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HydraFiber[®] Processing Unit Technical Bulletin: Bearing Shim Plate Installation

Document Description: TSB- Bearing Shim Plate Installation

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Product: AgriNomix HydraFiber® Processing Unit

RE: Premature wear of shredder and mixer bearings and/or shafts.

Solution: Prevent substrate intrusion into bearing housing, eliminate carriage bolt to bearing housing interference.

Parts Required: Bearing shim plates (AgriNomix part# A53040-020-237), set-screws, thread-lock compound.

Tools Required: $\frac{7}{16}$ " and $\frac{3}{4}$ " wrenches, $\frac{5}{32}$ " Allen wrench, ball peen hammer (or similar), locking pliers, pry bar, and air gun.

In the design of the HydraFiber Processing Unit, accommodations were made for easy serviceability. Such accommodations have unfortunately revealed to also provide a path for stray soil/substrate particles to enter behind the mixer and shredder bearings. The compounded particles eventually pack between the bearing and machine side panel. Since the bearing is of the "sealed" design, the internal bearing components are not contaminated with the particles. But, the packed substrate acts as a virtual disc brake pad against the rear bearing seal (the brake rotor). This friction, in turn, creates excessive heat- which is the leading cause of premature bearing failure. The friction also creates a differential load between the shaft and the bearing's inner race. The load may eventually cause the shaft to spin within the bearing, causing damage to the shaft.

To better control substrate intrusion, retrofit shims have been developed. The shims will minimize premature bearing failure and related shaft damage.

There have also been noted instances of interference between the carriage bolt fasteners and the bearing housing. The extra-added thickness offered by the shim will eliminate that opportunity.

This technical service bulletin contains all steps necessary for ensuring proper installation of the shim plates. **Please read entire document before initiating procedure. All maintenance must be performed by qualified personnel. Ensure power is off and proper electrical lockout/tagout procedures are observed before initiating any maintenance.**

Note: In this bulletin, for sake of example and instruction, retrofit procedure will be performed on the lower mixer shaft bearings only (on the drive side of shaft). All other bearings, which too require retrofit, should be addressed utilizing similar methods and measures.

1. Utilizing a $\frac{7}{16}$ " wrench, open right and left upper and lower doors. **Note:** A bungee cord may be utilized on upper doors to retain them. **See Figure 1.**



Figure 1- Open doors and retain

2. Remove belts from mixer shaft pulleys. Rotating the assembly while rolling the outer belt off a pulley will make for easy outer belt removal. Repeat to remove inner belt. **See Figure 2.**



Figure 2- Lower mixer chamber, pulley side

3. Locate upper and lower mixer cover plates. Utilizing a $\frac{7}{16}$ " wrench, loosen and remove hardware. This step is applicable for mixer bearings only. See Figure 3.

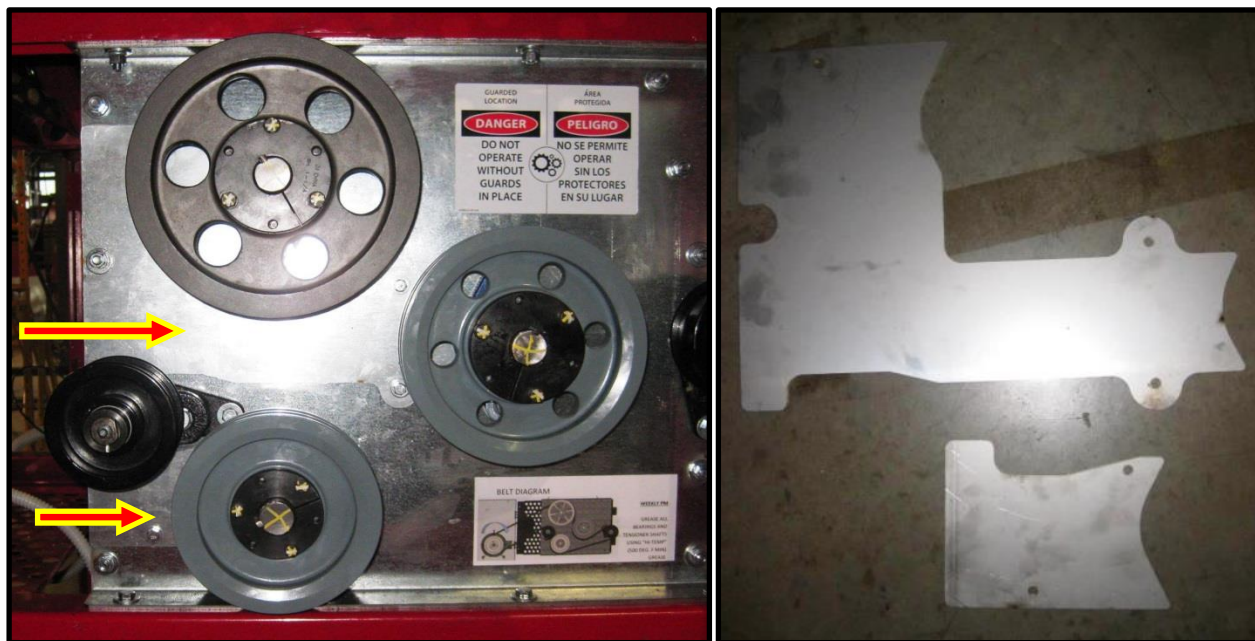


Figure 3- Mixer cover plates

4. Locate mixer shaft bearings. There is one (1) bearing behind each pulley. Utilizing $\frac{5}{32}$ " Allen wrench, loosen, remove, and discard the two (2) set screws in each bearing collar. Strike each bearing housing with a hammer. See Figure 4.

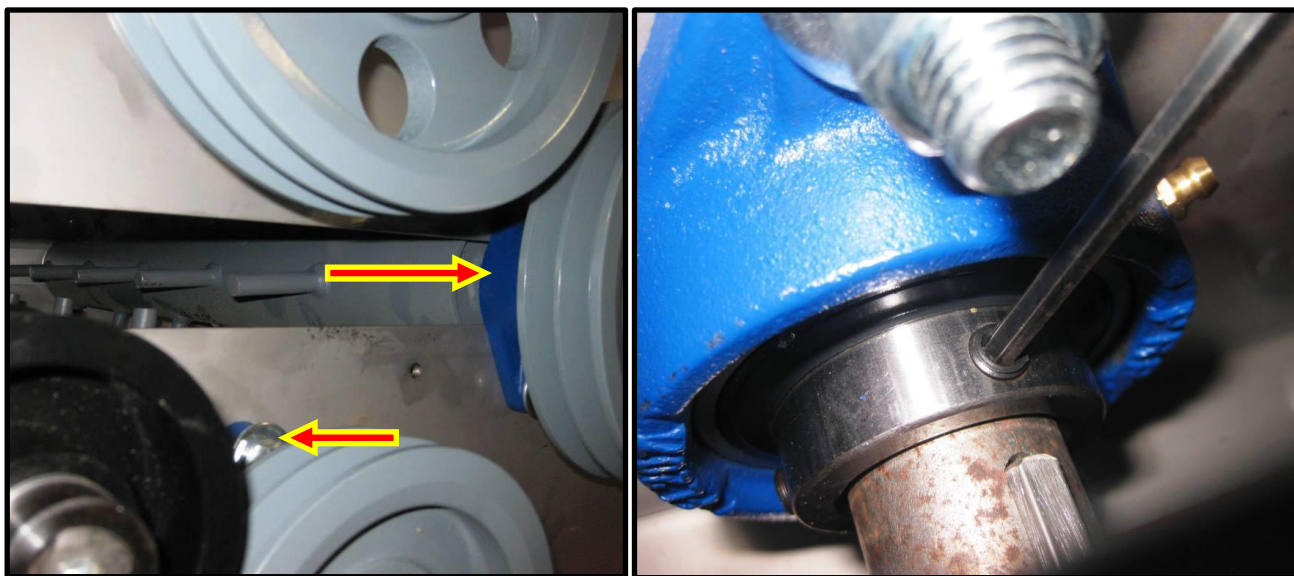


Figure 4- Shaft bearing

- Utilizing $\frac{3}{4}$ " wrench, loosen the nuts which retains the bearing flange. A wrench or finger behind or locking pliers on the outside might be utilized to prevent the bolt from spinning. These bolts are standard-head, not a carriage head. **See Figure 5.**

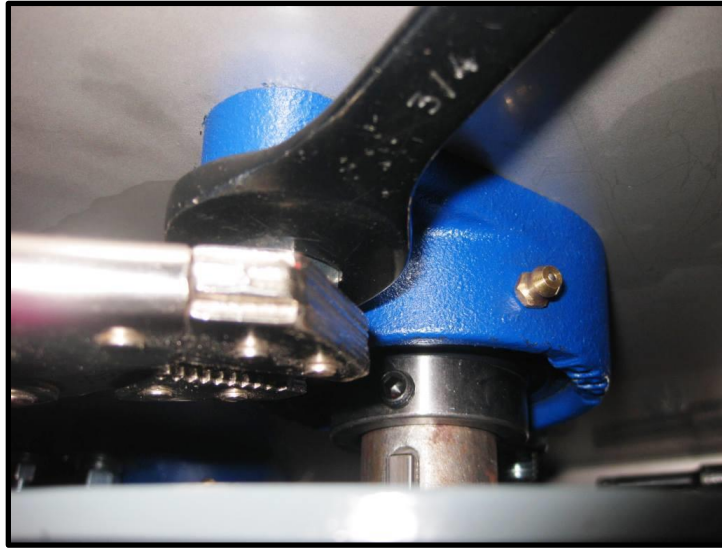


Figure 5- Shaft bearing hardware

- Utilizing a short pry bar, pry bearing away from the machine side panel, providing enough gap to slide-in the retrofit shim plates. **See Figure 6.**
- Utilizing an air gun (preferred) or wire, clean the material which is impacted behind bearing flange.
- Install one shim plate and push bearing tightly against side panel to retain it. Immediately install second plate, addressing the other half of the bearing.



Figure 6- Installing shim plates

9. Align two plates symmetrically behind the bearing flange.
10. Fully tighten hardware to secure bearing and shims. **See Figure 7.**

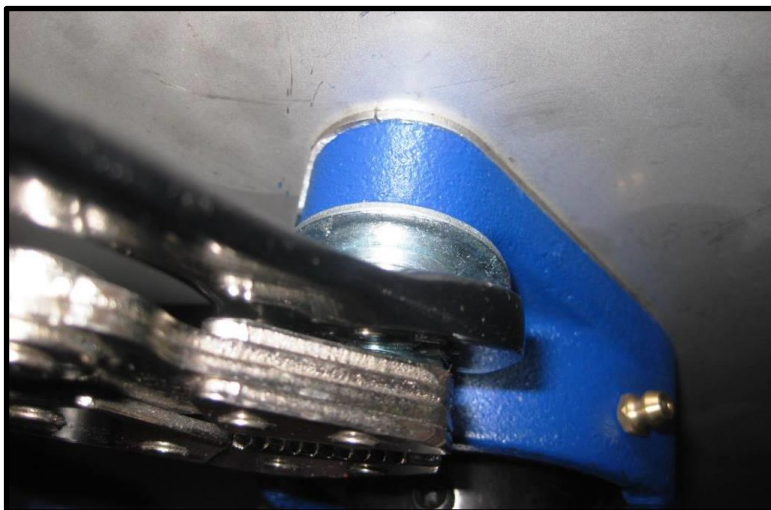


Figure 7- Aligning shim plates and tightening hardware

11. Apply thread lock compound to new set-screws, install screws, and tighten to ~70 in/lbs.
12. Reinstall mixer cover plates and belts. Check/adjust belt tension if necessary.

13. Repeat similar procedures for the remainder of the bearings. There are 15 more which must be addressed. The shredder bearings utilize carriage bolts; bolt will not spin. See Figure 8.



Figure 8- Finish by addressing the remaining bearings

14. Close and secure all doors. Machine operation is ready to be initiated.

TSB Replacement Components Include:

Qty.	Part Number	Description
36	90289A360	SET SCREWS, KNURL PT., 5/16 X 24 X 3/8"L
36	A53040-020-237	SHIM, BEARING HPU-S RETROFIT