

A Primer for the Loading of Black Powder Cartridges.....

For those not prone to reading detailed instructions:

- 1) Accurately measure out either 1 ounce to 1-1/8 oz. of shot.
- 2) Pour the shot into a plastic shotshell hull and trim it off to the exact top of the shot column.....this then becomes your powder scoop to load volume for volume as was traditionally done with black powder.
- 3) In a primed hull, place one such scoop of FFg black powder followed by suitable card & cushion wadding to allow a tight crimp after the same scoop of lead shot is added atop the wadding material. Voila!!

For those who *are* :

Although black powder typically performs at slightly milder 'working' pressures (i.e. psi) than smokeless/nitro, it does burn much quicker - and thus much HOTTER - to where traditional paper hulls and fiber wads are a much more practical choice than the modern plastics.

HULL

My favorite is the Federal paper hull with fiber base wad, though others will work just as well if similarly constructed. If you only have plastic hulls, select a straight-walled design (aka Riefenhauser style) over that of a tapered-wall hull, as they afford more space for the bulkier black powder. You should also expect to get only one or two loadings from either paper or plastic hull due to the effects of BP's heat. Also, one can avoid excessive pressure spikes by keeping the overall hull length to that of the chamber, or even 1/16" shorter, especially when using paper hulls with their thicker case mouths. (See pg. 7 for hull-trimming methods).

PRIMER

Selecting a primer is less critical when loading for black because it is so easy to ignite. Two schools of thought are out there...some preferring a cooler primer like a Remington 209P, others the hottest Federal 209A. Each side agrees it has little to do with actual ignition, but is more a matter of how rapidly they think the barrel fouls or 'cokes up' under the two extremes. There's no consensus out there really, so do not lose sleep over this aspect. I do take the extra time, however, to lacquer (w/clear nail polish) the sidewalls and flange of each primer just before seating it. This added seal minimizes the amount of potentially corrosive BP gases that can flow back around the battery cup and into the striker holes and beyond (like your locks). It doesn't take that much time when only doing 50 to 100 rounds, and it is a nice bit of insurance come clean-up time. Be sure to let the nail polish dry thoroughly-for as much as a day or two.

POWDERS

Several BP choices are out there, aside from the synthetics. 'Swiss' and 'Schuetzen' brands are at the top of the heap - quality-wise - if you can find them. I have access to GOEX brand BP, which is reportedly a good, consistent powder - if a bit dirtier burning. I typically have used the finer FFF(3)g in the 12 gauge when assembling light 2-1/2 dram loads with 7/8 oz. to 15/16 oz. of shot; but I switch to FF(2)g for 1 oz. and heavier shot charges when loading at the 2-3/4 to 3 dram levels. FF(2)g, with its coarser granular structure - and thus slightly longer burn rate, needs a bit more powder weight to generate the same starting velocities as does the quicker-burning FFF(3)g - yet it is commonly thought to be easier on the gun overall due to that slightly longer rate of (burn) consumption... yielding less strain on old metal and wood.....or so some say.

Some traditionalists like to load 'volume for volume' by making up just one scoop to measure both the powder and shot charges they'll want - as mentioned, even an old shotgun hull works well enough when cut to the proper height. By example, cutting a shotgun hull to hold exactly 1 oz. of fine shot will also hold the correct amount of FFg black powder for that shot weight.....thus 'volume-for-volume'. Those more fastidious often use their rifle reloading scales or aluminum charge bars to weigh out their powder charges at 27.34 grains per dram. Check out:

www.ctmuzzleloaders.com/ctml_experiments/sparks/sparks.html

or simply use the volume for volume scoop method!

Being mindful of NO open ignition sources in your reloading area!!

Actual BP Dram weights are as follows, with 1 dram = 27.34 grains:

2-1/4 drams	equals	61.0 grains
2-1/2 "	equals	68.0 "
2-3/4 "	equals	75.0 "
3-0 "	equals	82.0 "

WADDING

Once you have a primed hull with your powder charge in place, seat a 12 ga. 0.125" (i.e. 1/8") over-powder card to keep it there. I find that loading BP goes best when methodically done in stages, so I'll charge all my cases and visually inspect them from overhead for uniform powder levels. I then seat the mentioned card wad with at least 40-50 lbs. wad pressure to avoid future spilling should you tip one over... and you will, at some point. Now, take one of these charged cases and envision it in cross-section as we actually begin inserting the remaining components.....

Next would come the fiber cushion wad, but the thickness of it will be your best 'variable' for determining the correct wad column height for the

shot payload you wish to use. So bear with me for a moment as we skip over its details, and actually omit it in assembling our first TEST load.

On top of that over-powder .125" nitro card already in the hull, place either a .070" 12 ga. card or another 12 ga..125" nitro card (doesn't matter which really, whatever you have on hand) to serve as the hard platform for launching your shot charge. I like the thinner .070" card as it allows for more cushioning via the fiber wad you'll be using. I then insert a .020" thick shot wrapper made from pre-cut 140# wgt. water-color paper that protects the shot quite nicely. One can skip this wrapper altogether if bore leading is not a concern; but I also include it for the increase I see in pattern performance. (I used to use the shot cup portion of a severed one-piece plastic wad for the same reasons, which was okay, but found it resulted in some plastic build-up in the bores from the higher temps of BP which was also a bit of a head-ache to clean. So, I now avoid any type of plastic shot cups/shot wrappers/etc. when possible.

Next comes your preferred weight of shot charge...(I like one ounce for targets) followed by a thin (.025" to .045") over-shot card, **only** to be applied **if** you are roll crimping. If not, omit it. With that, vertically measure the remaining height left in the hull above these assembled materials – **then subtract** what you will need to effect either a roll crimp [requires approx. 3/16"].....or star/fold crimp [requires approx. 1/2"].... The remaining figure in 1/16ths of an inch is the thickness of your fiber cushion that you'll prepare and insert atop the over-powder card wad.

By way of example, if that free space remaining for the fiber cushion wad were 5/16ths of an inch (after deducting the amount of wall height needed for your preferred crimp) I'd then go with a slightly thicker 3/8" fiber cushion to allow for a bit of compression of same during the final crimping operation. This is desirable because black powder performs best under compression, and I'll typically use the mentioned 40-50 pounds of wad pressure when seating both the .125" over-powder card, the fiber cushion, AND the nitro card that is positioned just beneath the shot. Your goal is a nice, tight load, with a secure crimp, that has NO sound of rattling shot when shaken next to your ear. When you've made your best 'guestimate' as to the thickness of your fiber cushion section ...dismantle this TEST shell and reassemble it in the proper order – this time with the fiber cushion in place - to see if your total wad column is of the correct height. That order will be something like this: primed hull >> 'X' drams powder >> .125" over-powder nitro card >> 'X' thickness of fiber cushion >> then, either a .070" or .125" nitro card wad >> one paper shot wrapper/or plastic shotcup w/ payload >> and capped off with a thin over-shot card ...again, the latter ONLY if you are ROLL crimping - as a standard fold or star crimp does *not* require an O.S. card.

If you wish to use a .125" card wad instead of the mentioned .070" card just beneath the shot, you can easily do so by adjusting the thickness of your middle fiber cushion section....as they slice readily. Frankly, there is some room here for flexibility in your wadding just as long as you end up with a tightly crimped shell that is under compression. The only other suggestion is that you use NO plastic base wad hull or plastic inserts next to the powder itself...as these will partially melt and make for an even more difficult clean-up session later on.

My light 7/8th oz. and 15/16th oz. loads, so constructed at the 2-1/2 dram weight of 68.0 FFF(3)g, chronograph between 1070 fps and 1100 fps – which is plenty fast enough for what we're doing on clays. Remember, the faster it goes >> the more air resistance slows.

My 2-3/4 dr. 1 oz. load with 75 gr. of FF(2)g comes in around 1040 fps to 1075 fps using my current batch of powder. 3.0 dr. (or 82.0 grs.) usually lands me in the 1130+fps range. I mention all this, as each lot of powder will likely differ slightly from the next in how 'zippy' it is. We more analytical types like to chronograph a proven recipe when starting a new can of powder just to see where we land velocity-wise. It's usually not all that significant, but reassuring to know nonetheless. Rudimentary patterning of your load should also be done to make sure everything is copacetic. As for the wad components you'll be using, I suggest you check out:

circlefly.com for....various types of wads in all gauges
trackofthewolf.com for an even wider asst. of BP loading supplies

If still puzzled, call either me or Circle Fly owner, Craig Smith ,at (717) 862-3600.....as he is a wealth of information. His web-site also has a great section titled "Loading a BP Cartridge". Craig has several retail outlets nationwide - if you don't want to go for the factory-direct price. In any event, both he and the folks at Track-of-the-Wolf are reasonable in price, and both carry a nice-'pre-lubed' fiber or felt cushion wad that saves you the mess of lubing the dry ones- most are easy to split to whatever thickness you need with an Exacto or utility knife. Should you decide to lubricate your own fiber cushion wads, you'll need to lightly edge-coat them with 'SPG' (a commercially produced lube made for that purpose) or something at hand, like beeswax cut 60/40 with petroleum jelly, or Crisco, peanut oil, etc. All serve to keep the fouling 'softer' from shot to shot, which helps with end-of-day clean-up as well as pattern uniformity. Note that whatever lubricant you decide to use, it must be kept away from your powder charge, as it will contaminate it.

CLEANING.....Once the smoke has cleared.....

Black powder clean-up may seem a bit daunting at first, but it is more a matter of expediency than difficulty. Procedures are different in that it is best done with hot, soapy water and plenty of patches... ..followed by a rinse with boiling water to rapidly dry the barrels before re-oiling. The only imperative is that it be done 'sooner' rather than 'later' as the hygroscopic nature of the residues left in the bores has them pulling moisture out of the atmosphere in short order. Cleaning within the first 24 hours pretty much precludes the chances of any corrosion. That's why a hot-water clean-up station is typically provided at the Nimrod Classic at the conclusion of any black power shooting. BP shooters will need to bring their cleaning rods, various attachments, patches, and oil.....while we'll supply an appropriate area and some tubs of hot water. We hope you decide to give it a whirl, as it gives one a whole new appreciation for what the sportsmen of old were contending with to bring home their game.....

Rob Harris

P.S. Feel free to call with any questions you may have...(406) 363-0014. One last caveat: Whether shooting smokeless or 'black' in your old vintage gun, be sure that it be inspected for proper 'proof' requirements and condition by someone knowledgeable in such matters.

DISCLAIMER

This is what has been safely working for me, yet I assume **no liability whatsoever** for any mishaps that might occur when this data is applied either properly or improperly by others, or for their inability to safely use either the components or their reloading equipment.

My favorite BP loads at present:

All use a paper Federal case trimmed to 2-7/16ths inches in length.

Skeet load

Any 209-size primer (lacquered in)

61 grs. GOEX (3)FFFg (2-1/4 dr.) for approx. 1020 fps;

or up to 68 grs. (2-1/2 dr.) for approx. 1060 fps

.125" 12 ga. nitro card (over powder)

3/8" pre-lubed fiber cushion wad

.125" nitro card wad

Insert .020" paper shot wrapper of 140# weight watercolor paper [dim. 2-3/16" x 3/4"]

7/8 oz. shot

.025" to .045" overshot card - to leave at least 3/16" of inner case wall for turn-over
then roll crimp

Sporting Clays/Light Hunting load:

Any 209-sized primer (lacquered in)

68 grs. GOEX (3)FFFg (2-1/2 dr.) for approx. 1070 fps;

0.125" 12 ga. nitro card (over powder)

½ of a 3/8" pre-lubed cushion wad with or { 1/4" pure felt wad, lubed with .070" }

.125" nitro card atop the pre-lubed cushion { nitro card atop of it }

Insert .020" paper shot wrapper of 140# weight water color paper [dim. 2-3/16" x 3/4"]

15/16ths oz. shot

.025" to .045" overshot card - to leave at least 3/16" of inner case wall for turn-over.
then roll crimp

1 oz. Hunting load

Any 209-sized primer (lacquered in)

75 grs. GOEX (2)FFg (2-3/4 dr.) for approx. 1040 fps;

0.125" 12 ga. nitro card (over powder)

½ of a 3/8" pre-lubed cushion wad or { 1/4" pure felt wad, lubed with .070" }

.125" nitro card atop lubed cushion { nitro card atop of it }

Insert .020" paper shot wrapper of 140# weight water color paper [Dim. 2-3/16" x 7/8"]

1 oz. shot

.025" to .045" overshot card - to leave at least 3/16" of inner case wall for turn-over.
then roll crimp

You will need to vary the thickness of your pre-lubed cushion wad section for different loads...or juggle the thickness of your under-shot card in order to optimize your wad column height, as this determines the quality of the finished crimp you'll get. Again, conventional wisdom among most BP loaders has it that for the 1.0 to 1-1/8th oz. loads and up in a 12 bore, it is better to use the (2)FFg powders. Under 1.0 oz., you'll do fine with the (3)FFFg granulation.

I should also mention that if you are shooting a 2-1/2" chambered gun, and needing to trim hulls, you might try this simple solution:

With a deprimed 2-3/4" hull, fully insert a piece of 3/4" dia. hardwood dowel into same. Next, measure from the outer base of the brass head to either the 2-7/16" or the 2-1/2" point (i.e. over-all length) on the exterior of that hull and mark it. Take a sharp utility knife and score through that mark AND the hull wall to leave a cut mark on the hardwood dowel. You can either remove the dowel and cut off that segment evenly; or leave the dowel firmly inserted in the hull and cut through it all evenly with a hacksaw.....but it must be done nice-and-square to get the best crimps. You then insert that same cut dowel piece in each successive hull to be trimmed. The reason you start with a de-primed hull before trimming - is to insert a small metal rod or screwdriver shaft needed to push out the snug-fitting dowel AFTER trimming. Forty-five minutes usually leaves you with a pile of 100 trimmed cases, in my experience.

Another option is to purchase a commercially made hull trimmer from Ballistic Products to the tune of \$30.00, which I don't especially recommend, although it does a nice job on paper hulls.

As you can see, loading black powder correctly is not for someone who is either impulsive or in a big hurry. But if you've some patience, you'll be loading shells for approx. \$9.00 to \$10.00 a box versus the \$30 plus price you'll be paying to retailers, and of a quality that rivals and/or exceeds the commercial product. After all, it can't be 'rocket science' if the old boys were doing it two hundred years ago!