REPLACING THE HYDRAULIC CYLINDER ON THE 90AD EXTRUDER
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 hydraulic cylinder in the 90AD Extruder hydraulic die changer (either 3690 or 90-3 models).

SPECIAL TOOLS NEEDED

- Crane or come-along with 1 ton minimum tolerance
- Anti-seize
MANPOWER ESTIMATE

This procedure will require 2 men for 30 minutes to 1 hour, depending on ease of access. This time does not account for any maintenance that may need to be performed on the hydraulic cylinder.

PROCEDURE

A. REMOVAL

1. For the 90-3 HDC, fully retract the furthermost die holder with the other hydraulic cylinder.

2. Extend the hydraulic cylinder that you will be replacing as shown below.
   - If it is not possible to move the cylinder hydraulically, a pry bar must be used.
3. Perform standard plant procedures to **lock out all electrical sources** from the extruder and pug sealer.

4. Detach the **Synflex hoses** from the hydraulic cylinder and **drain the oil** into a clean container.
5. Ensure all the oil is removed by pumping air through the lines.

6. Remove the six 1½” socket head cap screws that attach the rod end brackets to the die carrier, and then remove both rod end brackets.

7. Slide the die carrier over so that it is separated from the rod end or retract the rod end using the air in the hydraulic cylinder.
8. Rotate the **hydraulic cylinder rod** until the **rod end** can be removed from the rod.

9. Completely retract the **hydraulic cylinder rod**.

10. Secure the **hydraulic cylinder** using a **crane** or a 1000 lb. **come-along**.

    - The **center of mass** of the hydraulic cylinder for the **90-3 HDC** is located 22.5 in. (0.572 m) from the end of the cylinder, as shown below.

    ![Figure 8: Center of mass of the hydraulic cylinder for the 90-3 HDC](image1)

    - The **center of mass** of the hydraulic cylinder for the **3690 HDC** is located 23.2 in. (0.589 m) from the end of the cylinder, as shown below.

    ![Figure 9: Center of mass of the hydraulic cylinder for the 3690 HDC](image2)
11. Loosen the **four socket head cap screws** that fasten the **hydraulic cylinder** to the hydraulic **die changer**.

12. Remove the **hydraulic cylinder** from the **hydraulic die changer** and lower it to the ground.

13. Perform any needed **maintenance** on the removed hydraulic cylinder.

   - If seal replacement is necessary, refer to the Schrader Bellows® Service Bulletin SB1140-M1.

**B. INSTALLATION OF NEW OR REPAIRED HYDRAULIC CYLINDER**

1. Ensure that the other die carrier is either completely retracted (90-3 HDC) or slid to the opposite end (3690 HDC).

2. Using the **crane** or **jack**, lift the **new hydraulic cylinder** (PCS S 1027 CB or PCS S 1021 CB) and line the bolt holes up to the bolt holes on the cylinder spacers.
3. Apply **anti-seize** to the four socket head cap screws.

4. Insert the **cap screws** into the holes on the **cylinder mount bracket**.

5. Slide the two **spacers** onto the **cap screws**.

6. Using the **crane** or **come-along**, lift the **new hydraulic cylinder** and line the **bolt holes** up with the **socket head cap screws**.

7. Tighten the **four cap screws** into the hydraulic cylinder pilot to the appropriate torque.
8. Extend the **hydraulic cylinder rod** partially.

9. Reattach the **rod end** to the **rod** by rotating the rod into the rod end.

10. Push the **die carrier** up against the **rod end** so that the brackets can be installed.

11. Install the **rod end brackets** on either side of the rod end.
12. Reattach the **Synflex hoses** by tightening the **crimp fittings**.

13. Refill the tank with oil and run the oil through the lines.

   - Wait for the oil from the hydraulic power unit to remove all the air in the pipes.