

PONSNESS/WARREN RELOADERS

Edited by Jim White of S&W Supply LLC

HISTORY

Ponsness/Warren's claim to fame, originating with the 600 progressive reloader, was/is the use of full-length dies, which hold each shell throughout the entire reloading operation.

Later advancements and specifically designed for shooters to use their reloads in auto-loaders, "Near full-length" die: die measuring about 2½" tall. The original 800B introduced circa early 1970 used a full-length die of 2¾" in height. This was followed by the 800C, and then the 800CVT (called the "Convertible"); both these models utilized the shorter die which gave a final crimp which was absolutely identical to a new factory load.

It is important to understand that there are two styles of dies which followed the full-length die. (1) The near-full length which is still used today and is called "Tru-Crimp" because it was a true factory-like crimp, and (2) the really short "shell holders", often times incorrectly referred to as "short dies." These were actually SHELL HOLDERS, not dies, and first introduced with the model 950. These shell holders measure about an inch in height.

Because the shells would rattle, spill shot occasionally and only resized the brass, not the entire shell, as the Tru-Crimp design did. The ONLY advantage to these was the finished shell literally fell down and out of the reloader at Station 8, whereas in the Tru-Crimp and all present designs, a small amount of force exerted by the handle knocks out the finished shell. Honestly, a silly reason to make the 950. The 950E for Elite simply meant some small add-ons such as a counter, etc. It probably accounted for only about 10% of P/W progressive's sales.

The CVT followed the 800C and some had short shell holders and some had Tru-Crimp. All of the 800 series machines used a 7/8" diameter cross-shaft, and because of that, they had to use aluminum end caps to hold the handle and the two links. Present day models all use a 1¼" diameter cross-shaft which by design was large enough to accommodate both the handle and the elimination of the prone-to-breaking aluminum end caps. Furthermore, the 800B, C, and CVT models use a crosshead design that did not permit the addition of different gauges. The problem is at the de-priming station. Going from a 12 gauge to a 20, 28, or 410 would cause the entire hull to be ejected out of the bottom of the die as the spent primer was removed.

TRU-CRIMP

What is Tru-Crimp? Prior to Tru-Crimp, all P/W progressive (progressive meaning the ability to perform several functions simultaneously) reloaders used a machined metal pre-crimper that rotated on a horizontal ball-bearing race. Present day 410's use this design. The actual pre-

crimp head was a massive device that required two small metal “ears” to “locate” the folds in the existing reload and to then center itself onto the hulls fingers to start the crimp. Unfortunately, the ball-bearing was not designed to operate in a horizontal fashion, and would develop flat spots, preventing the pre-crimp head to rotate freely to the correct original fold in the hull. This caused bad crimps.

The late Jack Frederickson, a retired gun smith from Cody Wyoming, is credited with the introduction of the new, simple plastic pre-crimp head used today on all P/W progressive reloaders. In the 80’s and while at the Grand American tournament Jack pointed out Mec’s use of a simple plastic pre-crimp head, and from that day forward, P/W uses a similar device.

Historical Progression of P/W Machines

Here's a short history...

- **600 Mult-O-Matic (dates – pre 1970’s)**
- **800B - circa 1972**
- **800C - circa mid 1980’s**
- **800CVT – Commonly referred to as the “Convertible” – date: not sure**
- **900 – mid 1980’s - uses a center shaft to rotate, not like the 800’s star and pinion gear.**
- **950 - Similar to 900, only it used short (~1") shell holders (reason for these was that the shell literally fell out of the last station - no exertion necessary)**
- **900E - "Elite" 900 with a few extras, like a counter, etc.**
- **900E - "Elite" model, 950 with a few extras, and shot shell-holders**

The 950 was not a very popular machine. The 900 outsold the 950 by about 10:1. Most of the 950’s were converted back to the 900 style by adding the taller shell holders and tooling.

- **Platinum 2000 – a close current model is the LS-1000**
- **800 Plus – current model**
- **Patriot – current model, different design, more expensive**

Support of the 800B/C/CVT:

The 800 Plus is an 800CVT with a few new bells and whistles. Improvements include a different crosshead permitting easy gauge changes (10 minutes or less), a newer style of externally adjustable primer seating assembly, EZ-Fill Hopper System (holds 25# of shot), a removable die aluminum cylinder (The Platinum 2000 use Grivory, a plastic), the larger cross-shaft, a better and thicker machined Star Gear and better Pinion Gear system.

The only thing that you can't replace once the current stock of parts is gone is the 800B 12 gauge primer feed, crosshead, and aluminum end caps. The primer seating assembly for the 800B/C/CVT is for the 800B. The new style primer feeds will work on the 800B, but the crosshead for the newer machines should be used. By changing the cross head to the new style and using the new primer feed you can update the B to a CVT.

The primer assembly is not the only exclusive part on the older 800's.

As mentioned previously, the 800B, C, and CVT use a 7/8" diameter cross-shaft. Because this is such a small diameter shaft, these machines use cast aluminum end caps to mount the handle and side links. The newer Platinum series and 800 Plus series machines use 1¼" diameter cross-shafts and these hold the operating handle and side links.

Also, the primer seating assembly mentioned above is gauge specific on the 800B machines. This is to say, you cannot insert a 410 seating assembly in a 12 gauge 800B and expect it to work. You would have to change the main crosshead as mentioned above.

Jim White (perazzi@swsupply.com) was attempting to get setup to offer a "deal" to 800B, C, CVT owners whereby he would offer a machining service which would permit the use of the 1¼" diameter cross-shafts and new link assemblies. Unfortunately, this got to be so cost prohibitive, he only did one.

L/S 1000 ("L/S means lead – steel)

The near-full-length (NFL) dies in all their present models, the L/S uses the short "shell-holder" style. These are the 1" black resizers, not dies.

This machine is similar to the Platinum 2000 in that it uses the center shaft for indexing. It has an aluminum turret and is taller to accommodate 3" 12 gauge shells, or 3½" 10 gauge shells.

To permit reloading steel shot, the reservoir base has a hardened steel drop plate inserted in a milled slot. The newest models have the die removal system and the externally adjustable brass primer seating assembly. It does NOT include the EZ-Fill Hopper system because of the need for a metal reservoir which the hardened steel drop plate is incorporated. The EZ-Fill's base is black plastic.

Differences

There are two different indexing systems for P/W machines.

The 800 series indexing has a characteristic such that on the top of the stroke, if you don't get the handle all the way up, it will not index the die. When you get the handle all the way up, the machine will make a noticeable clank. The 800 series uses a Star Gear under the crosshead to index the shell carrier's pinion gear. Another advantage to this indexing system is that it allows for relative easy gauge changes by swapping out the tooling head. The tooling head swap for a gauge change means that there is no adjustment necessary. Once you have installed the tooling kit it is set up exactly the way you were setup the last time you used it.

The 900/2000 series machines do not utilize the Star Gear indexing mechanism. These loaders index via a center shaft. It is the presence of this shaft that makes changing gauges a more difficult proposition than the 800 Plus and Platinum 2000 series loaders. The gauge changing sets for the 900/2000 are cheaper than those for the 800+, because you don't get a new tooling head with the kit. You essentially have to remove all the components from the tooling head

and install the proper components for the gauge you are changing to- and readjust them.

The 800B has been out of production for a long, long time. The “U” spring type wad ram is history, with the advent of the newer style ram. This ram style was introduced after the 800 Plus made it debut. Jim White of S&W Supply later designed a better version of this ram and that is now being sold.

The 800B machines utilized a spring actuated Wad Ram. This is to say that the wad was set into the hull with some variability in wad pressure. This was a carryover from the days of fiber wads where certain amounts of pressure were required on the fiber wad.

All machines from the 900 to the present day machines do NOT utilize any wad pressure device. The actual wad ram is user adjustable for wad depth only. S&W Supply recommends that when setting the wad seating depth that you error on the side of not deep enough. Whizzer White recommends that the TOP of the wad should be seated at or above the shell's height when fully loaded. This is to say that in a typical 2 3/4" shell, the top of the wad should be at 2 3/4" up or higher. If the wad is a bit higher, the pre-crimp and final crimp stations will seat it appropriately giving a nice looking reload.

Short of the new shot/powder hoppers system, die removal access turret, and externally adjustable primer assembly, present day machines are very close to the older machines.

The 800 series machine was discontinued when the 900 series was offered. The new 800 Plus is not a single step upwards from an 800C, but an upscale evolution of the 800 machine, which gave the operator the distinguishable “CLUNK” sound when an indexing operation was completed. It is a better design.

The older 800B utilized a ball-bearing to operate the back-and-forth motion of the primer ram. The 800C or CVT saw the introduction of a Delrin/PVC roller; a much simpler design and cheaper to produce, and actually operates extremely well.

Crosshead Design

Because of its design, this slot was too large to accommodate smaller gauge dies. This meant that if you were to install 410 tooling on a 12 gauge 800B/C/CVT machine, as the hull was being deprimed, the hull itself would have been ejected from the die. Consequently, changing to sub gauges was not possible.

The 800CVT has the above small slot gear plate, and milled top primer assembly in all gauges, allowing this machine to be converted to all the gauges, even if it started out as a 12 gauge machine. From the 800C series on, some of the parts were made interchangeable for gauge conversions (hull knock out ram, and the bottom plate to remove die at the hull seating station), but all machines used the spring loaded wad ram system. The 900 is where the spring actuated wad-ram replaced by the threaded and adjustable unit.

The 800B's main aluminum turret did not permit the easy removal of dies. In order to remove dies, the entire top toolhead had to be removed. All newer machines utilize a flat, black plastic Die Access Plate at the shell insertion station. One could remove the Die Access Plate and easily let the die above it fall out of the machine. Then, by indexing the machine, each die can be removed and inserted.

The new style powder and shot hoppers, called the "EZ-Fill Hopper System," presently offered on the Platinum's and 800 Plus machines replace the tall, clear Butyrate plastic shot and powder tubes. Some folks like these and others do not. These also all are designed for the easy removal of both the shot and powder bushings. Value engineering over took the old style aluminum reservoir base plates which held the plastic tubes. The new hopper system holds 25 pounds of shot and is more easily accessed than the old 25 pound shot tube. It is reported that many folks have had problems with the bottom of the plastic plates being grooved by shot. And, when using the newer fine ball powders, some powder migration takes place, making the need to clean the reservoir and gear areas more often. The factory has recently stepped forward to help with this migration problem with the introduction of a new powder gear with a machined-in large o-ring on its underside. All new machines are shipped with this configuration.

The Externally Adjustable Primer Assembly is a nice change/addition. Furthermore, its brass design had completely replaced the aluminum units of old. Raising and lowering the primer depth is accomplished with a knurled ring.

The new Die Removal System is worth its weight in gold! The ability to remove a die at most any position is a huge plus if you get a jam. On the 800B units, you had to either live with the error until it reached station #8, or pull the carousel to remove a die. On the 800C systems and later (through the LS-1000), you could drop out a die at the hull seating station only to remove or replace such without having to pull the entire carousel.

Some Upgrades Available as of December 2009

You can add some of the features of the 800 Plus, but it will still be an 800B.

- Die Removal System 800
- Die Removal System 900/950
- EZ-Fill Hopper System
- Tru-Crimp Kit
- New Electric Drive Standard
- New Electric Drive w/ Foot Switch

If you need to get it closer to an 800 Plus, (technically you CANNOT make an 800B into an 800 Plus). If someone says they have, that's just not true because attempting it would entail:

- Re-machine the tooling head to accept the new threaded wad ram. Install the new wad-ram upgrade
- Machine the tooling head for the new style knock out assembly

- Take the base to the machine shop and re-machine the base to accept the 1-1/4" cross-shaft
- Install a new 1 1/4" cross-shaft, actuating arm posts, and two side-links.
- If you have a 12 gauge machine and want to load sub-gauges, install the 800 Plus crosshead
- Install the newer Tru-Crimp assembly
- Install the shorter dies, 2 1/2" height versus the original taller 2 3/4" dies

Keep in mind that you are working with a machine that can be as old as 50 years.

P/W Progressive Machine's features:

600 Mult-O-Matic (Pre 1970's circa) _____

- Automatic indexing
- Cam operated tip out wad carrier
- Shot and powder drains
- Shot and powder shutoff valves
- Manual powder drop
- Manual shot drop

800B _____

- Star Gear indexing
- Straight walled tool set, and the only machine to have such, with all others having taper crimping.
- 7/8" diameter cross shaft
- Gauge specific primer feed
- Spring loaded wad ram
- 12 gauge units oversized primer/hull retention slot on gear plate
- Non-removable shell holders

800C _____

- Star Gear indexing
- 800B with taper crimping tool sets
- Plastic Index Gear housing on some machines
- 7/8" diameter cross shaft
- 12 gauge units oversized primer/hull retention slot on gear plate
- Die Access Plate to remove dies
- Spring loaded wad ram

800CVT - Convertible _____

- Star Gear indexing
- 7/8" diameter cross shaft
- Allows all gauges tool sets to work on the machine since did not have the wider slot in 12 gauge
- Tru-Crimp tooling
- Spring loaded wad ram

- Metal Star Gear housing
- Some machines had a gray plastic Primer Seating Assembly
- Some machines had a gray plastic Rack Gear (bad design)
- Die Access Plate to remove dies
- Primer feed common to all gauges

~~900, 950, 950, 950, 950~~ **900 "E"** Denote some small enhancement including the ability to easily remove both the shot and powder bushing without draining system)

- Center Indexing Shaft
- Threaded wad ram
- Die Access Plate to remove dies

~~950 & 950~~ **950** Comp tooling

- 12 gauge only,
- Center post indexing

~~LS-1000~~ **LS-1000** Short hull carries with sizing rings alone, with the upper tools doing most of the sizing

- Uses short shell-holders in lieu of dies

Platinum 2000

- Upgraded 900 style machine
- Center Indexing Shaft
- Grivory cylinder (Plastic)
- 1¼" diameter cross shaft
- Externally Adjustable Primer Assembly
- EZ-Fill Hopper System with easy bushing removal
- Removable Die Access - permitting the easy removal of a die from the cylinder at most any station.

~~800 Plus~~ **800 Plus** P/W Most Popular Selling Re-loader, present day machine (Pinion Gears)

- 1¼" diameter cross shaft
- Aluminum cylinder
- Externally Adjustable Primer Assembly
- EZ-Fill Hopper System with easy bushing removal
- Removable Die Access - permitting the easy removal of a die from the cylinder at most any station.

~~Patriot~~ **Patriot** Newest Model, using different style of powder, and shot dispensing

As for parts for the older 800's (non Plus) there are a few parts that are specific to these machines. PW is no longer manufacturing these parts, and their supply is exhausted. If you do have a problem with the machine and the part is no longer available for the old assembly, there is the option of just changing that assembly of the machine out with the style found on the new machines.

Occasionally, there is a request for information about the older machines commonly showing up on eBay and other sites. In response to these inquiries, White said:

"Hope this helps. I cannot believe that anyone would even consider buying an 800B, C, or CVT. Some of these are 50+ years old, and P/W is not making parts for them. You can't change gauges on them due to the design in the crosshead. I get calls all the time about if a guy should

buy one or not, and hate to even comment. Just remember that these are old machines, and being a mechanical device things wear out!"

Sources

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Modifications:

28 Gauge – problems with folded wad petals

- Machine a 12 gauge wad ram down to a 0.485 diameter (keeps the wad petals out against hull wall.)
- Drill a tapered hole in a block of steel and drive the shot drop tube into it with a dead blow mallet to form a tapered end (to help clear the wad petals); too much taper and you may get shot bridging problems.

0.410 Bore – problems with ball powders

- Purchase an aluminum base for the EZ-Fill hopper and re-machine the O-ring counterbore to a depth of 0.205". Then install the standard o-ring, and then install a 0.125 thick nylon washer with a 3/8" hole. The washer will ride tight against the powder gear and bushing and prevent powder migration.
- Purchase a spare powder gear and epoxy the powder bushing into the gear so that the top surfaces are flush. Fill any voids with epoxy. Flatten both the top and bottom surfaces of the powder gear/bushing assembly using fine grit paper and a piece of plate glass. This insures that no powder can get under the nylon washer and act as an abrasive on the seal surfaces.

0.410 Bore – problems with hulls crushing at the hull seating station.

- Countersink the hull seating post with a 3/8" drill so that slightly proud primers will not cause the hull to wobble.
- Countersink the post again using a 5/16" drill and set in a 5/16" button magnet so that it is recessed into the post. This helps stop the wobble of the .410 hull.

0.410 Bore – problems with hulls mushrooming at the knock out station.

- Perform the countersinking operation on the hull seating post- this eliminates the requirement to stuff the hulls up into the die.

- Use the bore brush adapter at the hull seating station to keep the dies clean and slick. Some recommend using a mop with CLP instead of the brass brush.
- Polish the internal surfaces of the knock out post so that it does not hang up on the hull before the knock out post contacts the hull. Keep this clean.

0.410 Bore – problems with shot bridging.

- Polish the internals of the shot drop tube with white scotch-bright until the surfaces are very smooth.

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