

PARTS & SERVICE NEWS

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| REF NO. | AT02108 |
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Page 1 of 7

SUBJECT: REPAIR PROCEDURE OF FRONT AXLE TUBE CRACK ON STOCK WA1200-3 AND UNIT

PURPOSE: To introduce modification procedure to prevent occurrence of cracks in the tubes for the front axle ass'y on WA1200-3 wheel loaders
Applicable machines: Machines being stocked by Komatsu overseas subsidiaries and, also, the tubes for the unit final ass'y)

APPLICATION: WA1200-3 Wheel Loaders, Serial Nos. 50008, 50010 and 50012

FAILURE CODE: 2A11HA

DESCRIPTION:

1. Introduction

Replace the tubes for the front axle ass'y and for the unit final ass'y on the WA1200-3 wheel loaders of the aforementioned serial numbers (machines being stocked by Komatsu overseas subsidiaries, etc.) with the improved tubes following the modification procedure being outlined in this Service News. If the subject machine has been already sold and in operation, make the replacement after separate discussion.

Regarding the shipment time of the improved parts, since it takes much time to get the material, the shipment of the parts will be made after discussion with the Call Center in the Mooka Factory.

Completion of shipments of all the necessary parts is expected in February or March '03. (Including replacement of these tubes at the time of overhaul.)

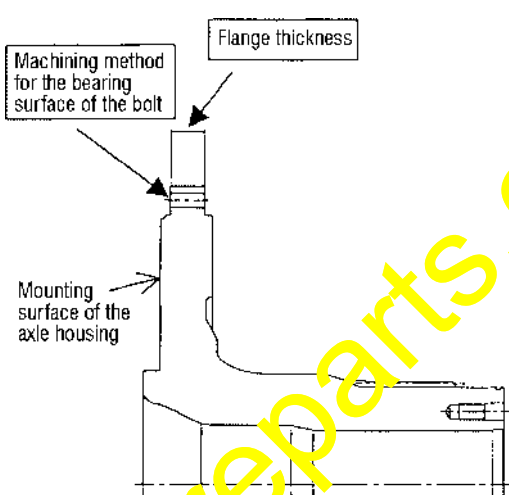
The Service News describing the modification procedures to replace the front axle tubes at times of overhaul is "AT02107".

2. List of parts

| Part No. | Part Name | Purpose of part | Q'ty | Remarks |
|--------------------------------|------------------------------------|------------------|---------------------------------------|---|
| 42C-22-10003 (42C-22-10002) | Axle (F) Ass'y (Axle (F) Ass'y) | } Reworked | 1 (1) | } Additional working procedure is as per this Service News. |
| 42C-22-14003 (42C-22-14002) | Final Ass'y (Final Ass'y) | | 1 (1) | |
| 42C-22-15002 (42C-22-15001) | Final Ass'y (Final Ass'y) | | 1 (1) | |
| 42C-22-13240 (42C-22-13231) | Tube (Tube) | } Improved parts | 2 (2) | } Improved parts |
| 01011-62405 (01010-62470) | Bolt (Bolt) | | 68 (68) | |
| 42C-33-11930 | O-ring | } Replacement | 4 | } Final brake ass'y |
| 175-21-12180 | Pin | | 12 | |
| 07000-15350 | O-ring | | 4 | } Consumable parts to replace when making this modification |
| 568-22-11630 | O-ring | | 4 | |
| 07002-13634 | O-ring | | 2 | |
| 581-22-11650 | O-ring | | 2 | |
| 07000-15425 | O-ring | 2 | For the mating surface on the housing | |
| 07002-12434 | O-ring | 6 | } Piping parts | |
| 42C-22-00070 | Shim Kit | Additional | 2 | Adjustment kit |

3. Details of the modification

The material of the tube has been changed from cast steel to forged parts to increase the durability.

| | | Before the modification | After the modification | Remarks |
|-----------------------|--|---|------------------------|---|
| Part No. of the tube | | 42C-22-13231 | 42C-22-13240 | |
| Material | | Cast steel part | Forged parts | |
| Identification method | Flange thickness | 31 mm | 61 mm | It is possible to identify the new and current parts even in the state of axle ass'y. |
| | Machining method for the bearing surface of the bolt | Counterboring | Continuous cutting | |
| Tube shape | |  | | |
| Part No. of the bolt | | 01010-62470 | 01011-62405 | Changed to fit to the flange thickness. |

↑ The bolt length is being changed since the flange will become thicker. Therefore, be sure to replace the bolts at the same time when making this modification. (34 bolts per one side)

4. Modification procedure

- ① The object of this modification on the machines being stocked by Komatsu overseas subsidiaries is the front axle only.
- ② Make sure the axle ass'y is being mounted on the exclusive stand which is used when shipped out from Komatsu factory.
- ③ The modification procedure is the same for both the LH wheel and the RH wheel.
- ④ The modification works for the spare final ass'y are, the Items ⑧ thru ⑳ in the Section (1) Disassembly and the Items ① thru ⑰ and ⑳ thru ㉑ in the Section (2) Assembly.
- ⑤ After finishing this modification, be sure to discard the removed current parts.

For details, refer to the Section "Disassembly and assembly of front axle ass'y" on page 30-088-1 and to the Section "Disassembly and assembly of final & brake ass'y" on pages 30-099-1 thru 30-099-4 in the Chapter "Disassembly and assembly" in the Shop Manual.

Numbers given in the descriptions below correspond to the item numbers given in the drawings on page 6 or page 7, or in the Shop Manual, and the pages of the Shop Manual for the WA1200-3 wheel loaders.

(1) Disassembly

- ① Drain oil from the inside of the axle.
- ② Remove the brake cooling pipes (2 pipes each on the LH and RH sides), the brake activating oil pipes (1 pipe each on the LH and RH sides) and the return pipes (30-088-1 (10) and (11)).
- ③ Remove the final cover ass'y (30-099-1 (3)).
- ④ Remove the sun gear (30-099-1 (7)).
- ⑤ Remove the shaft ass'y (30-099-1 (17)).
- ⑥ Using the stud bolt (30-099-1 (45)), tire mounting washer and nut, fasten the 4 sections around the periphery of the carrier ass'y (30-099-1 (8)).
- ⑦ With the final & brake ass'y in hoisted state, loosen the 36 pieces of mounting bolts to remove the ass'y.
- ⑧ Place the final & brake ass'y directing the mounting surface of the axle housing downward.
- ⑨ Remove the carrier ass'y (30-099-1 (8)).
- ⑩ Remove the ring gear (30-099-1 (16)).
- ⑪ Remove the carrier ass'y (30-099-1 (22)).
- ⑫ Loosen the bolt to remove the retainer (30-099-1 (34)) and the shim (30-099-1 (35)).
- ⑬ Remove the hub ring gear ass'y (30-099-1 (36)).
At this time, be careful so that the seal (30-099-1 (39)) does not fall down.
- ⑭ Remove the wheel hub ass'y (30-099-1 (46)).
At this time, be careful so that the seal (30-099-1 (49)) does not fall down.
- ⑮ Remove the cylinder and the piston ass'y.
- ⑯ Remove the gear (30-099-1 (71)).
- ⑰ Remove the plate (30-099-1 (68)) and the disc (30-099-1 (69)) alternately.
- ⑱ Remove the gear ass'y (30-099-1 (75)).
- ⑲ Remove the inner race of the taper roller bearing (30-099-1 (50)).
- ⑳ Remove the retainer (30-099-1 (72)), and remove three washers (30-099-1 (73)).

(2) Assembly

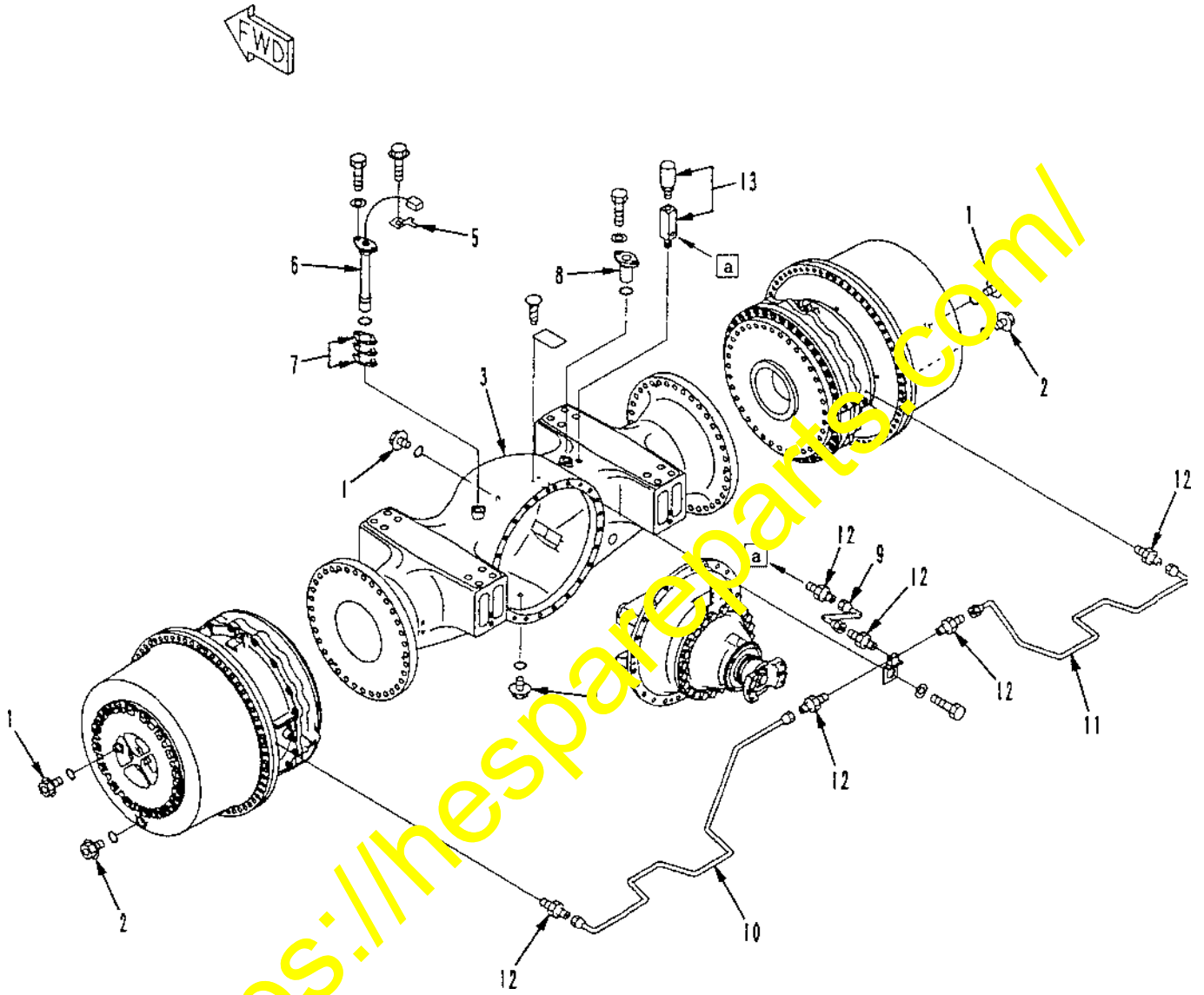
- ① Place the improved tube (42C 22-13240) directing the mounting surface of the axle housing downward.
- ② Install three washers (30-099-1 (73)) using the pin (175-21-12180).
At this time, hammer the pin until the pin head sinks 0.4 mm to 1.3 mm deep from the surface of the washer.
- ③ Install the gear ass'y (30-099-1 (75)) to the tube using the bolts (01011-62405) and washer newly prepared for this modification.
- ④ Install the retainer (30-099-1 (72)) to the tube.
- ⑤ Install the inner race of the taper roller bearing (30-099-1 (50)) to the tube.

<Pre-pressure adjustment for the wheel bearing> — Adjustment procedure in case the hydraulic jig as per 30-099-3 is not available.

- 1) Install the wheel hub ass'y (30-099-1 (46)) and the hub ring gear ass'y (30-099-1 (36)).
At this time, apply axle oil to the bearing surface.
- 2) Measure the thickness of the retainer (30-099-1 (34)) at 2 points and calculate the average value "T".
- 3) Tighten the retainer using three bolts after applying EO10 on their thread surfaces at a tightening torque of 12 ± 0.5 kgm.
- 4) After turning the wheel hub ass'y, re-tighten the bolt at the tightening torque of 12 ± 0.5 kgm. Repeat this for about 10 times, until torque down disappears.

- 5) Measure the distance between the surface of the retainer and the end face of the tube at 2 points using a depth micrometer and calculate the average value "D".
- 6) Select the shims so that the total shim thickness may become $(D-T) + 0.1/0$.
- ⑥ Remove the hub ring gear ass'y (30-099-1 (36)) and the wheel hub ass'y (30-099-1 (46)).
- ⑦ Place the gear (30-099-1 (71)) on the washer (30-099-1 (73)).
- ⑧ Install 10 sheets of plates (30-099-1 (68)) and 9 sheets of discs (30-099-1 (69)) alternately.
At this time, install the 9 sheets of plates so that the center of the tooth cutout may match the center of the tooth cutout of the wear indicator mounting section. Also, install the last 1 sheet of the plate so that the tooth comes to the wear indicator mounting section.
- ⑨ Install the cylinder and piston ass'y using the bolt and washer.
- ⑩ In the state where the seals (30-099-1 (49) and (54)) being installed, measure the level difference between the seal and the retainer at 4 points around the periphery and adjust the level difference within 1 mm.
- ⑪ Install the wheel hub ass'y (30-099-1 (46)).
- ⑫ In the state where the seals (30-099-1 (39) and (47)) being installed, measure the level difference between the seal and the retainer at 4 points around the periphery and adjust the level difference within 1mm.
- ⑬ Install the hub ring gear ass'y (30-099-1 (36)).
- ⑭ Fasten the shims (30-099-1 (35)) selected as above and the retainer (30-099-1 (34)) by tightening the bolt.
- ⑮ Install the carrier ass'y (30-099-1 (22)).
- ⑯ Install the ring gear (30-099-1 (16)) using the plate (30-099-1 (15)), bolt and washer.
- ⑰ Install the carrier ass'y (30-099-1 (8)) using four bolts.
At this time, using the stud bolt (30-099-1 (45)), tire mounting washer and nut, fasten the 4 sections around the periphery of the carrier ass'y. (However, this process is not necessary when repairing the final ass'y.)
- ⑱ Hoisting the final and brake ass'y, install it to the axle housing using 36 pieces of mounting bolts.
- ⑲ Install the shaft ass'y (30-099-1 (17)).
- ⑳ Install the sun gear (30-099-1 (7)).
- ㉑ Install the final cover ass'y (30-099-1 (3)) using the bolt and washer.
- ㉒ Install the brake cooling pipes (2 pipes each on the LH and RH sides), the brake activating oil pipes (1 pipe each on the LH and RH sides) and the return pipes (30-083-1 (10) and (11)).
- ㉓ Refill specified quantity of oil into the axle.

Front axle ass'y



Final and brake ass'y

