down) into slot. Keeping hold, screw on threaded cone (2), adjust until finger tight, turn cone back 1/2 a turn and lock in position with lockwasher (3). If flats do not locate, undo, until next flat is located.



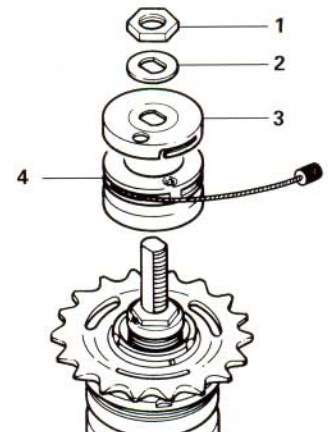
11. Using cable drum by locating its legs into the selector cone slots turn the unit fully clockwise to engage gear one (the gear ring will rotate freely in gears 1 & 2) and then remove cable drum. Fit torsion spring & cap (1) onto axle. Using a small screwdriver, tension torsion spring by moving spring leg back anti-clockwise until it is positioned in the next slot. Screw on locknut (2) and tighten to 7 Nm.



12. Fit sprocket dustcover (1), spacer (2), sprocket (3) & sprocket circlip (4).

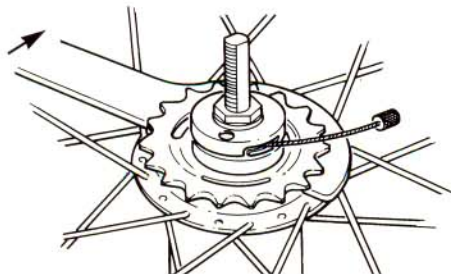


13. Locate cable drum legs into internal (this will only fit one way). Wrap cable around pulley anti-clockwise, fit adjuster cover and locate cable in slot. Fit washer & locknut (tighten to 7 Nm). Remove from vice.



14. Ensure internal is lubricated. Insert internal into hub shell rotating anti-clockwise holding cover until pawls engage, then turn the ball ring clockwise

to engage the thread and tighten with a "C" spanner or hammer and suitable punch.



15. Sprinter 7 Left Hand Cone Adjustment

Clamp RH end of axle in vice. Grease bearings and fit the left hand cone. Fit spacing washer, if required, and cone locknut. Using cone spanner, adjust LH cone until minimum play is felt at the

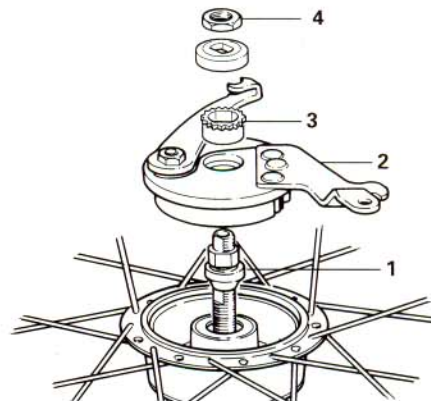
wheel rim, ensuring that hub runs freely. Holding the cone in this position, tighten up cone locknut.

16. Sprinter 7 Elite Left Hand Cone

Adjustment

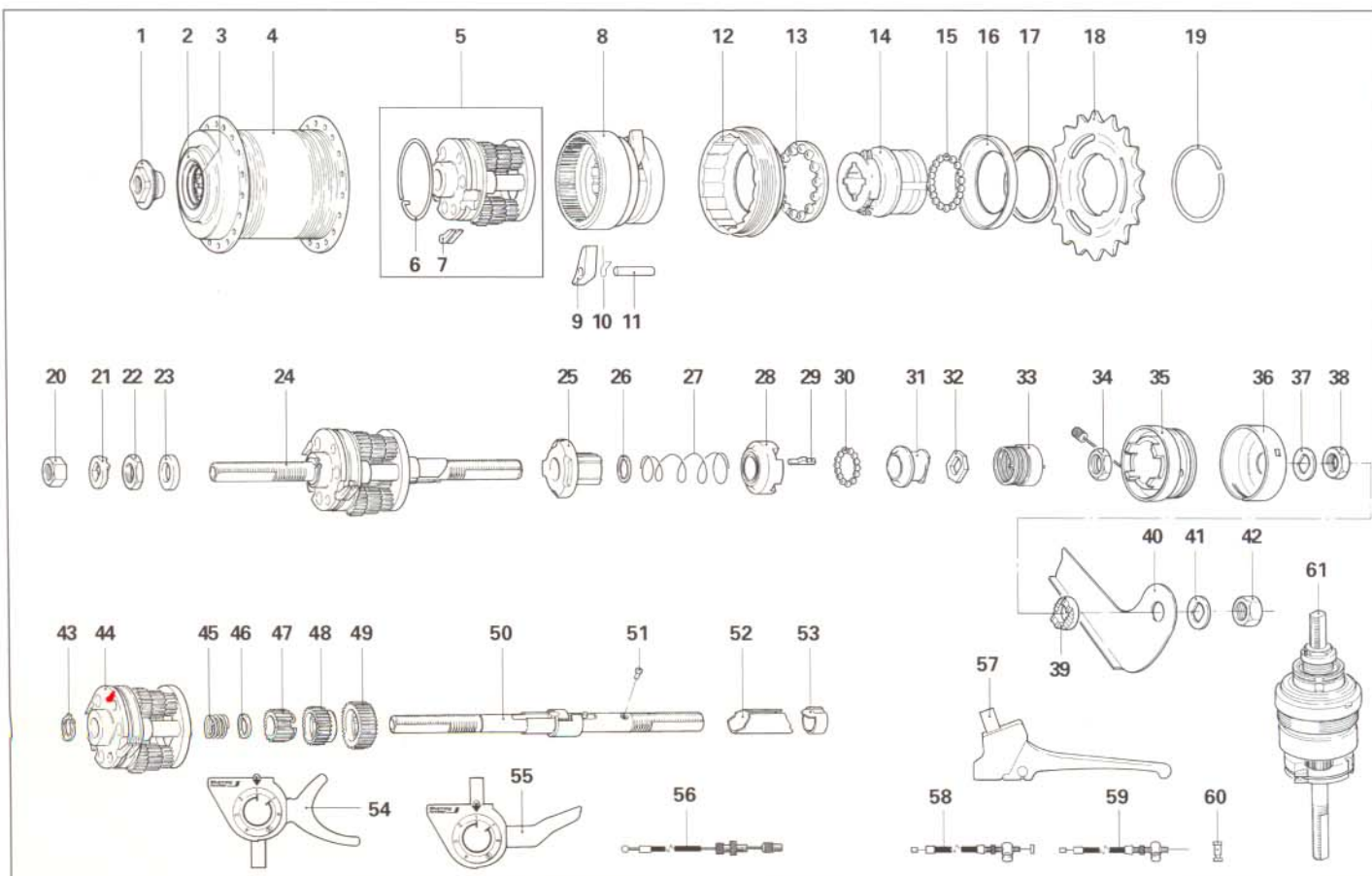
Clamp R.H. end of axle in vice, grease bearing and fit L.H. cone (1). Clean the brake drum using clean cloth, ensuring all dirt and grease is removed. Make sure the brake linings are clean (brake shoes should be replaced if contaminated with grease). Fit the brake assembly (2) into drum, ensuring torque arm & gear cable point in the same direction. Fit toothed cone adjuster (3) adjust L.H. cone until minimum play is felt at the wheel rim ensuring hub runs freely. Fit cone locking spacer (4) to engage with teeth of the cone adjuster. Fit locknut. Apply

the brake to centralise the brake shoes and tighten the locknut.



17. Assemble the wheel into the bicycle as described in Part 4





Item No.	Sales No.	Description	Item No.	Sales No.	Description	Item No.	Sales No.	Description
1	HSA 101	Cone and Dustcap Assembly	19	HSL 721	Sprocket Circlip	43	HSL 729	Circlip
2	HSA 102	Cone Dustcover	20	HMN 128	Axle Nut	44	-	Planet Cage (See Item 5)
3	HSA 284	L.H. Ball Cage Assembly - 6.4mm Ball	21	*HMW 155	Serrated Lockwasher 7.9 mm Slot	45	HSA 457	Planet Cage Spring
4	HSA 532	Hub Shell Assembly 36 holes N.B. - Hub Shell Assemblies include 1 off items 2 and 3	22	*HMW 494	Serrated Lockwasher 9.5 mm Slot	46	HMW 327	Washer
5	HSA 525	Planet Cage Assembly (includes 1 off Item 6, 2 off Item 7)	23	*HMW 515	K48 Lipwasher 9.5mm Slot	47	HSA 522	Sun Pinion No. 1
6	HSA 450	Circlip	24	HMN 132	Cone Locknut	48	HSA 523	Sun Pinion No. 2
7	HSA 410	Pawl for Planet Cage	25	*HMW 146	Spacing Washer 1.6 mm	49	HSA 524	Sun Pinion No. 3
8	HSA 527	Gear Ring Assembly (includes 2 off Items 9, 10, 11)	26	*HMW 129	Spacing Washer 3.2 mm	50	HSA 526	Axle
9	HSA 119	Pawl for Gear Ring	27	*HMW 483	Spacing Washer 4.8mm	51	HSA 514	Selector Pin
10	HSA 120	Pawl Spring	28	*HMW 484	Spacing Washer 6.4 mm	52	HSA 512	Inner Selector
11	HSA 530	Pawl Pin	29	-	Axle Assembly (See Item 50)	53	HSA 511	Cam Selector
12	HSA 513	Ball Ring	30	HSA 510	Clutch	54	HSJ 855	Sprinter 7 Wishbone Control
13	HSA 438	Ball Cage Assembly	31	HMW 329	Clutch Washer	55	HSJ 845	Sprinter 7 Trigger Control
14	HSA 528	Driver Assembly	32	HSA 517	Clutch Spring	56	HSJ 847	Control Cable Complete
15	HSA 520	4mm Ball Bearings - 19 off	33	HSA 516	SelectorCone	57	* PKL 205	DELTRIN Brake Lever Assembly RH/LH 22.2mm Clip
16	HSL 701	Outer Dust Cap	34	HSA 519	Selector Key		*PKL 206	DELTRIN Brake Lever Assembly RH/LH 23.8mm Clip
17	HMW 127	Sprocket Spacing Washer 1.6mm	35	HSA 520	4mm Ball Bearings - 14 off	58	*HSK 713	Cable Complete Black - 1570mm c/end
18	*HSL 714	Sprocket 14 teeth	36	HMW 328	Lockwasher	59	*HSK 714	Cable Complete Black - 1600mm/1820mm o/end
	*HSL 715	Sprocket 15 teeth	37	HSA 546	Torsion Spring & Support Cup Assy	60	HSK 715	Pinch Bolt
	*HSL 716	Sprocket 16 teeth	38	HMN 379	Locknut	61	*HSX 134	Gear Internal Assembly Complete
	*HSL 717	Sprocket 17 teeth	39	*HMW 155	Serrated Lockwasher 7.9 mm Slot			
	*HSL 718	Sprocket 18 teeth		*HMW 494	Serrated Lockwasher 9.5 mm Slot			
	*HSL 719	Sprocket 19 teeth		*HMW 515	K48 Lipwasher 9.5mm Slot			
	*HSL 720	Sprocket 20 teeth	40	HSJ 844	Fulcrum Lever			
	*HSL 747	Sprocket 21 teeth	41	HMW 150	Washer			
	*HSL 722	Sprocket 22 teeth	42	HMN 128	Axle Nut			

* Optional Fitment

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