

PARTS & SERVICE NEWS

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SUBJECT: IMPROVEMENT OF WHEEL BEARING FITTING PORTION ON HD785-3/5, HD985-3/5

PURPOSE: To introduce modification procedures to improve the wheel bearing fitting sections of the front and rear axle tubes on HD785-3, -5 and HD985-3, -5 dump trucks

APPLICATION: HD785-3 Dump Trucks, Serial Nos. 2001 thru 2574
 HD785-5 Dump Trucks, Serial Nos. 4001 thru 4209
 HD985-3 Dump Trucks, Serial Nos. 1001 thru 1020
 HD985-5 Dump Trucks, Serial Nos. 1021 thru 1051

FAILURE CODE: 2B8340

DESCRIPTION:

1. Introduction

With the HD785 and HD985 dump trucks, the wheel bearing fitting sections of the front axle tube and of the rear axle tube may be found worn at times an overhauling.

For vehicles being newly manufactured, we have modified the dimensions of the fitting sections in an attempt to suppress occurrence of the aforesaid wears. This Service News will introduce contents of the modification parts, shim adjustment procedures and the repair standards for the wearing sections of the front and rear axle tubes.

With already shipped vehicles also similar improvement can be achieved by repairing the axle tubes and by combining with the prepared modification parts. Meanwhile, since the shim adjustment method being introduced in this document is also applicable to the case of employing the axle tubes of the current dimensions without repairing, use the introduced shim adjustment method when making re-assemblies after overhauling.

2. List of parts

Part No.	Part Name	Q'ty	Remarks
Rear axle			
561-22-63103 (561-22-63102)	Housing (Housing)	1 (1)	For the HD785
585-22-23104 (585-22-23103)	Housing (Housing)	1 (1)	For the HD985
561-22-62970 (568-22-12940)	Bearing (Bearing)	2 (2)	} For the HD785
561-22-62980 (568-22-12960)	Bearing (Bearing)	2 (2)	
585-22-22941 (585-22-22940)	Bearing (Bearing)	2 (2)	} For the HD985
585-22-22961 (585-22-22960)	Bearing (Bearing)	2 (2)	
561-22-62260 (None)	Shim (Shim)	2 (2)	For the HD785 and HD985
Front axle			
561-50-6A001 (561-50-6A000)	SUS ass'y (SUS ass'y)	2 (2)	} For the HD985
561-50-6C001 (561-50-6C000)	SUS ass'y (SUS ass'y)	2 (2)	
561-50-6C501 (561-50-6C500)	SUS ass'y (SUS ass'y)	2 (2)	
561-50-6F501 (561-50-6F500)	SUS ass'y (SUS ass'y)	2 (2)	
561-50-61005 (561-50-61004)	SUS ass'y (SUS ass'y)	2 (2)	} For the HD785 and HD985
561-50-63005 (561-50-63004)	SUS ass'y (SUS ass'y)	2 (2)	
561-50-63501 (561-50-63500)	SUS ass'y (SUS ass'y)	2 (2)	} For the HD785
561-50-65001 (561-50-65000)	SUS ass'y (SUS ass'y)	2 (2)	
561-50-66501 (561-50-66500)	SUS ass'y (SUS ass'y)	2 (2)	
561-50-67001 (561-50-67000)	SUS ass'y (SUS ass'y)	2 (2)	
561-50-61114 (561-50-61113)	Cylinder (Cylinder)	2 (2)	For the HD785 and HD985

Part No.	Part Name	Q'ty	Remarks
Front axle			
561-88-66501 (561-88-66500)	Cylinder (Cylinder)	2 (2)	For the HD785 and HD985
561-27-61940 (566-22-12180)	Bearing (Bearing)	2 (2)	
561-27-61960 (568-22-11960)	Bearing (Bearing)	2 (2)	For the HD785
585-27-22181 (585-27-22180)	Bearing (Bearing)	2 (2)	
585-27-21961 (585-27-21960)	Bearing (Bearing)	2 (2)	For the HD985
561-27-61131 (561-27-61130)	Retainer (Retainer)	2 (2)	
561-27-61142 (561-27-61141)	Retainer (Retainer)	2 (2)	For the HD785 and HD985
561-27-61190 (None)	Shim (Shim)	2 (2)	

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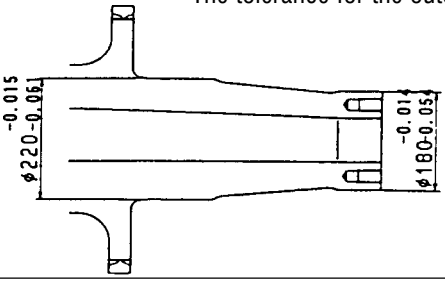
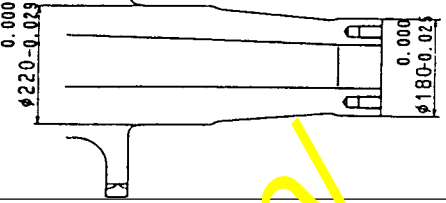
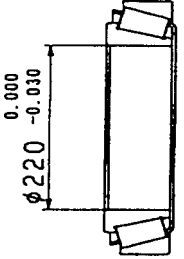
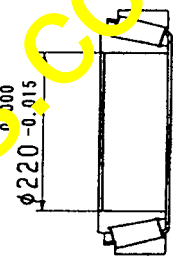
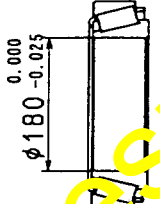
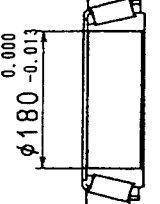

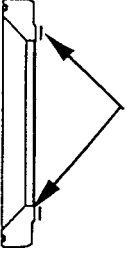
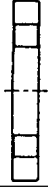
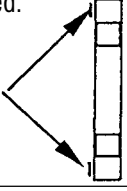

2. Contents of the modification

(1) Rear axle

	Current parts	Modified parts
Part numbers Housing	561-22-63102(HD785) 585-22-23103(HD985)	561-22-63103(HD785) 585-22-23104(HD985)
	<p>The tolerance for the outer diameter has been modified.</p>	
Part numbers Bearing (Inner)	568-22-12940(HD785) 585-22-22940(HD985)	561-22-62970(HD785) 585-22-22941(HD985)
	<p>The tolerance for the inner diameter has been modified.</p>	
Part numbers Bearing (Outer)	568-22-12960(HD785) 585-22-22960(HD985)	561-22-62980(HD785) 585-22-22961(HD985)
	<p>The tolerance for the inner diameter has been modified.</p>	
Part numbers Shim	None	561-22-62260 0.05 mm thick shims have been supplemented. (*)
Shim adjustment Bolt tightening torque when measuring the retainer clearance	127.4 ± 4.9 Nm x 4 places {13 ± 0.5 kgm x 4 places}	(*) 147 ± 4.9 Nm x 4 places {15 ± 0.5 kgm x 4 places}

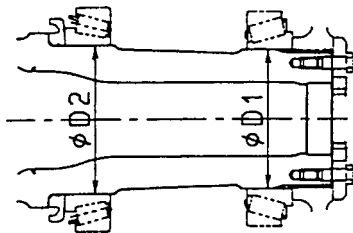
(*) 0.05-mm-thick shims have been newly prepared to provide a slight pre-load to the bearing when it is adjusted.

(2) Front axle

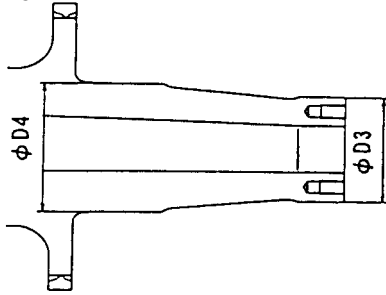
	Current parts	Modified parts
Part numbers Cylinder	561-50-61113 561-88-65500(ABS) The tolerance for the outer diameter has been modified. 	561-50-61114 561-88-65501(ABS) 
Part numbers Bearing (Inner)	566-22-12180(HD785) 585-27-22180(HD985) The tolerance for the inner diameter has been modified. 	561-27-61940(HD785) 585-27-22181(HD985) 
Part numbers Bearing (Outer)	568-22-11960(HD785) 585-27-21960(HD985) The tolerance for the inner diameter has been modified. 	561-27-61960(HD785) 585-27-21961(HD985) 
Part numbers Retainer	561-27-61130 	561-27-61131 The end faces have been hardened. 
Part numbers Retainer	561-27-61141 	561-27-61142 The end faces have been hardened. 
Part numbers Shim	None	561-27-61190 0.05 mm thick shims have been supplemented 
Shim adjustment Bolt tightening torque when measuring the retainer clearance	127.4 ± 4.9 Nm x 3 places {13 ± 0.5 kgm x 3 places}	147 ± 4.9 Nm x 3 places {15 ± 0.5 kgm x 3 places}

3. Dimensions to reach when repairing and reusing the axle tubes

(1) Rear axle



(2) Front axle



Sections	With the current part	With the modified part
Dimension "D1"	$\phi 300 \begin{smallmatrix} -0.017 \\ 0.069 \end{smallmatrix}$	$\phi 300 \begin{smallmatrix} 0.000 \\ -0.032 \end{smallmatrix}$
Repair limit	$\phi 299.778$	$\phi 299.778$
Surface coarseness	▽▽▽	▽▽▽

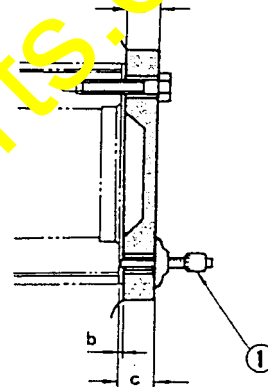
Sections	With the current part	With the modified part
Dimension "D3"	$\phi 180 \begin{smallmatrix} -0.014 \\ -0.055 \end{smallmatrix}$	$\phi 180 \begin{smallmatrix} 0.000 \\ -0.025 \end{smallmatrix}$
Repair limit	$\phi 179.830$	$\phi 179.830$
Surface coarseness	▽▽▽	▽▽▽

Dimension "D4"	$\phi 220 \begin{smallmatrix} -0.015 \\ -0.061 \end{smallmatrix}$	$\phi 220 \begin{smallmatrix} 0.000 \\ -0.025 \end{smallmatrix}$
Repair limit	$\phi 219.801$	$\phi 219.801$
Surface coarseness	▽▽▽	▽▽▽

4. Shim adjustment methods for the bearings

(1) Rear axle

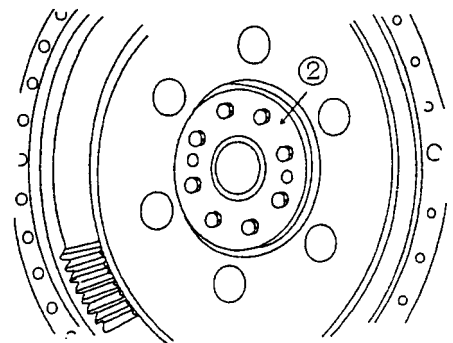
- (i) Without use of shims, temporarily fasten the retainer ② by tightening every other bolts, namely, 4 bolts in total.
- (ii) While turning the wheel hub by 20 to 30 turns, tighten the bolts evenly to the specified tightening torque of 147 ± 4.9 Nm (15 ± 0.5 kgm).
 - ★ If the bolts were tightened omitting turning of the wheel hub, the bearing would not fit accordingly and proper pre-load cannot be applied.
- (iii) Using a depth micrometer ①, measure the dimension "c" between the end face of the axle and the end face of the retainer ②.
 - ★ Measure the above dimension "c" at 2 points and adopt their average value.
- (iv) Removing the retainer, measure the thickness "a" of the retainer, and add 0.3 mm to the difference "b" between the two measured values, i.e., "b" (= "c" - "a") to obtain the optimum shim thickness. Meanwhile, the shim thickness should be determined in units of 0.05 mm and the fraction figures should be rounded up.
- (v) Setting the optimum number of shims and the retainer in position, tighten the bolts to the tightening torque of 926.7 ± 102.9 Nm (94.5 ± 10.5 kgm) while turning the wheel hub by 20 to 30 turns.



Apply adhesive (LT-2).

(2) Front axle

- (i) Without use of shims, temporarily fasten the retainer ③ by tightening every other bolts, namely, 3 bolts in total.
- (ii) While turning the wheel hub by 20 to 30 turns, tighten the bolts evenly to the specified tightening torque of 147 ± 4.9 Nm (15 ± 0.5 kgm).
 - ★ If the bolts were tightened omitting turning of the wheel hub, the bearing would not fit accordingly and proper pre-load cannot be applied.
- (iii) Using a depth micrometer ④, measure the dimension "c" between the end face of the axle and the end face of the retainer ③.
 - ★ Measure the above dimension "c" at 2 points and adopt their average value.
- (iv) Removing the retainer, measure the thickness "T" of the retainer, and add 0.3 mm to the difference "d" between the two measured values, i.e., "d" (= "c" - "T") to obtain the optimum shim thickness. Meanwhile, the shim thickness should be determined in units of 0.05 mm and the fraction figures should be rounded up.
- (v) Setting the optimum number of shims and the retainer in position, tighten the bolts to the tightening torque of 926.7 ± 102.9 Nm (94.5 ± 10.5 kgm) while turning the wheel hub by 20 to 30 turns.



Apply adhesive (LT-2).

