REPLACING BEARINGS IN 90AD EXTRUDER THRUST ASSEMBLY
SAFETY

J.C. Steele and Sons equipment is designed to process large amounts of heavy products. To accomplish many of the required operations of our customers, high horsepower and heavy components are required. A great deal of time and effort has been invested into our equipment to make them as safe as practically possible. The safety features are no substitute of caution and common sense. A careless moment is all that is needed to cause a serious accident. Please refer to the machine’s Owner's Manual for a detailed list of safety precautions.

GENERAL DESCRIPTION

This bulletin outlines the procedure to replace the bearings in the 90AD Extruder Thrust Assembly. First, the thrust assembly must be removed. For this process, follow the steps outlined in TSB DSD 0001. Other procedures that may be needed to accomplish this procedure can be found in the machine owner’s manual. The following procedure applies to all 90AD extruder machines.
The thrust assembly along with the shaft weighs roughly 3100 lb. (1410 kg).

The center of mass of the thrust assembly and the shaft is located $72\frac{3}{8}$ in (1.84 m) from the auger end of the shaft.

SPECIAL TOOLS NEEDED

- Heat-treating furnace
- Permatex

MANPOWER ESTIMATE

This procedure will require 2 men for 3 hours, depending on ease of access to the thrust assembly. This does not include the time required to remove/replace the thrust assembly or to remove/replace the augers and liners.

PROCEDURE

1. Refer to TSB DSD 0001 to remove the thrust assembly (or TSB DSD 0002 if your machine has a sled)
2. Remove the packing assembly (58, 58A, 58B and 58C)
   - Refer to Figure 3
3. Set the assembly on a **level table or bench** with the shaft extending down through the support or the best way possible

4. Remove the **nut (8NA)** you unscrewed and the **12 bolts** holding the **lid (8SA)** in place

5. Lift the **shaft** out of the thrust casting
   - To safely lift out the shaft and bearings, tack weld two pieces of key stock to the shaft about a foot from the end (this keeps the cables from sliding off)
   - If it does not slide out easily, apply heat to the outside of the casting

6. Inspect the **bearings** and replace as necessary
   - They are press fit and great care should be taken to protect the threads on the shaft while removing and replacing the bearings

7. Heat **bearings** to 280° F and install on **shaft**

**FIG 7: Packing assembly as depicted in drawing SK-72-16**
- Do not use a torch or drive bearing on shaft
- The preferred method is to use a heat-treating furnace
- Keep the bearings in the furnace for 1 hour before removing
- Use heat-insulating gloves to transfer the bearings onto the shaft

8. Lower the **shaft** back into place
- Make sure there is no dust or grit in the bearings and thrust assembly casting (8)

9. Make sure the **ring** (8B) is in place

10. Replace the **O ring** in **lid** (8XAO) and **1/32 gasket**

11. Bolt the **lid** (8XA) in place and insert the **caterpillar seal** (8AG)
- Note that the rubber ring must press in past the lip

12. Slide the **spacer** (8S) in place against the **bearing** and install the **O ring** (8SO)

13. Place the **caterpillar seal** (8AG) in the screw on **cover** (8NA) the same way as in the **lid** (8XA)
14. Screw this on by hand (left-hand threads), then tap with hammer and punch until it is tight.

15. Preload the **bearing** with the **setscrews**
   - Coat inner setscrews with Permatex
   - Screw inner setscrews into housing cover until they bottom, but do not apply pressure
   - Coat outer setscrews with Permatex
   - Screw outer setscrews until they are seated against inner setscrews
   - Lock outer setscrews very firmly against inner setscrews

16. Replace the new **packing assembly** (58, 58A, 58B, 58C, 58G and 58R), leaving **58C** just snug
   - Do not pull this gland tight until back in the machine and after the machine has run a few hours

17. Clean the **vacuum chamber** out and make sure no grit or foreign matter can fall from above
   - If this is not done dirt can get under the mating flange of the vacuum chamber and thrust housing and cause air leaks and misalignment

18. Refer to **TSB DSD 0001** to replace the thrust assembly.