

REFERENCE:	Nova Bus Manuals
SECTION:	05: Rear Suspension
RS N°:	N/A
EFFECTIVE IN PROD.:	N/A

APPLICATION DEADLINE:N/A

SUBJECT:	ZF service bulletin 80-17 for wheel bearing assembly - ZF axles (Type A/AV/AVN - Middle/Rear axle)
JUSTIFICATION:	Inner slotted nuts may mislocate the wheel bearing assembly.

LEVEL	DESCRIPTION	DIRECT CHARGES		TIME
		LABOUR	MATERIAL	
1	Apply ZF service bulletin 80-17 for wheel bearing assembly.	-	-	-
2	-	-	-	-

**MATERIAL (KIT FOR ONE AXLE. IF TWO AXLES ARE INVOLVED, ORDER TWO KITS.)**

QTY	PART N°	REV.	DESCRIPTION	REPLACES PART N°
<b>LEVEL 1</b>				
2	0634.303.940	-	O-Ring	-
2	4474.335.144	-	Tab washer/Locking plate	-
<b>LEVEL 2</b>				
-	-	-	-	-

**DISPOSAL OF PARTS**

REMOVED PARTS ARE:	DISCARDED *	RETAINED	* Dispose of the unused parts and the defective parts in accordance with local environmental standards in effect.
	Yes	-	

**REVISION HISTORY**

REV.	DATE	CHANGE DESCRIPTION	WRITTEN BY
NR	2018AL19	Initial release	Karthigeyan K A
R1	2018MA24	Client list reordered based upon the type of axle. Claiming conditions added. Two new vehicles under order L904 added to existing client list.	Karthigeyan K A

**NOTE**

Refer to table on the following page for affected axles and claiming conditions.

Symbol	Meaning
Empty Field	No changes, the procedure applies
+	Contract added, the procedure applies
-	Contract removed, the procedure does not apply
●	Procedure restricted to only one axle compared to Initial release

	CLIENT	ORDER	VIN (2NVY/4RKY...)	ROAD NUMBER	TYPE OF AXLE	CLAIMABLE DURATION (H) LABOR + CLERICAL WORK
	Ames Transportation Agency	L904	S92J1G9775221	6101	AVN 132, AV 132 II/90	3h + 1h
+	Ames Transportation Agency	L904	S92J3G9775222	-	AVN 132, AV 132 II/90	3h + 1h
+	Ames Transportation Agency	L904	S92J5G9775223	-	AVN 132, AV 132 II/90	3h + 1h
●	Austin - CMTA - Texas	LA17	S92J2H9775763	5101	AVN 132	1h + 1h
●	Austin - CMTA - Texas	LA17	S92J3H9775769	5107	AVN 132	1h + 1h
●	Austin - CMTA - Texas	LA17	S92J8H9775766	5104	AVN 132	1h + 1h
	Austin - CMTA - Texas	LA17	S92J6H9775765	5103	AVN 132, AV 132 II/90	3h + 1h
	Austin - CMTA - Texas	LA17	S92J4H9775764	5102	AVN 132, AV 132 II/90	3h + 1h
●	Houston - Texas	L952	S92J5G9775318	1580	AVN 132	1h + 1h
●	Houston - Texas	L982	S92J0G9775534	1592	AV 132 II/90	2h + 1h
●	Houston - Texas	L982	S92J2G9775535	1593	AV 132 II/90	2h + 1h
●	Houston - Texas	L982	S92J5G9775545	1599	AV 132 II/90	2h + 1h
●	Houston - Texas	L982	S92J5G9775514	1581	AVN 132	1h + 1h
●	Houston - Texas	L982	S92J8G9775524	1587	AVN 132	1h + 1h
●	New York City Transit - New York	L958	S92J9G9775533	5439	AVN 132	1h + 1h
●	New York City Transit - New York	L958	S92J9G9775631	5442	AVN 132	1h + 1h
	New York City Transit - New York	L958	S92J1G9775610	5441	AVN 132, AV 132 II/90	3h + 1h
●	SEPTA - Pennsylvania	L861	S92L1G9775205	7469	AV 132 II/90	2h + 1h
●	SEPTA - Pennsylvania	L861	S92L2G9775195	7460	AV 132 II/90	2h + 1h
●	SEPTA - Pennsylvania	L861	S92L2G9775200	7465	AV 132 II/90	2h + 1h
●	SEPTA - Pennsylvania	L861	S92L4G9775196	7461	AV 132 II/90	2h + 1h
●	SEPTA - Pennsylvania	L861	S92L5G9775210	7474	AV 132 II/90	2h + 1h
●	SEPTA - Pennsylvania	L861	S92L6G9775202	7467	AV 132 II/90	2h + 1h
●	SEPTA - Pennsylvania	L861	S92L8G9775198	7463	AV 132 II/90	2h + 1h
●	SEPTA - Pennsylvania	L861	S92L9G9775209	7473	AV 132 II/90	2h + 1h
●	SEPTA - Pennsylvania	L861	S92L4G9775201	7466	AVN 132	1h + 1h
●	SEPTA - Pennsylvania	L861	S92L5G9775191	7456	AVN 132	1h + 1h
●	SEPTA - Pennsylvania	L861	S92L8G9775217	7481	AVN 132	1h + 1h
●	SEPTA - Pennsylvania	L861	S92L8G9775220	7484	AVN 132	1h + 1h
●	SEPTA - Pennsylvania	L861	S92LXG9775218	7482	AVN 132	1h + 1h
	SEPTA - Pennsylvania	L861	S92L0G9775194	7459	AVN 132, AV 132 II/90	3h + 1h
	SEPTA - Pennsylvania	L861	S92L1G9775219	7483	AVN 132, AV 132 II/90	3h + 1h
	SEPTA - Pennsylvania	L861	S92L3G9775206	7470	AVN 132, AV 132 II/90	3h + 1h
	SEPTA - Pennsylvania	L861	S92L5G9775207	7471	AVN 132, AV 132 II/90	3h + 1h
	SEPTA - Pennsylvania	L861	S92L7G9775211	7475	AVN 132, AV 132 II/90	3h + 1h
	SEPTA - Pennsylvania	L861	S92L9G9775212	7476	AVN 132, AV 132 II/90	3h + 1h

	<b>CLIENT</b>	<b>ORDER</b>	<b>VIN</b> (2NVY/4RKY...)	<b>ROAD</b> <b>NUMBER</b>	<b>TYPE OF AXLE</b>	<b>CLAIMABLE DURATION (H)</b> <b>LABOR + CLERICAL WORK</b>
	SEPTA - Pennsylvania	L861	S92LXG9775199	7464	AVN 132, AV 132 II/90	3h + 1h
	SEPTA - Pennsylvania	L861	S92LXG9775204	7468	AVN 132, AV 132 II/90	3h + 1h

**WARNING**

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Follow your internal safety procedures.

**PROCEDURE****NOTE**

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This Campaign has to be completed commercially and technically by end of 2018.

**NOTE**

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The corrective measures must be conducted during the next regular service interval within the next 6 months or 40,000 km (whatever comes first). Contact ZF service partner for repair if necessary.

**NOTE**

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The instructions included in this document has been provided by ZF. Nova Bus cannot be held responsible under any circumstances for its content.

**NOTE**

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Fill the ZF product with recuperated oil before operation.

# ANNEX - CHECKING OF SLOTTED NUT-HUB BOLT CONNECTION ON A 132, AV 110/132/133, AV 132

File 1  
 Type: Assembly Instr.  
 Consecutive no.: 80/17e  
 Date: 12.10.2017

## Service Information



### Checking of slotted nut-hub bolt connection on A 132, AV 110/132/133, AVN 132

For quality assurance purposes the slotted nut bolt connection of the hubs must be checked on selected serial numbers of bus axles of the type A 132, AV 110/132/133 and AVN 132 produced in the period from January 2016 to March 2017. For implementation, the responsible Service Partners will be informed about the location of the actually affected axles by the Technical Customer Service of ZF or by the vehicle manufacturer.

The necessary work steps are indicated on the following pages.

Contents	Page
▪ Checking of slotted nut-hub bolt connection on A 132, AV 110/132/133	2
▪ Checking of slotted nut-hub bolt connection on AVN 132	5

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File: 1  
Type: Assembly Instr.  
Consecutive no.: 80/17e  
Date: 06.10.2017  
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## Service Information



### Checking of slotted nut-hub bolt connection on A 132, AV 110/132/133

Safety instructions environment

Operating supplies and auxiliary materials may not be allowed to enter the soil, groundwater, or sewage system.

- Request material safety data sheets for the corresponding ZF products from your responsible environmental protection authority, and observe them.
- Collect operating supplies and auxiliary materials in a sufficiently large container.
- Dispose of operating supplies and auxiliary materials, waste, containers, soaked cleaning cloths, contaminated filters, etc. in accordance with the regulations of the environmental protection laws.
- Pay attention to the manufacturer's regulations and accident prevention regulations.

When selecting operating supplies and auxiliary materials, pay attention to health risks, environmental compatibility, disposal regulations and your country-specific opportunities to dispose of such materials properly.

For further safety instructions refer to the corresponding Repair Manual.

Requirements:

- Vehicle jacked-up.
- Wheels may remain on the vehicle.

Special tools:

- 5870.401.146 Slotted nut wrench

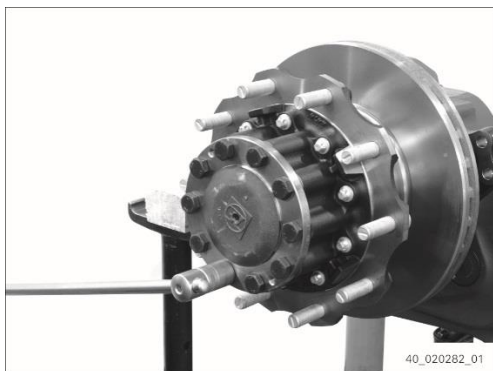


Figure 1

1. Fix hub by inserting the parking brake.
2. Loosen screws of the flange shaft.

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Type: Assembly Instr.  
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## Service Information



Figure 2

3. Observe safety instructions environment.  
Remove flange shaft and collect leaking oil.
4. Unlock outer slotted nut.

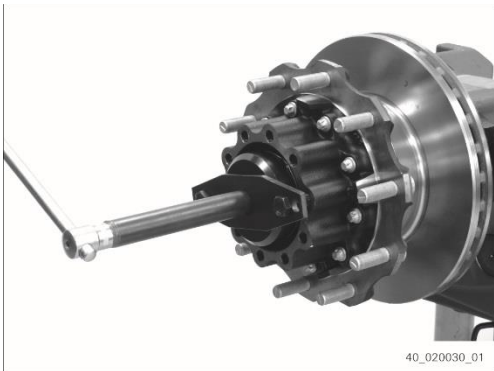


Figure 3

5. Loosen outer slotted nut with 5870.401.146 [slotted nut wrench].
6. Remove locking plate.
7. Loosen inner slotted nut with 5870.401.146 [slotted nut wrench].

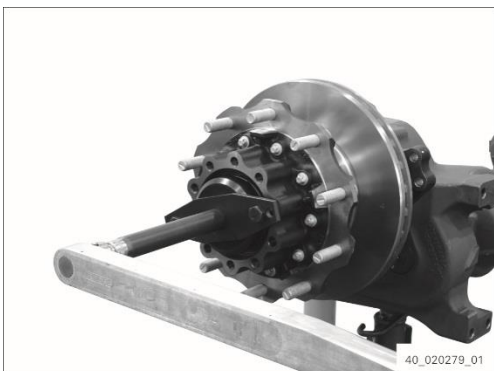


Figure 4

8. Tighten inner slotted nut with 5870.401.146 [slotted nut wrench].  
Tightening torque: **100 Nm**
9. Rotate the hub in both directions several times.
10. Tighten inner slotted nut with 5870.401.146 [slotted nut wrench].  
Tightening torque: **850 Nm**
11. Push **new** locking plate with tab pointing inwards onto the hub carrier.
12. Bolt on outer slotted nut with the chamfer pointing inwards.
13. Tighten outer slotted nut with 5870.401.146 [slotted nut wrench].  
Tightening torque: **1200 Nm**

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## Service Information

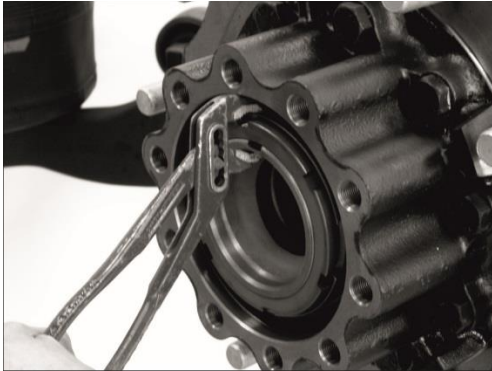


Figure 5

14. Secure outer slotted nut with locking plate.



Figure 6

15. Grease **new** O-ring (1) and insert it into the annular groove of the flange shaft.

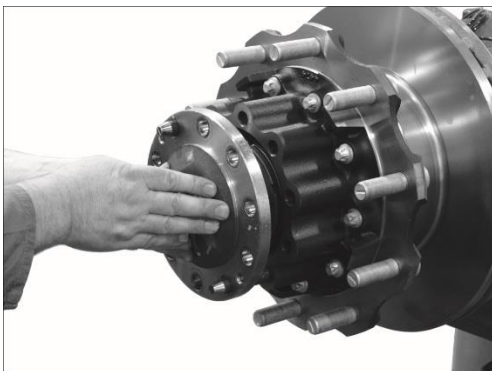


Figure 7

16. Push flange shaft into the hub carrier.

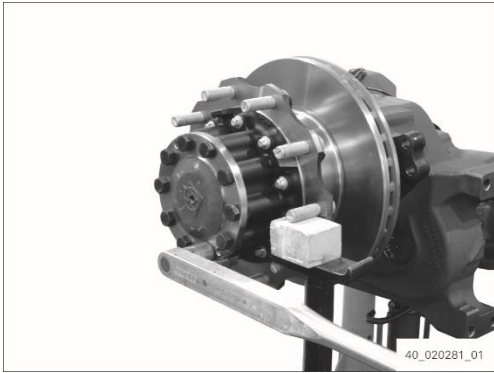


Figure 8

17. Fix hub by inserting the parking brake.
18. Turn in and tighten the screws.  
Tightening torque: **440 Nm**

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Type: Assembly Instr.  
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## Service Information



### Checking of slotted nut-hub bolt connection on AVN 132

Safety instructions environment

Operating supplies and auxiliary materials may not be allowed to enter the soil, groundwater, or sewage system.

- Request material safety data sheets for the corresponding ZF products from your responsible environmental protection authority, and observe them.
- Collect operating supplies and auxiliary materials in a sufficiently large container.
- Dispose of operating supplies and auxiliary materials, waste, containers, soaked cleaning cloths, contaminated filters, etc. in accordance with the regulations of the environmental protection laws.
- Pay attention to the manufacturer's regulations and accident prevention regulations.

When selecting operating supplies and auxiliary materials, pay attention to health risks, environmental compatibility, disposal regulations and your country-specific opportunities to dispose of such materials properly.

For further safety instructions refer to the corresponding Repair Manual.

Requirements:

- Vehicle jacked-up.
- Wheels may remain on the vehicle.

Special tools:

- 5870.401.146 Slotted nut wrench



Figure 9

1. Fix hub by inserting the parking brake.
2. Loosen screws of the cover.
3. Observe safety instructions environment. Remove cover.
4. Unlock outer slotted nut.

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## Service Information



Figure 10

5. Loosen outer slotted nut with 5870.401.146 [slotted nut wrench].
6. Remove locking plate.
7. Loosen inner slotted nut with 5870.401.146 [slotted nut wrench].

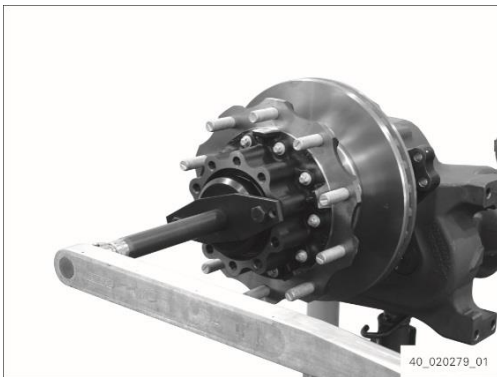


Figure 11

8. Tighten inner slotted nut with 5870.401.146 [slotted nut wrench].  
Tightening torque: **100 Nm**
9. Rotate the hub in both directions several times.
10. Tighten inner slotted nut with 5870.401.146 [slotted nut wrench].  
Tightening torque: **850 Nm**
11. Push **new** locking plate with tab pointing inwards onto the hub carrier.
12. Bolt on outer slotted nut with the chamfer pointing inwards.
13. Tighten outer slotted nut with 5870.401.146 [slotted nut wrench].
14. Tightening torque: **1200 Nm**

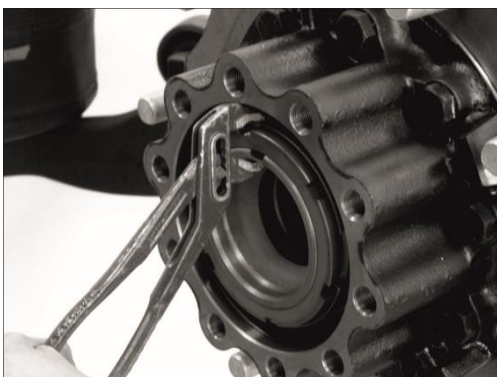


Figure 12

15. Secure outer slotted nut with locking plate.

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## Service Information



Figure 13

16. Grease **new** O-ring and insert it into the annular groove of the cover.

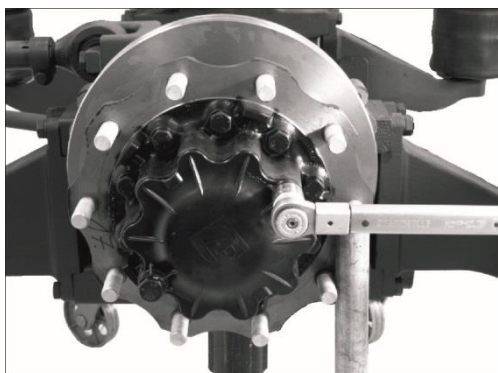


Figure 14

17. Insert cover until contact is obtained.
18. Fix hub by inserting the parking brake.
19. Turn in and tighten the screws.  
Tightening torque: **100 Nm**