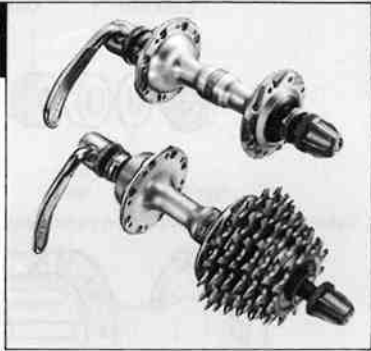


# SERVICE INSTRUCTION

## Model FH-7261/FH-7271

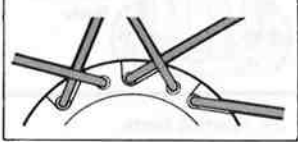
**FREEHUB (Small/6-Speed, 7-Speed)  
/ DURA-ACE EX**



### Features

- The Direction System is a vast improvement over conventional hubs in that spokes are all threaded through from the inside of the flange. This means that both flanges can be assembled separately making spoke assembly faster and much easier.

#### Direction System Hub

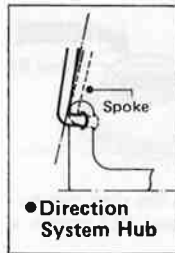
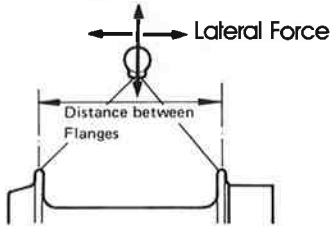


#### Conventional Hub

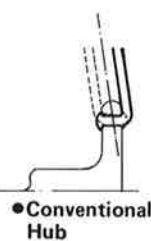


- When compared to the conventional hub, which has the same distance between flanges, the Direction System Hub has a substantial increase in spoke supporting width of about 12%. Now the wheel's resistance against lateral force is increased by as much as 20%. (Shimano Test Data).

Vertical Force



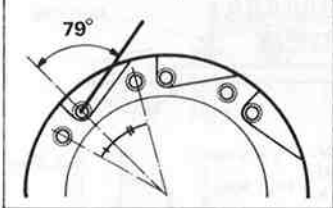
Direction System Hub



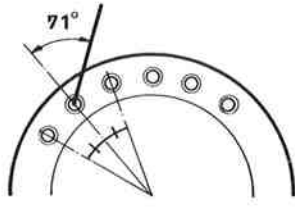
Conventional Hub

- The Direction Hub has decreased the degree of spoke distortion inherent in the usual crossed spoke assembly system. Now they can be assembled almost in a perfectly straight line. This means all spokes are stronger and possess almost equal strength with each other. As a result, the wheel's strength is increased with respect to vertical force (an increase of 10% - Shimano Test Data). Also spoke durability is increased reducing the occurrence of buckled rims.
- The Direction Hub is exclusively using the 6 hole spoke assembly system. The spoke holes, which are not evenly spaced as in a conventional hub, allow spokes to run at as close a tangent to the hub as possible. This allows an almost straight line from top to bottom of the rim for added strength and durability.

#### Direction System Hub



#### Conventional Hub



(In the case of 32 hole hub)

- Rim assembly is made easier because of the Uni Balance Mechanism which allows a smaller dish. And also the spokes last longer because of the improved balance of tension distribution. This means decreased vibration and a subsequent decrease in wheel loosening.
- The distance between the hub balls (1/4") is wider than before, thereby improving the hub axle's strength. The right side hub balls (1/4") were moved closer to the top gear direction in order to achieve this favorable condition.
- The new full choice range of cassette gears means changing sprockets is made much easier. In addition, the sprockets possess the UG "Twist" teeth for high performance gear shifts.

### Note

- The freewheel section receives a strict quality check on leaving the factory and to ensure that this condition is maintained, please do not disassemble unless absolutely necessary.
- Always use the Dura-Ace EX rear derailleur, which incorporates the hatch-plate mechanism, when using the Dura-Ace EX Freehub.
- Please make sure, when assembling rim, that spokes are always assembled using the cross-over, 6 spoke-hole method as shown in diagram.

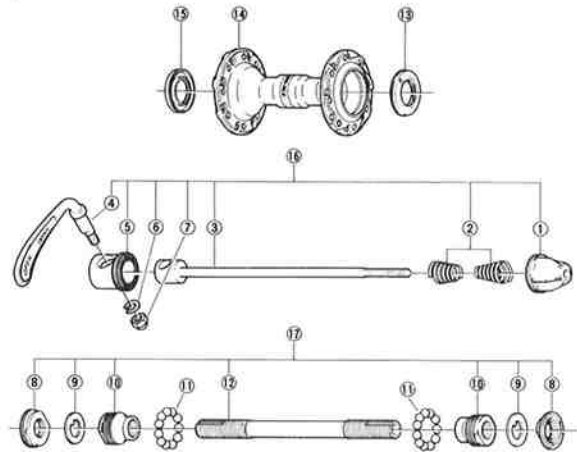
### Specifications

	Front Hub	Model FH-7261 Rear Hub 6-Speed	Model FH-7271 Rear Hub 7-Speed
*Weight	151 g	321 g	336 g
Material	Light Alloy & Steel		
Suitable Chain Size	—	1/2" x 3/32"	1/2" x 3/32"
Suitable Spoke Dia.	# 15 Spokes (diameter 1.8 mm)		
Spoke Hole Nos	32H	32H	32H
Over Lock Nuts' Dimension	100 mm	126 mm	126 mm
Axle Length	108 mm	137 mm	137 mm
Chain Line	—	44.15 mm	41.5 mm
Dishing Distance	—	4.3 mm	9.5 mm
Sprocket Replacement Teeth	—	11T~18T (Top Sprocket; Screw)	12T~26T (After Second Sprocket; Spline)
Top Sprocket Screw Measurement	—	B.C 32 x 24 T.P.I	

\* The above weights are measured without sprockets or quick release cam sections.

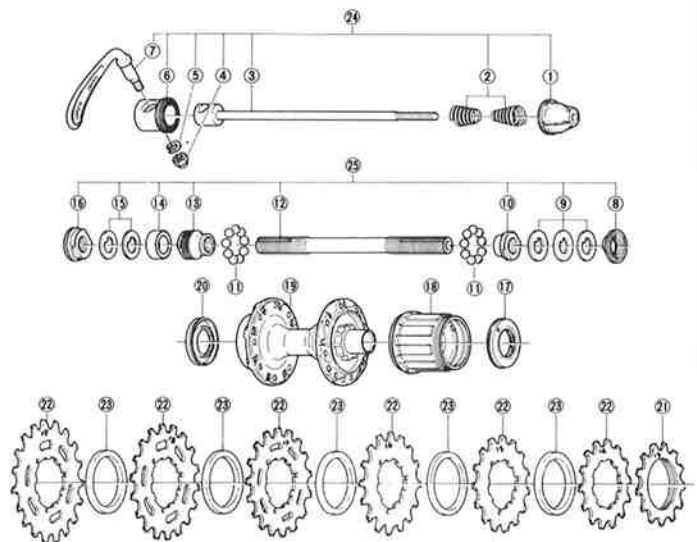
### Explodid View and Parts List

#### FRONT HUB



ITEM NO.	PART NO.	DESCRIPTION	ITEM NO.	PART NO.	DESCRIPTION
1	356 9006	Nut for Skewer	10	233 1500	Cone
2	233 2100	Volute Spring	11	000 0125	Steel Ball (3/16")
3	233 0800-1	Skewer 129mm(5-3/32")	12	233 1800	Hub Axle M8x108mm(4-1/4")
4	231 0600-4	Cam Lever	13	237 0801	Right Hand Dust Cap
5	233 0300	Body Cam Lever	14	261 9002	Hub Shell 32 Holes
6	231 0700	Spring Washer	15	237 0802	Left Hand Dust Cap
7	231 0800	Cap Nut	16	233 9006	Complete Quick Release
8	233 1700	Lock Nut	17	233 9003	Complete Axle
9	233 1600	Key Washer			

#### REAR HUB



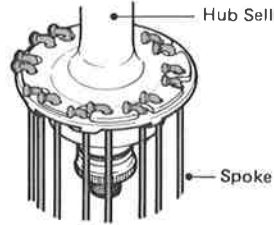
ITEM NO.	PART NO.	DESCRIPTION	ITEM NO.	PART NO.	DESCRIPTION
1	356 9006	Nut for Skewer	357 1317	357	Sprocket Wheel 13T
2	233 2100	Volute Spring	357 1417	357	Sprocket Wheel 14T
3	243 0801	Skewer 159mm(6-1/4")	357 1517	357	Sprocket Wheel 15T
4	231 0800	Cap Nut	357 1617	357	Sprocket Wheel 16T
5	231 0700	Spring Washer	357 1717	357	Sprocket Wheel 17T
6	233 0300	Body Cam Lever	357 1817	357	Sprocket Wheel 18T
7	231 0600-4	Cam Lever	357 1237	357	Sprocket Wheel 12T
8	356 9000	Right Hand Lock Nut 4mm	357 1337	357	Sprocket Wheel 13T
9	356 6100	Right Hand Key Washer t=1.5mm	357 1437	357	Sprocket Wheel 14T
10	247 0400	Right Hand Cone M10x13.5mm	357 1537	357	Sprocket Wheel 15T
11	000 0135	Steel Ball (1/4") 18pcs.	357 1637	357	Sprocket Wheel 16T
12	243 2001	Hub Axle 137mm(5-3/32")	357 1737	357	Sprocket Wheel 17T
13	243 1500	Left Hand Cone M10x15mm	357 1837	357	Sprocket Wheel 18T
14	356 6000	Axle Spacer	357 1937	357	Sprocket Wheel 19T
15	243 1600	Left Hand Key Washer t=1.2mm	357 2037	357	Sprocket Wheel 20T
16	243 1700	Left Hand Lock Nut 7.5mm	357 2137	357	Sprocket Wheel 21T
17	243 1401	Right Hand Dust Cap	357 2237	357	Sprocket Wheel 22T
18	271 9003	Freewheel Body Assembly 6-Speed	357 2337	357	Sprocket Wheel 23T
19	271 9004	Freewheel Body Assembly 7-Speed	357 2437	357	Sprocket Wheel 24T
20	243 1402	Left Hand Dust Cap	357 2537	357	Sprocket Wheel 25T
21	357 1117	Sprocket Wheel 11T	23	356 6300	Sprocket Spacer
			24	356 9005	Complete Quick Release Skewer Length 159mm(6-1/4")
			25	356 9009	Complete Hub Axle 137mm (5-13/32") O.L. 126mm (4-31/32")

## Assembly Procedure

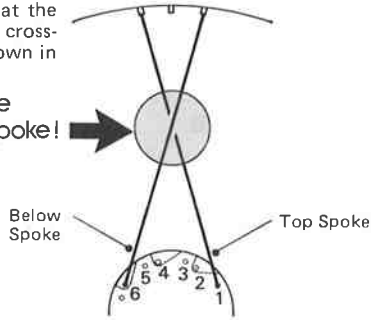
### Rim Assembly

Note: Be sure to use #15 spokes (diameter 1.8mm). Spoke length is same as conventional small flanged hub. For example, use the 302 mm spoke for the 27" x 32 hole rim.

1. First step, pass spokes through the spoke holes of the flange from inside to outside as shown in diagram.
2. Assemble spokes to the rim by nipples. At this time please make sure that the spokes are assembled using the cross-over, 6 spoke-hole method as shown in diagram.



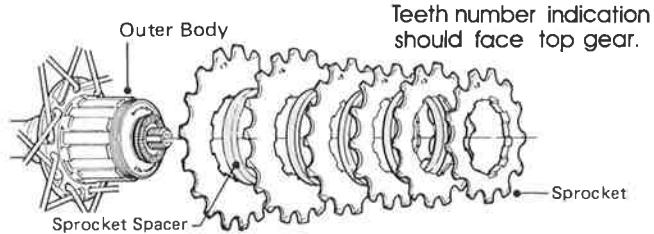
**Important: Below spoke must cross over top spoke!**



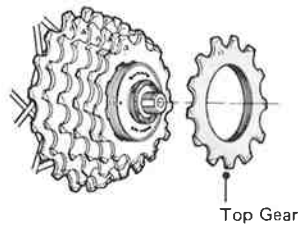
### Sprocket Assembly

1. Assemble the desired gear sprocket combination and align with the outer body splines before mounting. At this time ensure that the teeth number indication on the sprockets is always facing the top gear direction. Also, insert the sprocket spacers between appropriate gears. (5 spacers for 6 gears, and 6 spacers for 7 gears.)

Note: Spacers are not necessary for the spline gears of 12T and 13T.



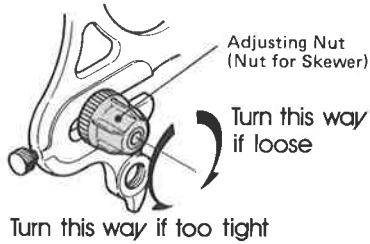
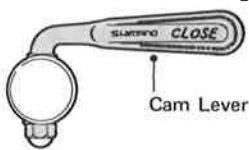
2. Now, screw the top gear to the outer body and tighten the gears previously assembled in #1.
3. Assemble the tire to the wheel rim and set the wheel to the center of the frame. Next step, tighten the wheel to the frame by means of the quick release cam lever.



### Tightening the Quick Release Mechanism

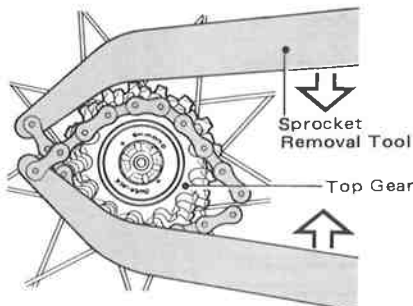
Adjust the adjusting nut and fix the wheel to the frame by tightening the cam lever in the direction of the "CLOSE" sign. Continue to tighten firmly until full limit is reached. Cam lever tightening torque should be 90 ~ 120 Kg-cm (80 ~ 105 in.lbs.)

Tighten the Cam Lever in the direction of the "CLOSE" sign.



### Replacing Sprockets

1. To change sprockets, first remove the top gear (smallest sprocket) by means of the 2 sprocket turning tools used in opposition to each other. Then the spline-type gears can be removed easily.

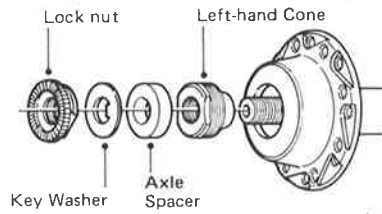


2. The method of assembling new gears is the same as the instruction given in the "Assembly Procedure" section.

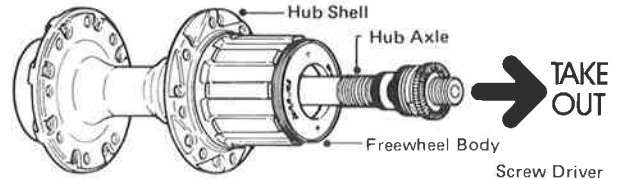
## Replacing Grease

### Disassembly

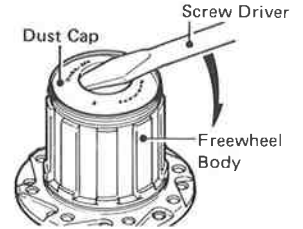
1. Loosen left-hand lock nut by turning with two 14 mm spanners. Then remove key washer, axle spacer and left-hand cone.



2. Take out the hub axle from right-hand side (freewheel side).



3. Remove the dust cap with a screw driver. At the same time, the 1/4" hub ball bearings should be removed. (A total of 18 on both sides.)



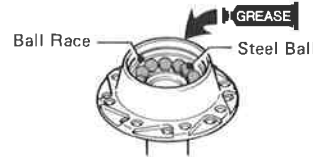
### Changing Grease

4. Wipe off old grease and put new grease on the rotating parts.

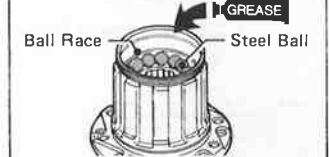
### Assembly

5. Put sufficient amount of grease on both sides of the ball bearing races. And then put the 9 steel balls into each side's ball race.

• Left Side

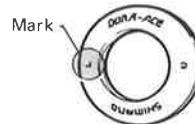


• Right Side

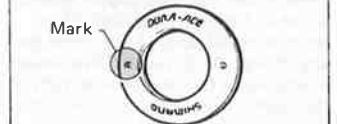


6. Then, assemble the dust cap by pushing on with thumbs. Please confirm that the "R" and "L" marks are correctly positioned on right and left sides.

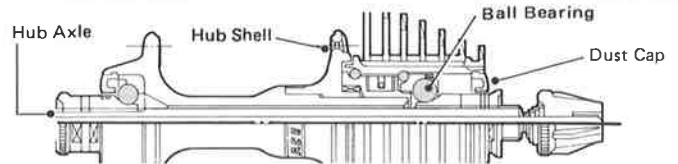
• Left Side Dust Cap



• Right Side Dust Cap

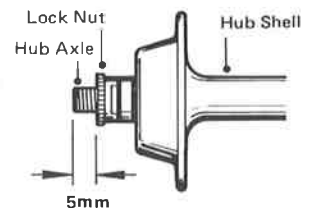


Note: After assembling the dust caps, please check the steel ball bearings' position, and be sure they are in same position before inserting the dust cap.



7. Insert the hub axle into the hub body from right side and assemble left hand cone, axle spacer, key washer and lock nut, in that order.

Note: The left-side rear hub axle should protrude about 5 mm from the lock nut, so confirm. And for the front hub, 3.5 mm or more.



8. Finally adjust the left hand cone. After adjustment the hub body should have no loose lateral movement and be able to rotate smoothly.

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