

Service Bulletin

Reference 2015-001

Subject: Slewing Bearing Replacement Procedure

Equipment Required

- A crane capable of lifting a minimum of 10,000 lbs.
- (2) JLG man lifts or similar.
- (2) Heavy-duty lifting slings. Assume each arm weighs 6,500 lbs.
- 3/4" flat open-end wrenches (for 1/2 diameter bolts on 2nd slew bearing).
- 1-5/16" wrenches (7/8 nuts on pedestal).
- Socket for 5/8" bolts (15/16") and for 7/8" bolts (1-5/16").
- Torque wrench capable of generating 500 ft. lbs. of torque.
- 4-foot level
- gallon container of "All Metal" premium aluminum compound (available at most auto paint stores)
- (4) flat plastic 2 inch wide putty knives (for mixing & spreading the All Metal compound)
- Rubber hammer, standard hammer, chisel, flat punch and miscellaneous shop tools.
- Power sander with sanding disks (for removing old All Metal compound)
- flat 18 inch X 18 inch steel sheets (for mixing the All Metal compound)
- 7/8-9 & 5/8-11 bottom tap.
- 10-15 pallets and miscellaneous blocking.
- Set of new Grade 8 bolts (available from DYNATEK).

Definitions: Main conveyor arm – arm bolted to the mounting post.

2nd conveying arm – arm that discharges into the truck or rail car.

Procedure

- 1) Disconnect – lockout power to the loadout system.
- 2) Disconnect the power cables and control wires connecting the two arms.
- 3) Using a crane and sling, rig the 2nd conveying arm for lifting.
- 4) Remove the pinion gear attached to the rotational drive motor on the 2nd arm. The gear is held on to the motor shaft by a bolt on the bottom of the gear.
- 5) Remove the 1/2 inch diameter bolts that are used to attach the 2nd arm to the slew bearing. The bolts are located on the top side of the slew bearing that's located at the junction of the (2) conveyor arms.
- 6) Loosen each bolt about 2 turns only and then move to the next bolt. Repeat, working your way around the bearing. Repeat this process until the 2nd arm detaches from the slew bearing.
Note: This is a critical process step. If the 2nd arm is not secured properly, it can sag or move side-to-side. For best results, we recommend (2) lifting points to insure a balanced lift.

- 7) Lower the 2nd arm to the ground and set aside on pallets or blocking.
- 8) Using a crane and slings, rig the main arm for lifting.
- 9) Remove the pinion gear attached to the rotational drive motor on the main arm. The gear is held on to the motor shaft by a bolt on the bottom of the gear.
- 10) Remove the nuts located on the bottom side of the main arm's slew bearing. *Note: This is a critical process step. If the main arm is not secured properly, it can sag or move side-to-side. For best results, we recommend using (2) lifting points to insure a balanced lift.*
- 11) Lower the main arm to the ground and set aside on pallets or blocking.
- 12) In order to remove the slew bearings, the main arm should be flipped over so the slew bearing is facing up. Using a lifting sling, choke the main arm in the center and lift & roll the arm over. Use blocking as required to prevent motor and gear reducer damage when rolling the arm over. Use a 4 foot level to check for level side-to-side and end-to-end. Adjust as required.
- 13) The slew bearing removal process is largely the same for both bearings. However, the main slew bearing is sitting on a spacer ring while the 2nd arm's slew bearing is mounted directly to the base plate.

Removing/Re-installing the Main Arm's Slew Bearings

- 1) Remove and save any grease fittings or attachments and make note of their location.
- 2) Remove and save the main slew bearing mounting bolts.
- 3) Tap the main slew bearing with a rubber hammer to break it loose from the spacer ring. Remove the bearing.
- 4) If the spacer ring was disturbed during the removal of the main slew bearing, remove the spacer ring and follow steps 7 through 11.
- 5) If the spacer ring was not disturbed, position the new slew bearing being sure to align the grease fitting to match up with any grease attachments.
- 6) Install new 7/8-9 X 4 inch GR 8 bolts. Note: Lubricate the bolts with anti-seize compound and torque to 460 ft. lbs.
- 7) If the main slew bearing's spacer ring was disturbed, remove the spacer ring and clean/sand away any old All Metal compound.
- 8) *ALL METAL consists of a base material and a hardener. Follow the mixing instructions on the can. Roughly 1/4 of the can will be needed per bearing. Note: All Metal sets up very fast after mixing so the spacer ring and bearing need to be set within minutes of applying the All Metal.*

- 9) To mix, place 3 lbs of All Metal in a 1 gallon plastic bag. Add 8 milliliters (0.3 ounces) of hardener and mix by kneading the bag until well combined. Note: Mixing should be done where the temperature is 65 degrees F or higher.
- 10) Cut a small corner off the plastic bag and squeeze the All Metal to form a about 1/8 inch wide bead or ribbon around and between the bolt holes (but not over or in) in the area where the spacer ring will sit.
- 11) Set the spacer ring on the All Metal and align the bolt holes.
- 12) Set the slew bearing on the spacer ring. Using the old bolts you saved (Step A) insert about (10) bolts in random locations around the slew bearing and *finger tighten*.
- 13) Using the 4 foot level, tighten the bolts until the bearing is level front-to-back and side-to-side. *Note: This is a critical process step. The goal is to level the slew bearing & spacer ring. All Metal should be seen oozing out from under the spacer ring. Stop tightening the bolts as soon as bearing measures level. Do not over-tighten.*
- 14) Once level, allow the slew bearing and All Metal compound to set for 24 hours to harden completely before re-installing the arm.
- 15) Remove any All Metal residue from the bolt holes and chase. Clean threads with a bottoming tap if required.
- 16) Lubricate threads and install new 7/8-9 X 4 GR 8 bolts. Snug all bolts first. Then torque all bolts, alternating from side to side on the slew bearing. The bolts should be torqued to 460 ft. lbs. LUBRICATED.
- 17) Re-attach the lubrication lines to the bearing.

Removing / Re-installing the 2nd Arm's Slew Bearing

The process is nearly identical to the one above. The only difference is:

- a) The bolts are 5/8-11 x 3" GR 8 and the torque specification is 170 ft. lbs. lubricated.

Re-installing the Main Arm on the Pedestal

- 1) Flip main arm right-side up for re-installation.
- 2) Locate the new 7/8-9 X 7-inch GR 8 bolts and the 1/2-13 X 3-inch GR 8 bolts. Insert them into the bearings through the bolt access holes before lifting the main arm for re-attachment.
- 3) Rig the main arm with (2) lifting slings. *Note: This is a critical process step. The main arm must be level side-to-side and end-to-end. Re-rig until level can be achieved.*



- 4) Lift the main arm and position it over the pedestal. Align the 7/8" bolts with the holes in the mounting plate at the top of the pedestal. Carefully lower the arm and attach new 7/8" nuts without washers.

Re-attaching the 2nd Arm to the Main Arm

- 1) The 1/2"-13 X 3 GR 8 bolts should already be in the 2nd slew bearing.
- 2) Rig the 2nd arm with (2) lifting slings. *Note: This is a critical process step. The main arm must be level side-to-side and end-to-end. Re-rig until level can be achieved.*
- 3) Lift the 2nd arm and position it under the 2nd slew bearing. Align the 1/2" bolts with the mounting holes in the mounting plate on the 2nd arm. Slowly raise the 2nd arm so that the mounting plate and slew bearing touch. Thread the 1/2" bolts into the mounting plate 2-3 turns per bolt, working your way around the bearing. Torque each bolt to 80 ft. lbs. if lubricated or 110 ft. lbs. if dry.
- 4) Re-install the pinion gears on both rotational drive motors, being sure to re-install the bolt in the bottom of each pinion gear.
- 5) Reconnect power and control wiring.
- 6) Re-check
- 7) RE-apply power to the system.

Note: If you have questions or need further assistance, please contact DYNATEK Customer Service or garyk@dynatekloadingsystems.com or 262.392.2162 Ext. 260