

Service Manual

01

Driving Axle

SHP-S16.5

Model SHP-S16.5N

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2.5.4 Replacing the pad assy

When the thickness of the brake lining has reduced to 4 mm (0.16 in) , replace the pad assy.

1. Set the outriggers, and remove the tire. (To remove the brake assy as a unit, unscrew the 4 mounting bolts.)
2. Apply an 11mm box wrench on bleeder valve 2, connect a transparent vinyl tube (Inside diameter : 7 - 7.5 mm (0.276 - 0.295 in)) to the bleeder valve, and open the bleeder valve by turning the wrench.
3. Insert a piston return lever as shown below between pad assy 7, 8 and the disc plate, and push all pistons 13 fully home. Then, close bleeder valve 2.

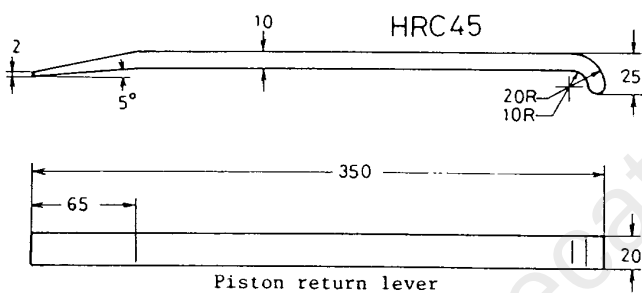


Fig. 5

IW577-015005

(Unit : mm) (1mm = 0.039inch)

4. Unscrew bolts 3 and 17 on the side of larger torque pin 4 approx. 4 turns, and extract torque pin 4 .
5. Remove pad assy 7, 8, and install new pad assy in their places.
6. Check O-ring 5 of torque pin 4, and replace it if damaged or defective otherwise.

7. Push in torque pin 4 in its hole after applying grease to both. At this time, adjust the clearance between the disc plate and torque pin 4 to 1.5 - 3 mm (0.06 - 0.12 in).
Check that the torque pin on the brake mounting side is not protruding above the mounting surface.

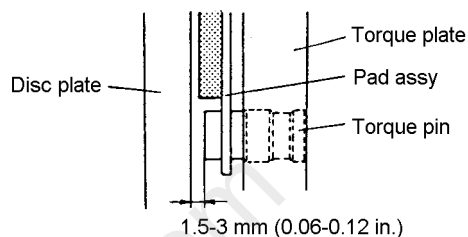


Fig. 6

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[NOTICE]

- ◆ When tightening bolts 3 and 17, make sure the bolt end is fully in the groove in torque pin.

8. Clamp torque pin 4 with bolt 3 (or 17).

Tightening torque of bolts 3 and 17: 49 - 55 N-m (5 - 5.5kgf-m) (36.2 - 40.6 ft-lbf)

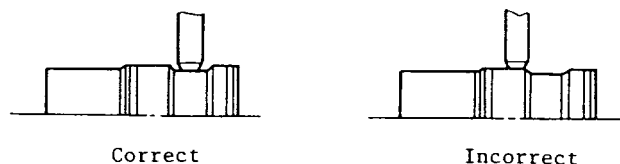


Fig. 7

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9. Bleed the brake circuits as explained in "Air Bleeding Procedure" in Chapter Y.

10. Mount the tires.

Hub nut torque:

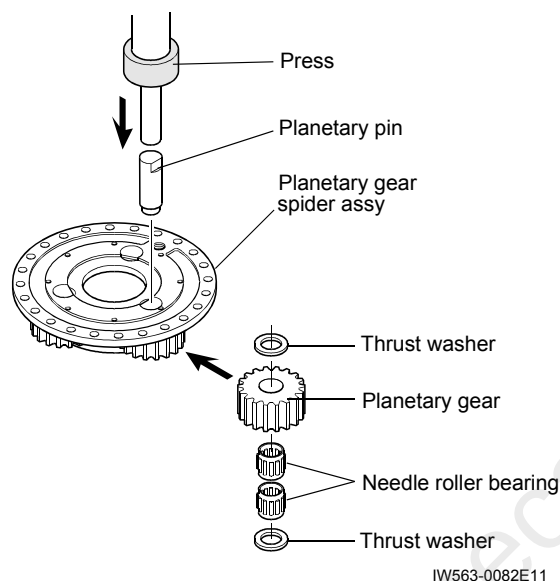
490 - 590 N-m (50 - 60kgf-m) (361 - 434 ft-lbf)

4.8 Assembling planetary gear spider assy

[NOTICE]

- ◆ Before press fit planetary pins, be sure to place cutout portion inside.
- ◆ Put the tongue of thrust washer in spider's concavity.

1. Within planetary gear spider, put planetary gears, thrust washers and needle bearings.
Then press fit planetary pins.



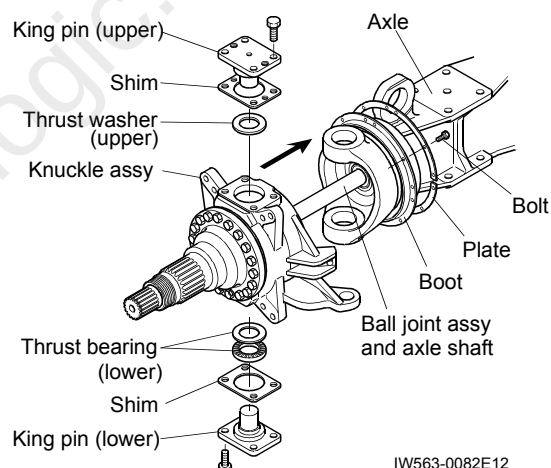
2. Put O-ring in the O-ring groove of cover.
After aligning the matchmarks, install the cover to planetary gear spider with bolts coated with THREEBOND No. 1215.
Tightening torque: 25 ± 5 N-m { 18.4 ± 3.6 ft-lbf }

4.9 Installing knuckle assy

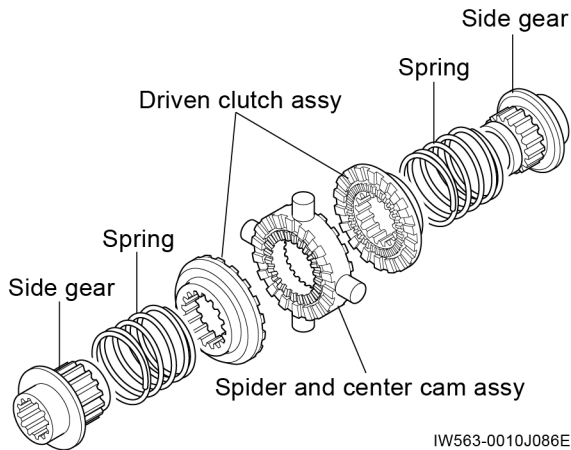
[NOTICE]

- ◆ Apply lithium base grease containing MoS2 to sliding surfaces of king pins and king pin thrust washers.

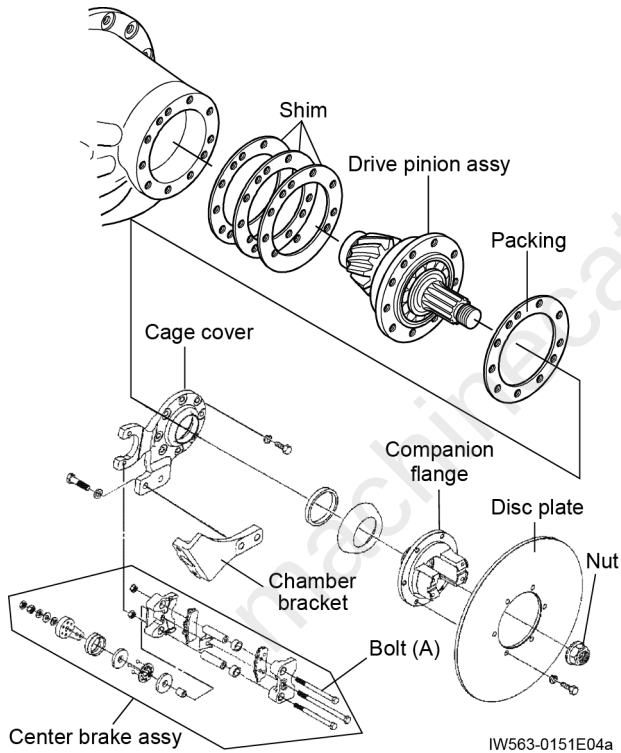
1. When no king pin-related parts have been replaced, re-assemble the same original thrust washer (upper) and shim to king pin (upper) and thrust bearing (lower) and shim to king pin (lower) just before disassembly.
2. When any parts have been replaced that affect king pin function, the shim thickness should be calculated according to the following procedure for each of upper and lower king pin.



Differential Carrier Assembly



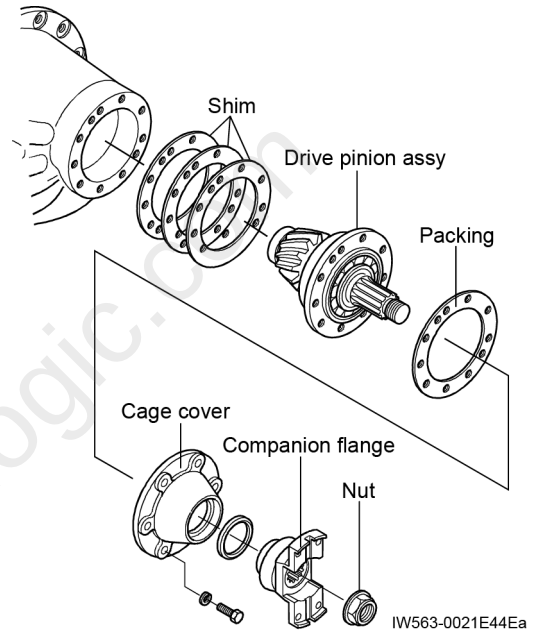
2.4 Drive pinion assy (front axle)



1. Remove bolts (A), and remove center/parking brake assy. Keep shim set.
2. Undo crimp on nut. While keeping disc plate from turning with a proper tool, loosen nut.
3. Remove bolts and disc plate.

4. Remove cage cover and chamber bracket.
5. Pull out drive pinion assy.
6. For ease of adjustment during reassembly, keep removed shims without bending them.

2.5 Drive pinion assy (rear axle)

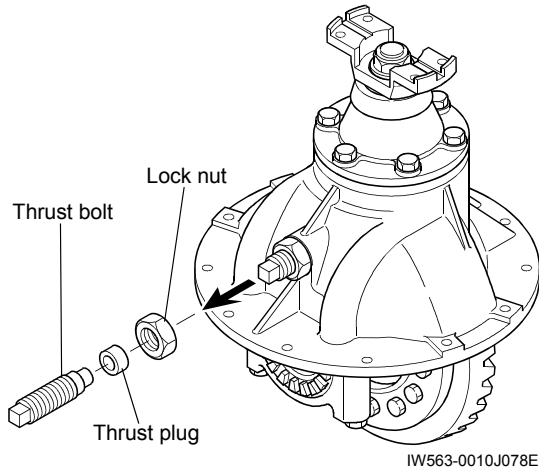


1. Undo crimp on nut. While keeping companion flange from turning with a proper tool, loosen nut.
2. Remove cage cover.
3. Pull out drive pinion assy.
4. For easy adjustment at reassembly, store removed shims without bending them.

Differential Carrier Assembly

[NOTICE]

- ◆ Apply THREEBOND No. 1215 or equivalent to thrust bolt threads.



3. While making center/parking brake assy straddle over the disc plate, and tighten bolt (A) hand tight.

4. Tighten nuts on bolt (A) to specified torque.

Tightening torque: 134 ± 13 N-m $\{99 \pm 9.6$ ft-lbf $\}$

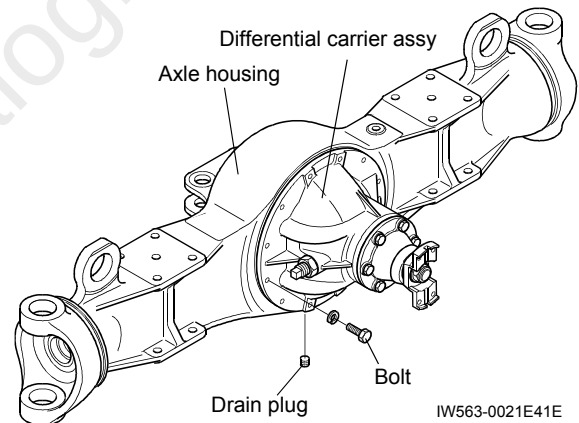
[NOTICE]

- ◆ Apply ThreeBond No.1360K or equivalent to bolt threads.

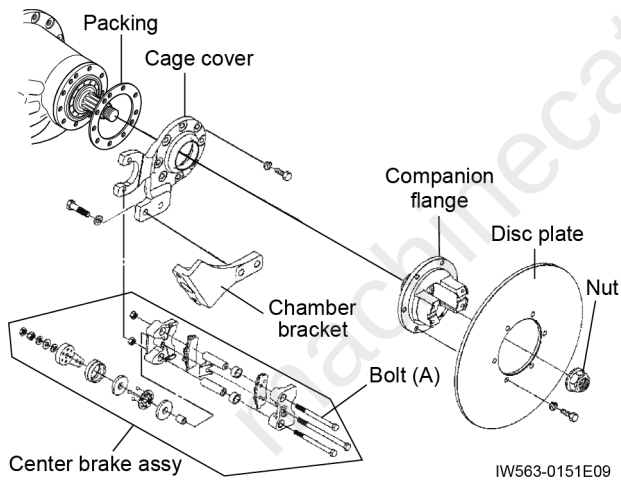
5.9 Installing differential carrier assy

1. Apply THREEBOND No. 1215 or equivalent to the surface of axle housing where carrier cage is placed. Install differential carrier assy on axle housing with bolts.

Tightening torque: 98 ± 20 N-m $(72 \pm 14$ ft-lbf $)$



5.8 Installing center/parking brake assy (front axle)



1. Install chamber bracket on cage cover and tighten it with bolts.

Tightening torque: 270 ± 41 N-m $\{199 \pm 30$ ft-lbf $\}$

[NOTICE]

- ◆ Apply ThreeBond No.1360K or equivalent to bolt threads.

2. Install disc plate on companion flange and tighten it with bolts.

Tightening torque: 108 ± 20 N-m $\{80 \pm 14.8$ ft-lbf $\}$

[NOTICE]

- ◆ Apply ThreeBond No.1360K or equivalent to bolt threads.

2. Refer to the axle assy assembly procedure and install right and left axle shafts to complete axle housing assy.

Full Version Available

Tadano SHP-S16.5 and SHP-S16.5N Axle Service Manual

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