

SHIMANO NEXUS 3-SPEED HUB

SG-3R40

SERVICE MANUAL

vol. 1



SHIMANO

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Disassembly of the Inter-3 hub



SG-3R40

Tools



TL-HS20
Hub spanners
Part no. Y-320 90010
15 mm/17 mm (2 pcs.)

TL-HS10
Hub spanners
Part no. Y-230 90010
13 mm x 14 mm (2 pcs.)

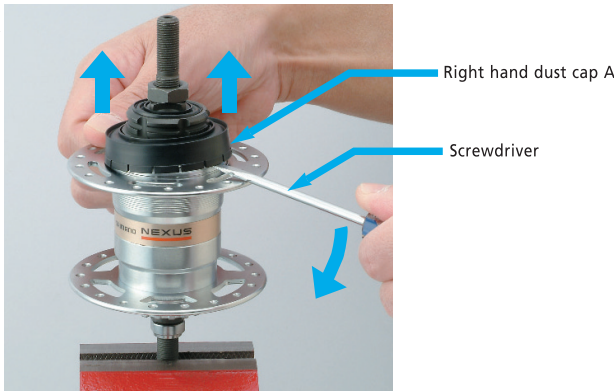
Screwdriver

1. Hold the two bevelled surfaces of the hub axle in a vice.

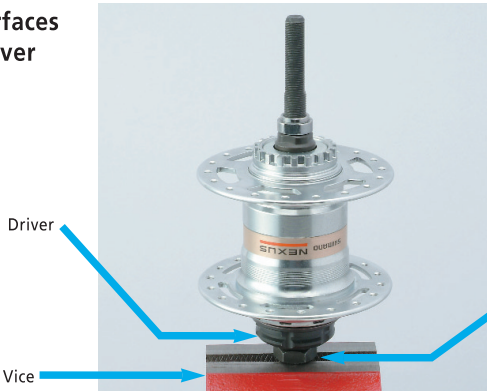


Note:
Do not damage the threads of the hub axle.

2. Remove the right hand dust cap A with a screwdriver.



3. Hold the two bevelled surfaces of the hub axle on the driver side in a vice.



Note:
Do not damage the threads of the hub axle.

4. Hold the left hand cone, and then remove the lock nut for left hand cone. Next, remove the left hand cone.



TL-HS10
(14 mm)



Lock nut for left hand cone

TL-HS10
(14 mm)



Left hand cone

5. Remove the hub shell.



Hub shell

Now it can be replaced with the new internal assembly.



Internal assembly for quick replacement

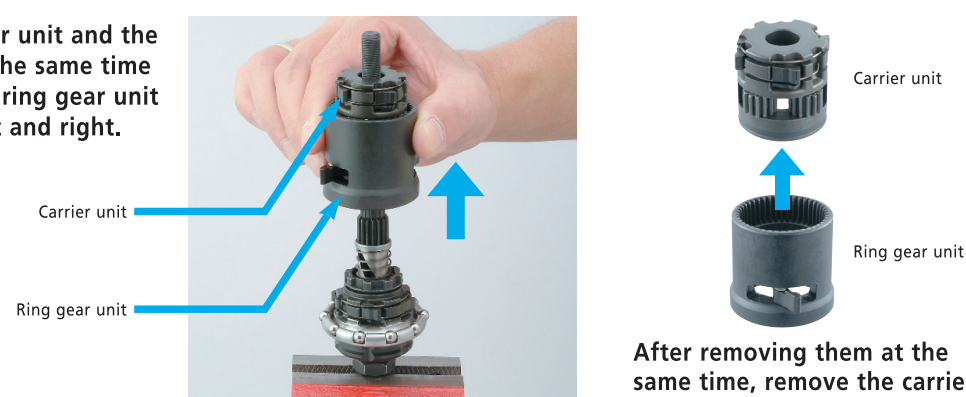
Part no.	Axle length
Y-33S 90700	170.3 mm
Y-33S 98270	176.8 mm
Y-33S 90710	189.4 mm

6. Remove the stop ring with a screwdriver.



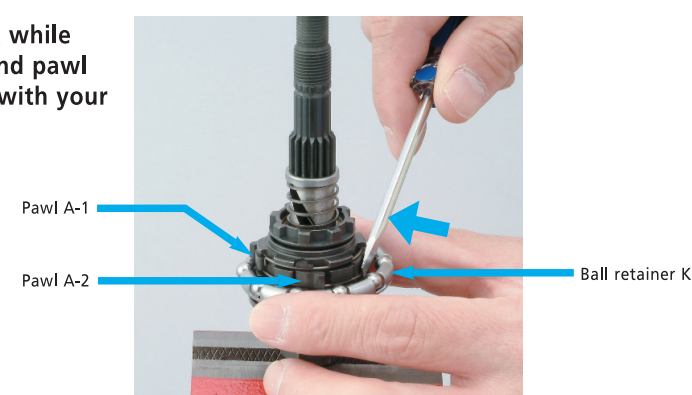
At this time, the stop ring come off with great force. Be careful of the safety using cloth and so on.

7. Remove the carrier unit and the ring gear unit at the same time while turning the ring gear unit slightly to the left and right.

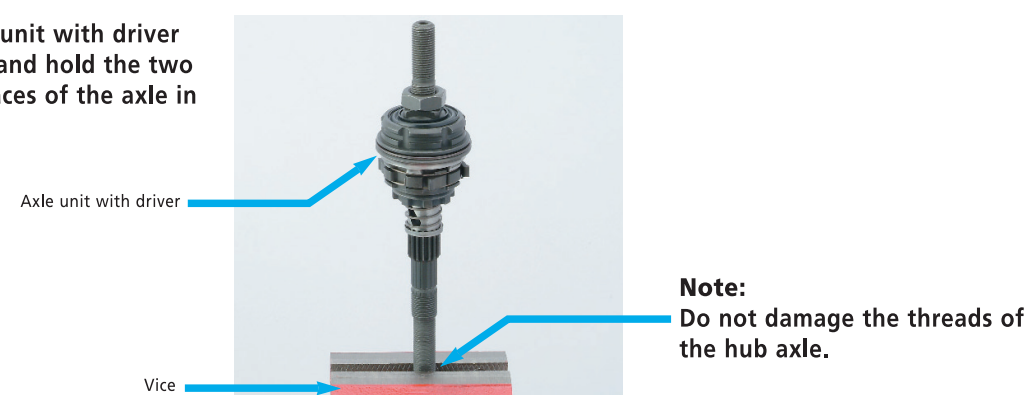


After removing them at the same time, remove the carrier unit from the ring gear unit.

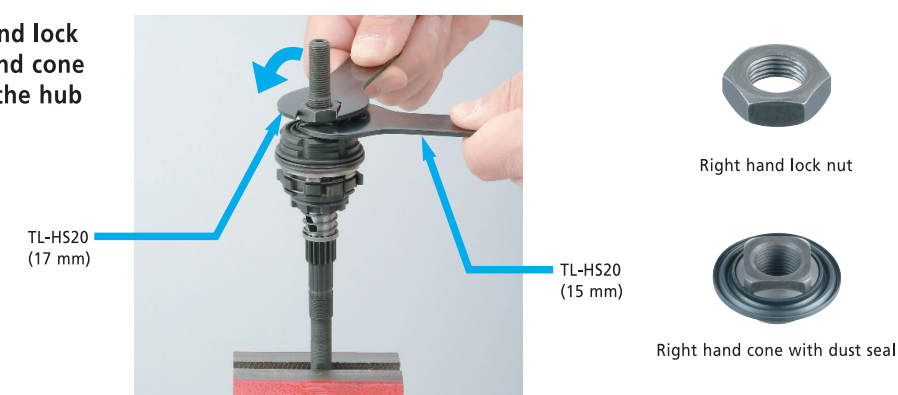
8. Remove ball retainer K while pressing in pawl A-1 and pawl A-2 on the driver unit with your fingers.



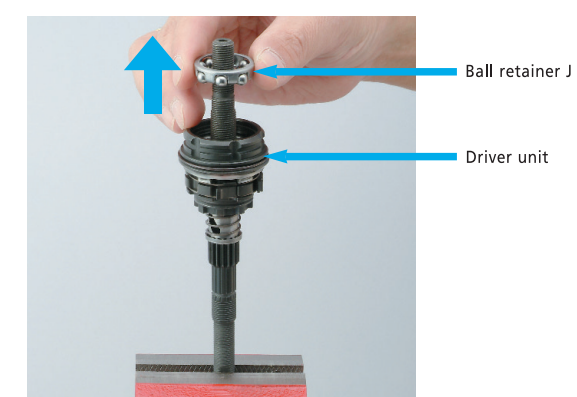
9. Turn the axle unit with driver upside down and hold the two bevelled surfaces of the axle in a vice.



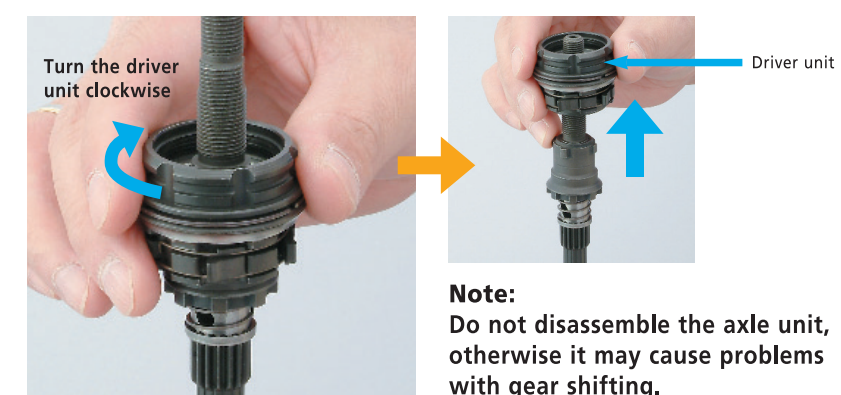
10. Remove the right hand lock nut and the right hand cone with dust seal from the hub axle.



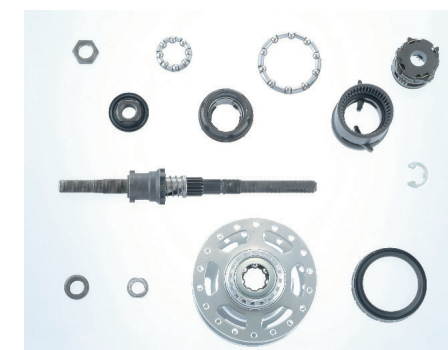
11. Remove ball retainer J from the driver unit.



12. Turn the driver unit clockwise to remove it from the axle unit.

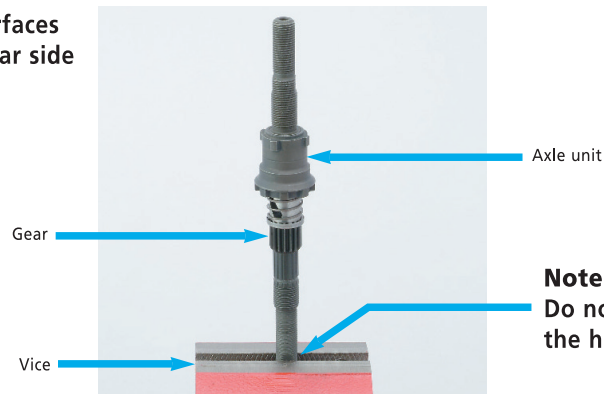


This completes the disassembly of the Inter-3 hub.



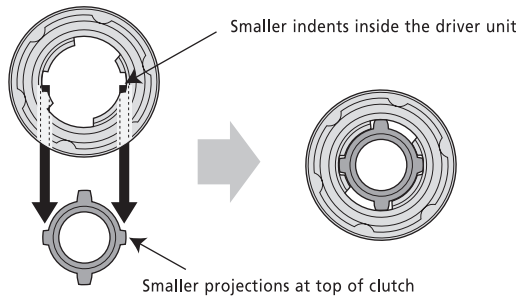
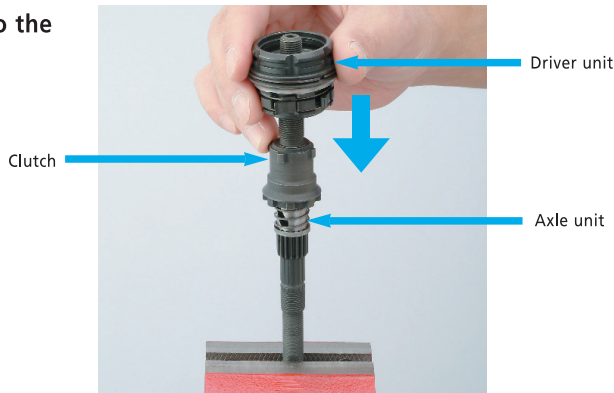
Assembly of the Inter-3 hub

1. Hold the two bevelled surfaces of the axle unit on the gear side in a vice.



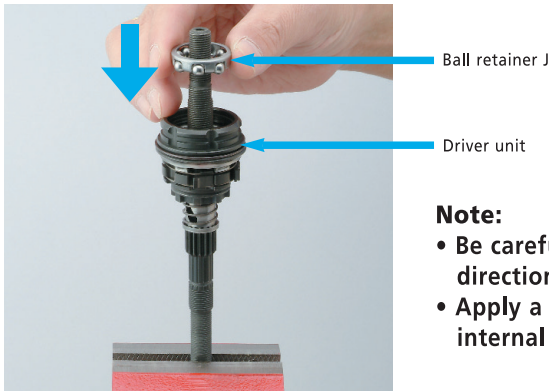
Note:
Do not damage the threads of the hub axle.

2. Install the driver unit onto the axle unit.



Note:
Align the two smaller indents inside the driver unit with the two smaller projections at the top of the clutch when installing the driver unit.

3. Place ball retainer J onto the driver unit.



Note:
• Be careful of the setting direction.
• Apply a liberal coating of internal hub grease.



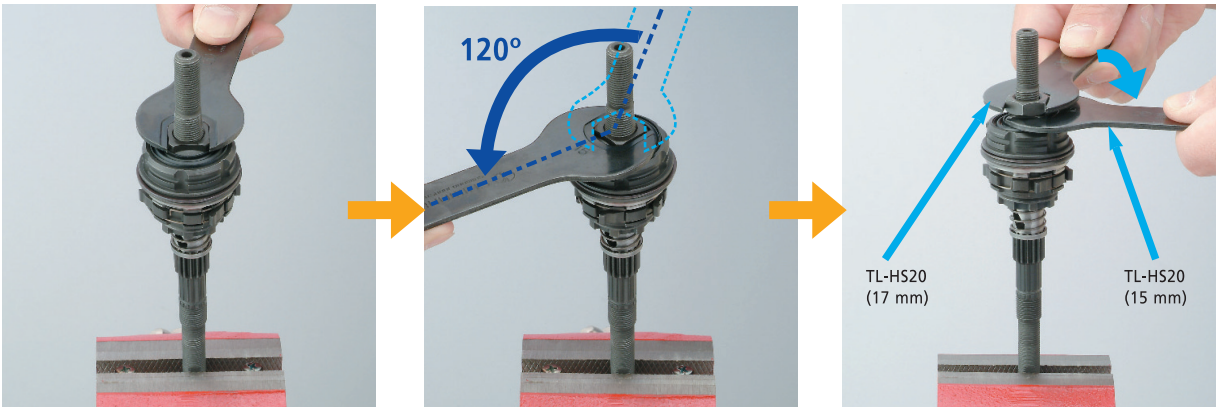
4. Screw the right hand cone with dust seal onto the hub axle as far as it will go. Then turn the right hand cone counterclockwise by 120 degree, and then secure it by tightening the right hand lock nut.



Right hand lock nut

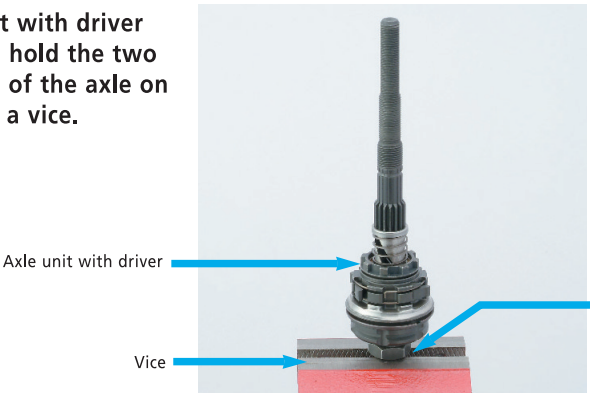


Right hand cone with dust seal



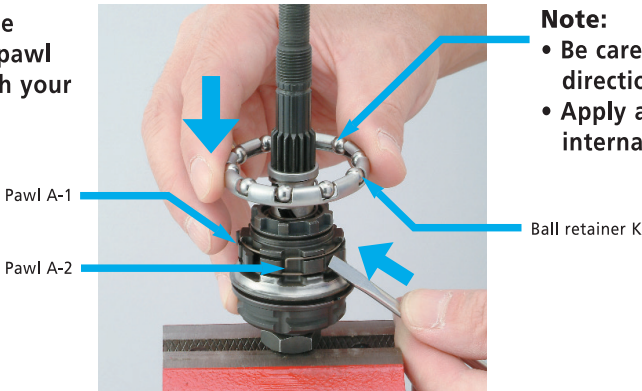
Tightening torque:
12 - 20 N·m {104 - 174 in.lbs}

5. Turn the axle unit with driver upside down and hold the two bevelled surfaces of the axle on the driver side in a vice.



Note:
Do not damage the threads of the hub axle.

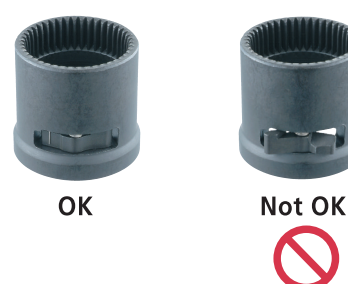
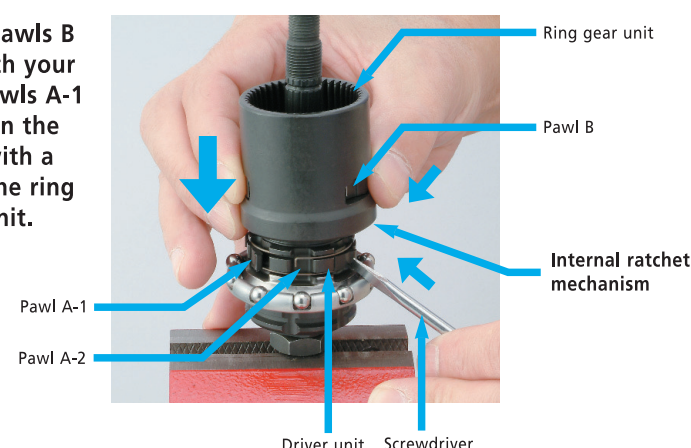
6. Install ball retainer K while pressing in pawl A-1 and pawl A-2 on the driver unit with your fingers.



Note:
• Be careful of the setting direction.
• Apply a liberal coating of internal hub grease.



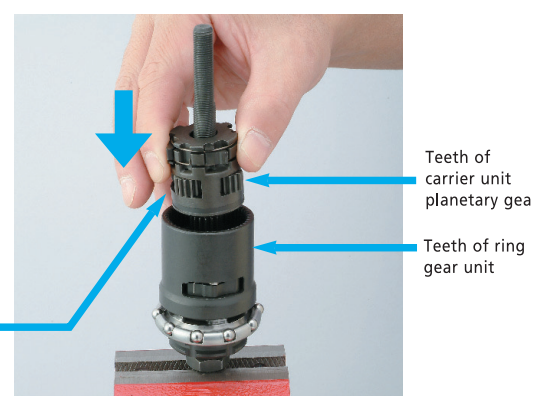
7. While pushing the two pawls B on the ring gear unit with your fingers, push the two pawls A-1 and the two pawls A-2 on the driver unit one by one with a screwdriver and install the ring gear unit to the driver unit.



Note:

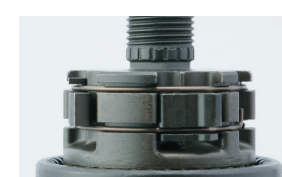
- Be careful of the directions of the two pawls B.
- Apply a liberal coating of internal hub grease.
- Check that pawls B are not hooked onto the clutch.
- Check that pawls A-1 and A-2 are engaged with the ratchet mechanism in the ring gear unit.
- Apply a liberal coating of internal hub grease to the gear inside the ring gear unit.

8. Engage the teeth of the planetary gear of the carrier unit with the teeth of the ring gear unit while turning the carrier unit slightly to the left and right and pushing it onto the ring gear unit.



Note:

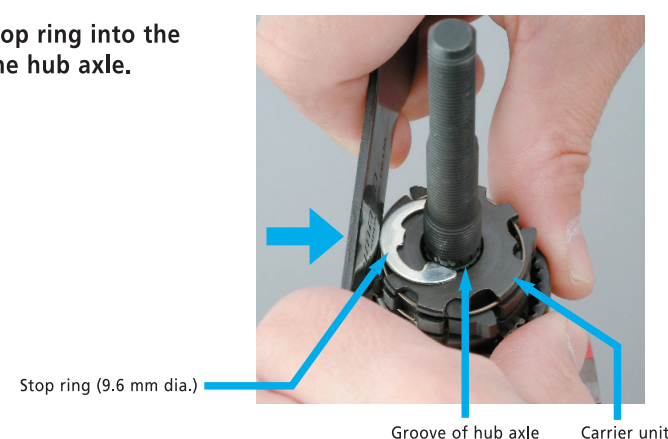
Apply a liberal coating of internal hub grease to the planetary gear (in 4 places) inside the carrier unit.



Check:

Check that the stop ring groove of the hub axle is visible from the edge of the carrier unit after the carrier unit has been installed.

9. Insert the stop ring into the groove of the hub axle.



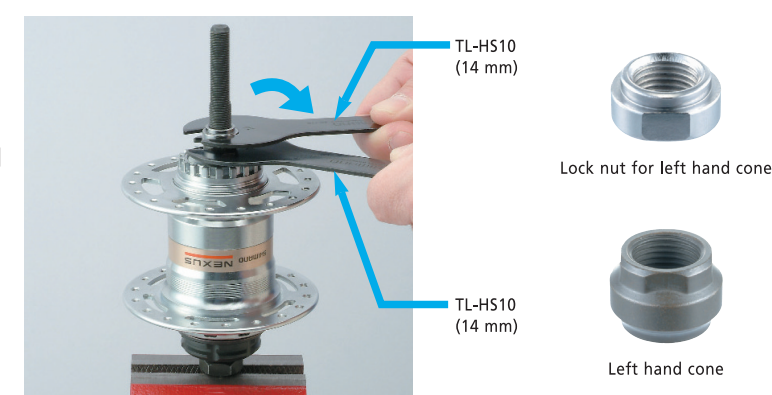
Note:

After inserting the stop ring, check that there is a small amount of play in the carrier unit in the vertical direction. If there is no vertical play and the carrier unit turns stiffly, turn the internal assembly upside down and hold the hub axle in a vice. Then loosen the right hand lock nut and the right hand cone with dust seal to adjust until there is sufficient play.

10. While turning the hub shell counterclockwise slightly, place it onto the internal assembly.

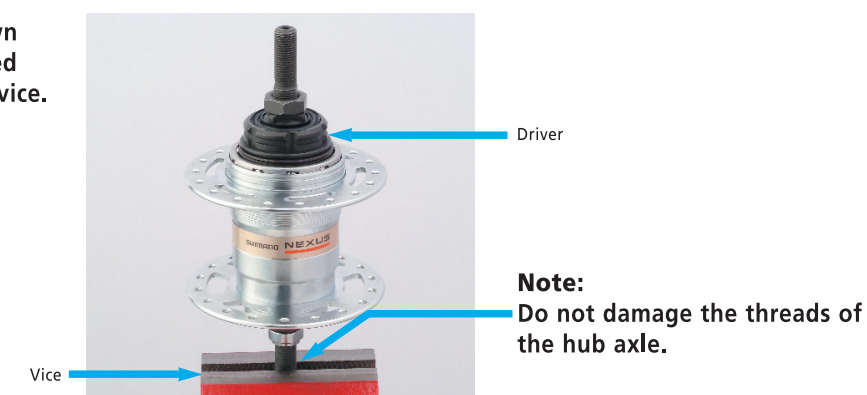


11. Screw on the left hand cone to adjust so that the hub shell can be turned smoothly without any play. After adjusting, secure the left hand cone with the lock nut for left hand cone.



Tightening torque:
12 - 20 N·m {104 - 174 in.lbs}

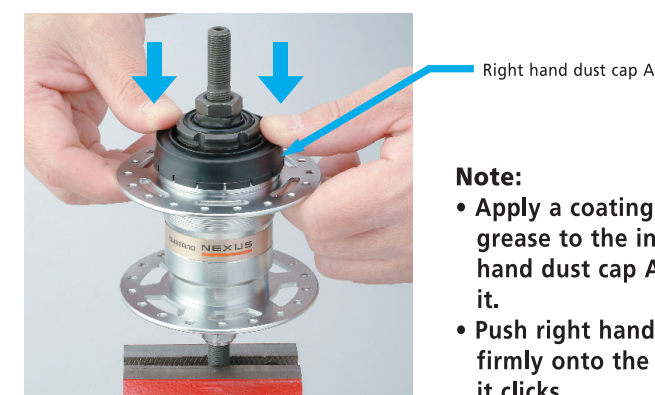
12. Turn the hub upside down and hold the two bevelled surfaces of the axle in a vice.



13. Install right hand dust cap A to the hub shell.

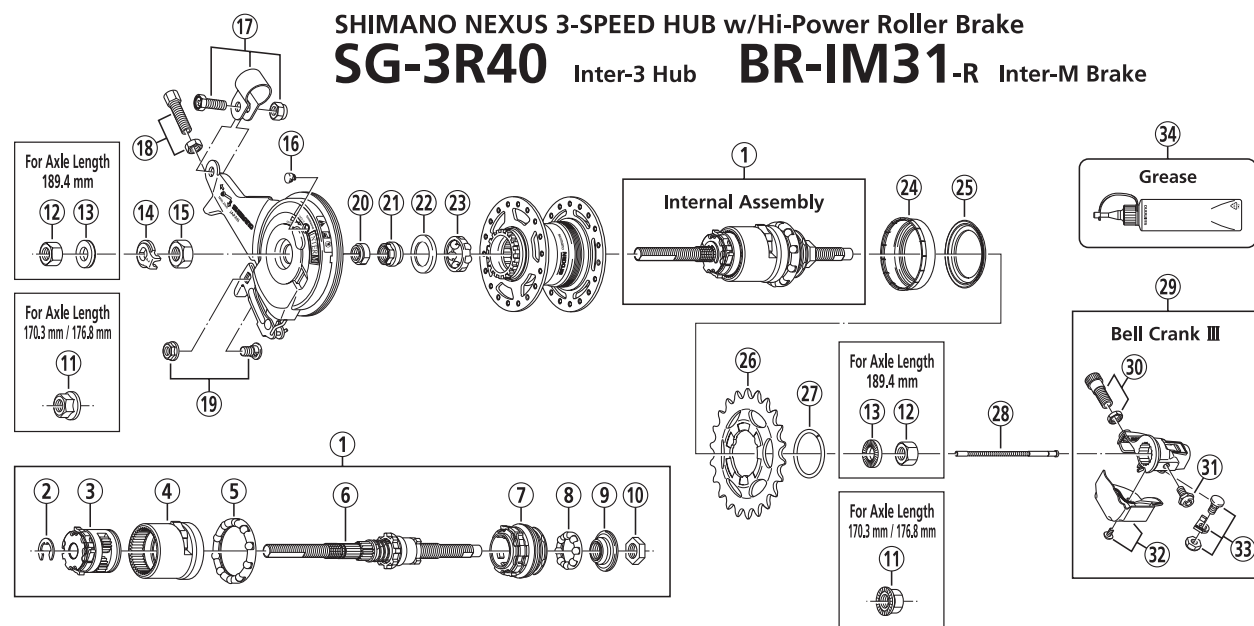
Check:

After installing right hand dust cap A to the hub shell, turn the hub shell clockwise and check that it turns smoothly. If the hub shell does not turn smoothly, re-install right hand dust cap A.



This completes the assembly of the Inter-3 hub.

Exploded view and parts list



ITEM NO.	PART NO.	DESCRIPTION
1	Y-33S 90700	Internal Assembly (Axle Length 170.3 mm)
	Y-33S 98270	Internal Assembly (Axle Length 176.8 mm)
	Y-33S 90710	Internal Assembly (Axle Length 189.4 mm)
2	Y-33Y 19000	Stop Ring (φ9.6 mm)
3	Y-33S 90400	Carrier Unit
4	Y-33S 90300	Ring Gear Unit
5	Y-33R 90220	Ball Retainer K (7/32" x 10)
6	Y-33S 98040	Axle Unit (Axle Length 170.3 mm)
	Y-33S 98280	Axle Unit (Axle Length 176.8 mm)
	Y-33S 98050	Axle Unit (Axle Length 189.4 mm)
7	Y-33S 90200	Driver Unit
8	Y-33R 90210	Ball Retainer J (7/32" x 8)
9	Y-33R 90500	Right Hand Cone w/Dust Seal
10	Y-33R 08100	Right Hand Lock Nut (5 mm) for Axle Length 170.3 mm / 189.4 mm
11	Y-32S 30100	Right Hand Lock Nut (9.9 mm) for Axle Length 176.8 mm
12	Y-220 15010	Flange Nut for Axle Length 170.3 mm / 176.8 mm
13	Y-321 70020	Hub Nut (7 mm) for Axle Length 189.4 mm
14	Y-200 03000	Hub Nut (9 mm) for Axle Length 189.4 mm
15	Y-220 06000	Washer (2 mm) for Axle Length 189.4 mm
16	Y-220 06040	Washer (3.2 mm) for Axle Length 189.4 mm
17	Y-33Z 20200	Non-turn Washer 2 (Yellow)
18	Y-75V 13000	Brake Unit Fixing Nut (8.2 mm) for Axle Length 170.3 mm / 189.4 mm
19	Y-75V 13010	Brake Unit Fixing Nut (9.7 mm) for Axle Length 176.8 mm
20	Y-75V 16010	Grease Hole Cap
21	Y-75M 98050	Brake Arm Clip Unit (φ15 mm)
	Y-33F 98090	Brake Arm Clip Unit (5/8")
	Y-75M 98060	Brake Arm Clip Unit (11/16")
22	Y-33F 98100	Brake Arm Clip Unit (3/4")
23	Y-75Y 98050	Brake Cable Adjusting Bolt & Nut
24	Y-75Y 98060	Inner Cable Fixing Bolt & Nut
25	Y-31Z 06020	Lock Nut for Left Hand Cone
26	Y-33M 37000	Left Hand Cone
27	Y-31Z 07000	Left Hand Dust Cap
28	Y-321 90220	Ball Retainer A (1/4" x 7)
29	Y-33R 05000	Right Hand Dust Cap A
30	Y-33R 52001	Right Hand Dust Cap B
31	Y-322 03200	Sprocket Wheel 16T (Black)
	Y-73T 21830	Sprocket Wheel 18T (Black)
	Y-73T 21930	Sprocket Wheel 19T (Black)
	Y-73T 22030	Sprocket Wheel 20T (Black)
	Y-73T 22130	Sprocket Wheel 21T (Black)
	Y-73T 22230	Sprocket Wheel 22T (Black)
32	Y-73T 22330	Sprocket Wheel 23T (Black)
33	Y-321 20010	Snap Ring C
34	Y-33R 98080	Push Rod (81.85 mm) for Axle Length 170.3 mm
	Y-33S 98180	Push Rod (86.85 mm) for Axle Length 176.8 mm
	Y-33S 98290	Push Rod (90.75 mm) for Axle Length 189.4 mm
35	Y-33S 95100	Bell Crank III Unit
36	Y-33S 98010	Cable Adjusting Bolt & Nut
37	Y-33S 57000	Bell Crank Body Fixing Bolt
38	Y-33S 98020	Bell Crank Cover & Fixing Screw
39	Y-33S 98030	Inner Cable Fixing Bolt Unit
40	Y-041 20600	Internal Hub Grease (Net. 100g)
41	Y-041 20400	Roller Brake Grease (Net. 100g)

Inter-3 hub troubleshooting

