# SERVICE NEWS

MITSUBISHI HEAVY INDUSTRIES, LTD.
MITSUBISHI DECK CRANE

| type | subject | Ref |
|---|---|---|
| HDC | Slewing bearing for Deck Crane<br>Necessity of periodical Rocking test | AS-DC08-003(R1)<br>Issue : August, 2009<br>Revise : April, 2019 |

We would like to express our gratitude for your loyal patronage.

Slewing bearing is one of the most important components of deck crane, so It is very important to grasp the condition of slewing bearing periodically in order to prevent unexpected trouble.
You are kindly requested to pay maximum attention to following items.

1. About Rocking test (check of wear amount of slewing bearing)
   To grasp wear amount of slewing bearing, check the difference of incline (change of gap amount) of slewing bearing from upper limit (minimum reach ) to lower limit (max reach). In detail, please check attached procedure of rocking test.

2. Interval : Every 6 month
   - If class has other requirement of Rocking test interval, please follow it.
   - If wear amount close to tolerance, more frequent inspection is requested.

3. Tolerance : 3mm from initial value (*)
   *Initial value : check result of new building stage (or 0.6mm if there are no record).
   *If inspection result is over the tolerance, slewing bearing must be replaced.

4. Remarks for stable operation
   Please pay attention to the bellows in order to maximize lifetime of slewing bearing.
   - Use under Safety Working Load
     (Proper setting of relief valves, Select GRAB mode during grab operation.)
   - Do not operation roughly i.e. slant pulling, swing the cargo/grab etc..
   - Carry out necessary inspection property. (i.e. bolt tightening, greasing etc.)

   Addition to the above, our engineer can instruct proper procedure of rocking test additionally during our General inspection etc..
   Also please contact us if slewing bearing need to replace because using Genuine and qualified slewing bearing is most important for safety and stable operation.

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## 4.4.10 Replacement criteria for slewing ring (measuring wear volume)

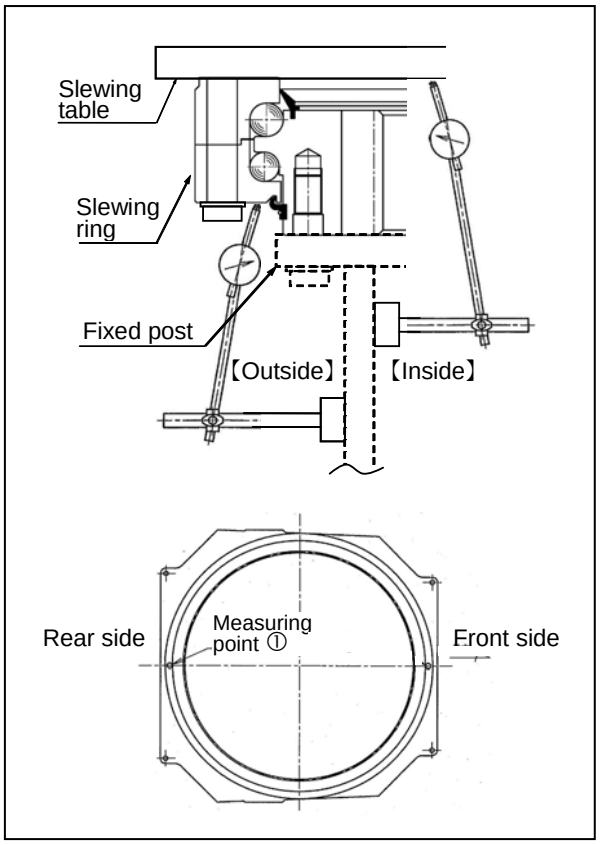
| CAUTION | |
|---|---|
|  | **Always put on personal protective equipment when working inside/outside the deck crane.**<br>* Because there is a high possibility of high place work, it could cause serious accidents due to falling off of personnel, tools or parts. |
|  | **Make sure that no one is under the lifted cargo or inside the working range of the deck crane before performing maintenance or inspection.**<br>* Otherwise, a serious accident could result because under the lifted cargo and inside the deck crane operating area are dangerous zone. |
|  | **The worker outside the cabin and operator must engage in operation communicating with each other when inspecting the deck crane.**<br>* Otherwise, it could cause a serious injury because there are dangerous zones inside/outside the deck crane. |

The following describes the measuring procedure of the wear volume of the slewing ring ball, and the replacement criteria (allowable wear volume.)

## Measuring wear volume

### NOTE

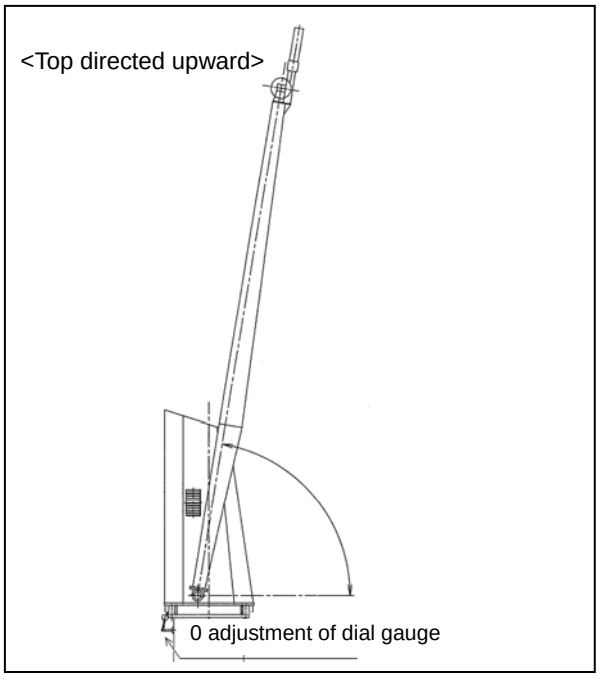
- **Measure the wear volume with the edge of the jib directed towards 4 sides, the fore side, starboard side, stem side, and port side.**




Fix the dial gauge on the outside surface of the fixed post as shown in the right figure, and apply the probe to the bottom surface of the outer ring of the slewing ring.

(The measurement point is "measuring point ①" on the rear of the deck crane.)

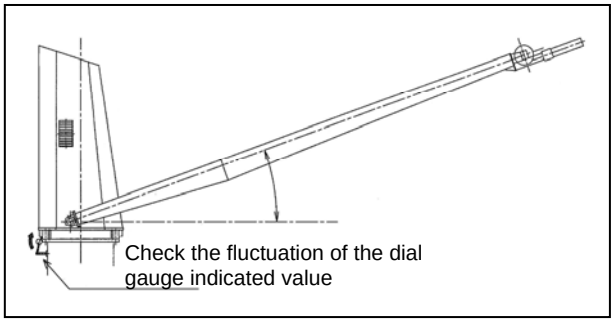
*If the measurement is performed inside the fixed post, place the dial gauge on the inside surface of the fixed post and apply the probe to the bottom surface of the base plate of the deck crane.

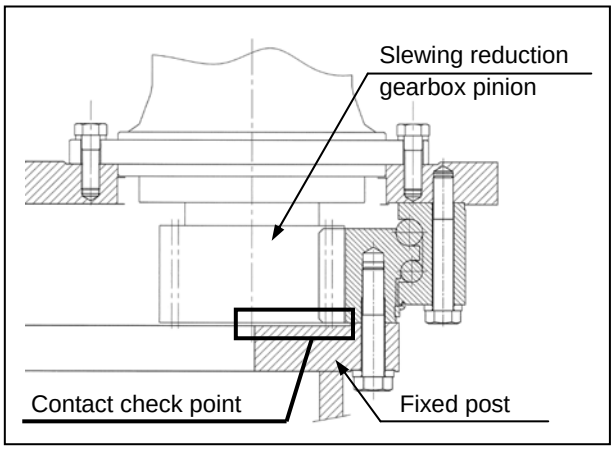



2 Perform the initial setting (direct the top of the jip upward.)

*1* Direct the top of the jib upward by luffing operation. (Minimum reach)

*2* Adjust the dial gauge to 0.




3 Measure the wear volume.

*1* Lower the jib to the maximum reach by luffing operation.

*2* Record the indicated value of the dial gauge at the measuring point ① of the rear side of the deck crane.

*3* Check that the bottom surface of the pinion doesn't contact with the top surface of the fixed post top flange.

**▶▶ NOTE**

- **Be sure to measure without load. If the wear volume is measured with load, the contact position between the ball of the bearing a raceway varies, the dial indicated value fluctuates greatly.**
- **Measure the wear volume at the 0 point position without slewing the deck crane.**

4 Make a diagnosis of the measured result.

The result of the measurement of step 3 is the wear volume including the clearance between the ball of the bearing and raceway.

If any one of the results of the measurements towards 4 sides, the fore side, starboard side, stem side and port side, exceeds +3mm from the initial value (allowable wear volume), replace the bearing.

The allowable wear volume is same regardless of outside measurement/inside measurement.

# Measurement sheet of Rocking test

Shipyard :

Ship No. :

Deck Crane No. : No.1

unit $10^{-2}$mm

| Date / Toward | ( Initial ) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ＜Fore side＞ | | | | | | | | | | | | |
| ＜Starboard Side＞ | | | | | | | | | | | | |
| ＜Port side＞ | | | | | | | | | | | | |
| ＜Stern side＞ | | | | | | | | | | | | |

unit $10^{-2}$mm

| Date / Toward | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ＜Fore side＞ | | | | | | | | | | | | |
| ＜Starboard Side＞ | | | | | | | | | | | | |
| ＜Port side＞ | | | | | | | | | | | | |
| ＜Stern side＞ | | | | | | | | | | | | |