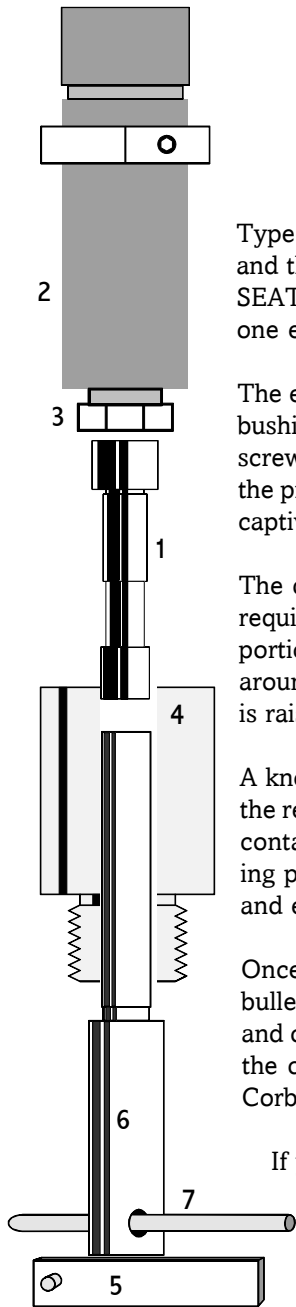


# How to Swage Bullets Using The **CORBIN** LTFB-4-H Die Set



Type -H dies fit into the ram of the Corbin Mega-Mite manual (CSP-2), the Hydro, Jr. (CSP-2H) press, and the Corbin Hydro-Press (CHP-1). The 4-die set consists of a CORE SWAGE (CSW--1-H), a CORE SEAT (CS-1-H), a POINT FORM (PF-1-H) die, and a LEAD TIP (LT-1-H) die, each with one internal and one external punch.

The external punch (1) is held in the floating punch holder (2), which comes with the press. A threaded bushing (3) is removed from the bottom of the punch holder, placed over the external punch, and then screwed back into the bottom of the punch holder to secure the punch. The punch holder screws into the press head, so the punch faces the ram. (Large diameter punches, such as 600 Nitro, have their own captive threaded bushing: do not remove this from the punch.)

The die (4) screws into the press ram, with its internal punch inside the ram. Some internal punches require the use of spring powered retraction: they have a quarter inch diameter hole through the head portion, through which a 1/4-inch diameter retraction pin (7) fits. The pin goes below the large spring around the press ram, and pushes down on the pin, which then pushes the punch down when the ram is raised, making it easier to insert material into the die.

A knock-out or ejection bar (5) goes through a slot in the press ram, below the spring and also below the retraction pin (if one is required - not all punches have a hole through the head). The knock-out bar contacts the head of the internal punch (6) on the down stroke, and comes to rest on the press mounting plate. This stops the movement of the bar while the ram continues down, making the punch stop and ejecting the component.

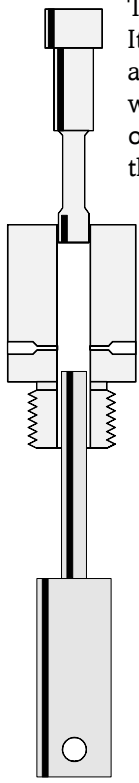
Once you have the punch holder adjusted to push the bullet just far enough to form a nice tip on the bullet, and to allow proper ejection each time, go ahead and process all the bullets. The adjustment and checking only has to be done on the first bullet. The open end of the jacket faces UP when you seat the core, and it faces DOWN when you form the ogive. In every step, you want a small amount of Corbin Swage Lube on the surface of the bullet or jacket, but not on the inside of the jacket.

If you use Corbin Core Bond, the core is swaged first, then put into the jacket by hand, and THEN the core bond is put into the jacket (one or two drops, which should run down between jacket and core). The core is melted quickly in the jacket, and the jacket is allowed to cool. Then, the jacket must be boiled in hot water to which some baking soda has been added (a table spoon per quart is sufficient). This neutralizes any remaining core bonding acid, which will destroy the surface of the dies.

Spread the cleaned, bonded jackets out on a dry towel and let them dry from their own heat, then seat their cores using the CS-1-H die, and form the ogive in the PF-1-H die as usual. Do not fail to clean the bonded cores in hot water and baking soda, or you may destroy the point forming die from residual core bond, which attacks the die surfaces. (Core Bonding is an option for jacketed bullets, not a requirement: it prevents the core and jacket from separating on impact and forces the jacket to expand evenly with the core).

If you wish to make lead bullets, without a jacket, you can swage the core and put it directly into the point forming die. However, if you do form it to almost finished diameter in the core seater, you will usually produce a slightly better bullet. To do this requires a punch that seals the die bore, not the external punch which fits into a jacket. In some cases the external point forming punch will fit. Try it by hand before inserting it with the force of the press, just in case it is too large to slip in easily. Never insert any punch under force that will not slip in by hand!

Never try to swage a component that will not go into the die by hand. The swaging operation depends on each component being slightly smaller than the die bore, and increases the bullet diameter a little with every step. The core seating die and point forming die are matched to each other for a given jacket and core material to within 0.0005 to .0008 inches with the core seater being smaller.



The first die is the CORE SWAGE (CSW-1-H). It is used to form a piece of lead to precise diameter, length and weight. You can use cut lead wire, or a cast lead core. Apply a small amount of Corbin Swage Lube to the cores as you handle them.

There are three bleed holes through the sides of the die, and its punches are very close fits to the die bore. They are the smallest punches in the set and only fit this die properly.

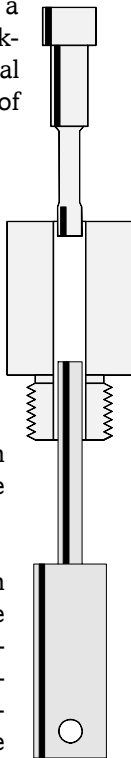
For power presses, set the bottom sensor so the pressure stops (red LED on the sensor goes on) just as the swaged core is ejected (internal punch even with the top of the die). Use a knock-out bar that allows the punch to come just to the die face, if you have more than one height of bar with your press (hand presses use three different heights of bars for various punch and die lengths).

Set the floating punch holder so the desired amount of lead is left in the die when the press stops moving up (position of the top sensor controls top of stroke on hydraulic presses, physical end of ram travel is fixed on hand press).

After making the desired number of cores, clean them in hot water to remove the swage lube, then let them dry and insert them into bullet jackets (if jackets are used). Select a diameter of external punch that fits the jacket ID at the point where you want the core to be after seating. Thicker jackets, and lighter cores in tapered jackets, both require a larger diameter external punch than thinner jackets or heavier bullets with a tapered commercial jacket. (See Corbin Handbook for discussion of proper core/jacket/punch fitting).

The core seating die (CS-1-H) is the second die in a flat base die set. It is NOT used when making rebated boattail bullets: instead, a pair of RBT dies is used in sequence to seat the core. The external punch can also be full diameter for the die in order to make large lead tip bullets, or have a projecting cone on the end to make hollow points. The internal punch can be flat, domed or have a conical projection to form the mirror image of that shape in the bullet base.

The correct core seating pressure is normally in the 300 to 500 PSI range. This can vary with the particular caliber, jacket thickness, and other features of the bullet, so follow any written instructions provided with the die regarding the suggested pressure. Always start with the pressure in a low setting (300 to 500 psi) and increase is



slowly until the jacket expands to just under the diameter you get with a swaged pure lead slug in the die. Any greater pressure than this will only stress the die and could bend punches or break dies, and serves no useful purpose.

Apply a small amount of swaging lube to the outside of each jacket as you pick it up to insert in the die; the amount that you get by rolling a drop between finger and thumb is sufficient in most cases. Lubricant should not be allowed inside the jacket: that is why the cores were washed clean before insertion into the jackets.

The final die for an open tip bullet is the POINT FORMER (PF-1-H). It shapes the ogive curve on the bullet and gives the bullet its final diameter. The diameter of the point form die itself is usually NOT the same as the bullet, and is designed to match the core seater, the jacket material and thickness, and the lead hardness.

The point form die is slightly different from the others in that the internal punch must push the bullet out by its nose, and consists of a spring steel pin mounted in the punch head. This pin must be retracted from the main cavity of the die during swaging, or the tip of the bullet would form around it and prevent ejection. When installing the internal punch, make absolutely sure that the retraction pin goes through the punch head so the retraction pin projects equally on both sides of the ram, and that the die is, in fact, screwed down with the end of the spring wire punch inside the die hole.

Shape the bullet by slowly lowering the external punch and pushing the open end first into the die. Eject, examine, and re-swage until the tip is closed to about the size of the ejection pin diameter. For lead tip bullets, leave the tip open and extrude sufficient lead from the end of the bullet so that there is enough lead to fill the cavity in the punch of the lead tip forming die.

The final die for a lead tip bullet is the LT-1 LEAD TIP FORMER. It looks like the core seater, but has a diameter slightly larger than the final bullet, and the internal punch has a cavity in the tip that is matched to the point forming die shape. Gently push the lead tip bullet from the point forming die into the LT die, to reshape the tip. Adjust the external punch insertion so that the bullet tip is just formed. Any further insertion will tend to press the edge of the internal punch against the jacket and create a ring or step in the ogive. Lead tip bullets require a larger tip opening, in the core seating operation, than open tip bullets, in order to assure that the lead tip is connected to the core securely.

