Operation of the Point Forming Die

LEFT: Swaging the bullet to final shape in the point forming die. The ejection pin is pulled down because the Stop Pin engages a slot in the punch head. RIGHT: Ejecting the finished bullet takes place when the ram is retracted.

TOP: Swaging stroke—head of punch contacts shoulder in ram. BOTTOM: ejection stroke—stop pin pushes punch forward to eject bullet.

The internal punch has a head which stops the punch at a given depth in the die. Shorter heads make longer bullets and longer heads make shorter bullets.
External Punch and Floating Punch Holder retainers for type -M or -S dies

(Type -H external punches are retained by a hex bushing without the ring)

Floating Punch Holder

The FPH-1-M punch holder fits both the Series II and Silver Press, and holds the external type -M or -S punch (which is the same punch, used with both -M and -S dies), with the ring and retainer bushing shown.

The FPH-1-H punch holder fits the CSP-2 Mega-Mite, CSP-2H Hydraulic Mega-Mite, and CHP-1 Hydro-Press. No ring is used.
Base Guard Bullets
The BG design uses a .030-thick copper disk to scrape fouling from the bore.

Base punch for BG has a small depression in the exact center, which forms an extruded lead "rivet" to hold the disk securely on the base. The conical-shaped disk flattens and expands in the die to precise bullet diameter.

Hollow Base, Lead Tip Bullet being finished in the LT-1 die.

The LT-1 lead tip forming die must be used with an internal punch matching the bullet ogive, and an external punch matching the bullet base. The LT-1 can be used with jacketed or lead bullets to form a factory-finished appearing tip.
In the Mega-Mite hand press, there are three ejection bars to match three standard lengths of internal punches. The combination of ejection bar and punch results in a constant length when properly matched. Short punches use the taller bar, and vice versa. In the Hydro-Press and Hydraulic Mega-Mite, one ejection bar can be used with all punches because the ejection point is set by a position sensor, rather than being fixed by the press stroke.

Retraction pin (1/4 inch diam.) fits under the retraction spring.

Ejection bar (fits through the ram, under the internal punch head)

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**Hydro-Press and Mega-Mite Ejection bar and Retraction pin assembly**

1. DIE
2. INTERNAL PUNCH
3. RETRACTION SPRING
4. RETRACTION PIN
5. EJECTION BAR
6. MOUNTING PLATE
7. RAM

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**Ejection**

**Swaging**
Flat Base Internal Punch (used in CS-1, LSWC-1, CSW-1 dies)

Dish Base Internal Punch (used in CS-1, LSWC-1 for shallow concave base shape)

Cup Base Internal Punch (used in CS-1, LSWC-1 for paper-patched bullets, some handgun bullets)

Hollow Base Internal Punch (used in CS-1, LSWC-1 for lead black powder and some handgun bullets)

Bullets that can be made in a single die using the punch cavity to form the nose (no point forming die required)

*From Left:* Target Wadcutter, Button Nose Wadcutter, Keith SWC, Conical SWC, 1-E round nose SWC, 3/4-E round nose SWC, and Auto Loader SWC.
Jacket and core length determine bullet style
The same length jacket (first two on left) can make open tip or lead tip bullets depending on core length. From left: open tip, lead tip. The same core length (last three on right) can make various pistol bullets with different jackets. From third left: full jacket soft point, 3/4-jacket, and half-jacket (about twice as long as a gas check).

Drawing a rimfire case is like reducing a bullet jacket. Fired .22 case is placed over the tip of a punch, and pushed into the draw die (RFJM-22) to unfold the head and decrease the diameter.

Ring Die
Rimfire jacket — — — —
Jacket
Drawn case
Punch (fits press ram)
Two-die set for rifle or handgun bullets consists of (1) CS-1-R Core Seater, and (2) PF-1-R Point Former. The Knock Out Rod is shown at right (one KO Rod fits both dies).

CS External Punches showing jacket fit.

PF External Punch
The 6mm and 224 jacket makers use the same die, but different punches and ejector ring and tube assemblies.

Knock-out rod

Ring die insert

Type -R punch (224 caliber shown)

Make a short core to fit main jacket caliber (may require long punch head)

Swage a smaller diameter core to fit into the inner jacket (use CSW-1 die for the smaller caliber. Core must extend beyond jacket selected.

Seat the core in the inner jacket using proper caliber CS-1 die. Insert into the outer jacket. Note lead extension.

Seat the assembly in the outer jacket in the normal size CS-1 die. Finish in PF-1 die as with any bullet.
Spitzer (Tangential Ogive) Bullets are measured in calibers of radius. Illustrated is a 3-1/4 S ogive. The nose is part of a circle with a 3.25 caliber radius.

Swaging a paper patched rifle bullet (1-E nose, Cup Base)
The LSWC-1 die forms the nose in a punch cavity. The edge of the punch leaves a shoulder on the bullet. The paper patch can be wrapped slightly over this shoulder to help prevent tearing when fired.
Post-point HP bullets can be swaged in two ways. First, you can use a custom SWC punch to form the bullet shown above in a single stroke. Second, you can use a separate post-forming HP punch to seat the core, then form the ogive in a point forming die. This eliminates the SWC shoulder.
Lead tip bullets can be made more precisely by using the LT-1 Lead Tip Forming Die (do not confuse the TIP forming die with the POINT forming die—the point former refers to the entire ogive or nose curve, and the tip ONLY refers to the very end of the point or ogive).

The LT-1 die has an internal punch (shown) which shapes the lead extruded from the jacket end when you form the ogive. Very light pressure is used to avoid putting a shoulder in the jacket from the punch edges.

SPIRE point is a term used to describe conical or angled rifle bullet noses. It is essentially a jacketed conical style with a long nose. A conical nose bullet generally is of the Semi-Wadcutter style, having a shoulder and a lead nose.

The TRUNCATED CONICAL or TC style is a cut-off (truncated) cone shape. It can be made without a shoulder, in the TC point form die. The KEITH nose is a TC SWC bullet, with a lead nose formed in a punch.
Core Swage Die (CSW-1) also similar to LSWC-1 Lead Semi-Wadcutter die in concept.

Core Seating Die (CS-1) also similar to LT-1 Lead Tip Former in concept.

Point Forming Die (PF-1) also similar to RB-1 and BT-2 dies (part of RBT-2 set) in concept.

Making a FMJ Bullet in PF-1 Die

Seat Core    Curve Open Base    Roll Base    Flatten Base
Conventional Boattail Bullet

Streamlined base directs muzzle blast gas in a laminar flow pattern, breaking up in front of the bullet, contributing to larger groups.

Rebated Boattail Bullet

Shoulder acts as a “spoiler” to deflect muzzle blast gas in a ring, leaving a clear path in front of the bullet, aiding smaller groups.
1. Core Seating punch is too small for the jacket wall thickness or length of core. 2. Perfect fit. 3. Core Seating punch is too large for the wall thickness (may fit with a heavier core or thinner jacket).
Bullet Reducting Die (BRD-1)

- Guide bushing
- Ring Die (constriction)
- Ring Die (mouth)
- BRD Punch (fits press ram; die fits press head)

Maximum practical reduction of a bullet is normally about .005 inches.

Paper Patched Bullets

ABOVE: 1-E CB LSWC style, can be made in a single stroke in the LSWC-1 die.

RIGHT: Smooth ogive 1-E CB bullet made in two dies (CSW-1 and PF-1) to eliminate the shoulder.
Secant Ogive Bullet - used in U.L.D. (Ultra-Low Drag) design

Tangent point

Secant is offset and moved back from tangent

Same curve attached tangent to shank makes bullet too long

Shank

Open Tip

Multiple Jacket Bullet

The Multi-jacket design provides even more protection than the partition style, launching a wadcutter within a streamlined airframe.
The SPIRE POINT bullet would be called a conical in shorter, pistol styles. It uses a straight, angled nose rather than a curved ogive nose, joining the shank at an angle.

Sabre-Tooth Core Seating Punch

This punch is always used with hollow point lead tips to avoid damaging the sharp edges of the punch. The edges of the jacket are just barely cut, so the jacket opens quickly on impact along each nick.
BPK-1 Bullet Polisher Kit

The mounting bracket is used to fasten the vibrator motor to the bottom of a bucket, coffee can, or pan, which in turn is suspended by a bail or, better still, a door spring. Proper location of the motor will result in powerful churning action in the walnut shell polishing media.

The Dual Diameter Bullet

Dual Diameter bullets solve several problems for shooters, including feeding of long or heavy bullets into short-throated barrels, better alignment than a tapered bullet with excellent reduction of bore friction. The rear portion of the bullet is made groove to groove diameter; the front portion is bore diameter.
Bullet Balls

Plastic spheres can be used either in the tip of a hollow point bullet, as a kind of pneumatic expander, or to shift the balance and lighten the bullet, for high speed yet stable projectiles.

The elliptical ogive is measured not by the radius of the curve, but by the axial length of the nose section. Unlike a spitzer (tangent) ogive, the elliptical ogive has a constantly changing radius, and crosses the centerline of the bullet (at the tip) at exactly 90 degrees to the centerline. It begins tangent with the shank, like a spitzer ogive. The two most practical lengths are the 3/4-E and the 1-E ogive, for pistol and rifle respectively.
ET-2 Expand/Trim Set

Knock-out rod

Draw/Trim Die

Trim Length Adjustment

Pinch Trim Punch
(One required for each length)

Internal punch

Expander die

Relative Sizes of Corbin Dies

<table>
<thead>
<tr>
<th>Thread</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>H 1X12</td>
<td>1-1/2 inch</td>
</tr>
<tr>
<td>S 5/8 X 24</td>
<td>1 inch</td>
</tr>
<tr>
<td>M 5/8 X 24</td>
<td>3/4 inch</td>
</tr>
<tr>
<td>R 7/8 X 14 adapter</td>
<td>5/8 inch</td>
</tr>
</tbody>
</table>
The core is seated in BT-1 die with drawn jackets, or a special BT forming punch is used with tubing jackets. Then the core is seated (again) in the BT-2 die, in order to form the rebate edge.