

Loading and shooting the 12-bore GP Greener shotgun

by David Commens



I must have had a weak moment somewhere around January 2007 when I purchased a GP Greener shotgun with the intent of adding a fully rifled 12-bore barrel to complement the very full choked smoothbore barrel that came with it. I had been flirting with the idea of competing in the SSAA Big Game Rifle Bore Gun event for a while, but the price of a new Holland & Holland Paradox was out of my budget range - a lot out of my budget range. The next step was to find something else that would fit into the regulations of the event. A GP Greener shotgun was within those regulations.

The Bore Gun event is a 14-round match consisting of two rounds offhand shooting and two rounds shooting while sitting or kneeling at 100m. At 50m, two rounds are fired offhand, followed by two rounds rapid-fire in 10 seconds. The 25m bracket consists of three lots of rapid-fire, again each with two rounds in 10 seconds. The standard target is the International Slow Fire 50m Pistol target. Modern shotguns firing modern rifled slugs or sabot ammunition are not allowed in this event.

In due course, I ordered a .729" (12-bore) barrel blank from Pac-Nor in Oregon in the United States. I had also tried to order barrels from ER Shaw and Hastings as well, but neither would ship out of the USA.

Thankfully, Pac-Nor are an absolute pleasure to deal with and about three months later, I was on my way to Customs House in Brisbane to pick up my barrel. I think the Customs guys were also very interested, as they were keen to find out what I was doing with it and how I was putting it all together.

A .729" barrel will command a \$US50 premium over the standard barrels, as they need to start with a 1.75"-diameter blank. Anything smaller may result in some flex while drilling, reaming and buttoning takes place.

The twist rate is one turn in 20", with seven lands and grooves, which is tight enough to handle any projectile I was ever going to shoot through it. The best profile I could find was a No. 8 straight taper starting at 1.2" at the chamber end, straight tapering to exactly 1" at the muzzle. Pac-Nor's barrels are 28" long. After cutting the usual 1" off the muzzle end, it was 27" fitted. All work was completed very easily by Jim Kent of Buffalo Gunsmithing in Toowoomba, Queensland.

The take-down feature was retained on this GP Greener and it certainly makes cleaning the barrel easier from the muzzle end. The only other additions to it were a Williams bead front-sight, NECG island rear-sight and the usual 1"-thick decelerator recoil pad. The total weight of my

bore gun when unloaded is 8lb 4oz in the old scale or 3.75kg in metric.

The whole unit was bead-blasted and blued to complete the finishing touches. The original stock and fore-end were retained. At a later date, I intend to replace the stock with a pistol grip version and two matching fore-ends, one for each barrel. The original stock and fore-end has the most attractive orange hue and the figure in the grain would be more at home on a packing crate - I can't wait for the new stock to arrive!

I thought I would put pen to paper about my experiences in loading for a 12-bore. It has taken me nearly 250 rounds, all trial and error, before I was happy enough with the accuracy. A lot of thought has gone into working out and making the various sizing dies and reloading dies that I think are necessary for this type of firearm. I'm not going to mention any specific loading data in this article, as shotgun loads are very hard to judge pressure correctly and components vary considerably. I will, however, write about how and why I tried all the variations that I did.

A good place to start would be Graeme Wright's book, *Shooting the British Double Rifle*. This is where I found the starting loads that I began with. Graeme has an excellent chapter in his book dedicated to loading Paradox firearms. I would strongly encourage anyone contemplating building a bore gun to purchase Graeme's book. He has many photos of various loading tools to suit.

Let's start with cases. If you want to use plastic cases, the best one to try first would be a Winchester compression-formed case. It is easy to get hold of, has a great choice of wads to suit it and is strong enough to handle a few reloads. I also have a large supply from my clay target shooting days of the Scorpio Activ cases, the ones with



The GP Greener shotgun showing the take-down feature that most of them have, which makes cleaning the barrel much easier.

The 12-bore GP Greener shotgun

the steel insert in the head area. These are straight-walled cases and require a wad to suit. I use Gualandi 24g wads with the petals removed in these cases.

Shotgun cases that are 2.75" (70mm) in length are a little too long as they are and need to be trimmed to allow a good roll-crimp over the CBE Paradox projectile. Commercial shotgun shell trimmers are available, but with a little time, I turned up a wooden version on my lathe. I trim the cases to an overall length of 62mm, which is about right for a good roll-crimp. Incidentally, 62mm has most of the old crimp removed. Beware of the blade though, as it can trim the tops off your fingers just as easily!

Full brass cases seem like they are made for this type of firearm. I have noticed many gunshops now stocking Magtech brass cases. These use a large pistol primer and are of the old 'balloon-head' construction. They are very thin walled and are certainly better served by using fibre and card wads instead of the standard plastic wads. I went one step further and ordered some CNC lathe-turned cases from Rocky Mountain Cartridge Company in Cody, Wyoming, USA. The owner, Dave Casey, suggested I send him a chamber cast of my 12-bore and he would make them to suit. I did this



and a few months later, I received them in the mail. They are a beautiful-looking case. Complete with custom headstamp, the boxes are marked 2.4375" (62mm), which is the same length I cut the plastic cases to. They were quite expensive - an amount I do not want to disclose here in case my wife reads this article! I don't think they will ever wear out though. They weigh

The many plastic, fibre and card wads used during load testing.

790 grains empty, as opposed to 325 grains for the Magtech cases. RMC cases use a standard 209 shotgun primer and a very neat and well-made brass loading kit can be bought from them as well to facilitate loading them.

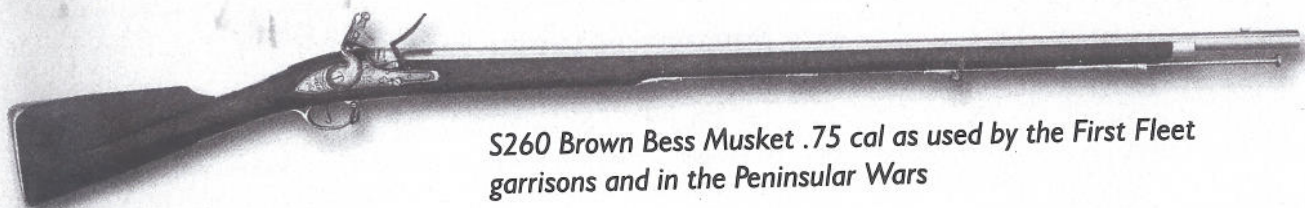


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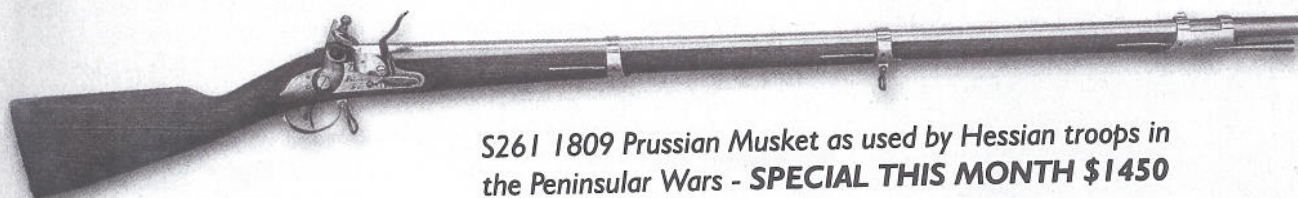
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The only load where I use a full-length plastic case with an eight-segment crimp is for a round ball load. It comprises an Activ case, powder, BPI brush wad and .732" round ball coated in Lee liquid alox and then crimped. This load is just as quick to load as a normal shotshell and can be done on any standard 12-gauge press.

I now seem to have quite a collection of part packets of nearly every wad imaginable. I tried a gas seal (X12X) from BPI, with waxed fibre wads and card wads to build up the height needed to afford the correct roll-crimp, but I found that the fibre wads would basically disintegrate on firing, showering me in wad fibre dust. These loads also tended to be the least accurate, having many fliers. All manner of plastic wads were also tried. The main point I learned was to use a plastic wad the right height and one with a very strong compression area in the middle of the wad. Weak wads such as the Pacific Versalite just can't handle the pressures and the shock of starting a 730-grain bullet down the bore of the firearm.

One practice I use to see how my wads are performing is to simply walk down the range after shooting has finished and the range has been cleared and pick up the wads. You can soon see how tough your



wads are when you examine them and how the wad and paper target looks after being fired at 25m. You can often either see them hit the target or you can see a mark on the target indicating a hit.

After all the dust settled, the wads I chose to use in the Activ plastic cases were 24g wads made by Baschieri & Pellagri with the petals removed. Winchester compression-formed cases use a 24g Winchester

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wad, again with the petals removed. The RMC brass cases also perform better with a Winchester wad, as they are lathe-turned to resemble the internal dimensions of a compression-formed case.

I had four varied projectile styles to choose from: a .732" round ball from a mould made by Jeff Tanner in England, which weighs 570 grains; a 680-grain Paradox-style hollow-point from a mould made by Jim Allison of CBE; the same projectile without the hollow-point courtesy of the CBE mould with a different pin inserted, the solid version of which weighs



The bullet-sizing die made to size projectiles down to 0.731".



The four projectiles used by David Commens included a 570-grain round ball, left, 680-grain CBE hollow-point, 730-grain CBE solid and 845-grain NEI.

730 grains; and a heavy 845-grain projectile from an NEI mould. The round ball is lubed with Lee liquid alox, while the others are handlubed with SPG bullet lube. The accuracy of a round ball is every bit as good as anything else at 25 and 50m. However, they do tend to shoot quite poorly at 100m, as they are just not as ballistically efficient as the Paradox-style projectiles.

From my testing, I found the solid version of the CBE projectile to be the most accurate at 100m and the hollow-point slightly better at 25 and 50m. The heavy NEI is also a nicely accurate projectile, but it shoots a lot lower on the target at 100m. Velocities, as near as I can chronograph, are around 1400fps for the CBE solid. It is difficult to get a reading of the velocities

over the chronograph, as the wad column often interferes with the screens. Indeed, I could only get one round out of every three to four to read over my CED M2.

Now onto the reloading tools. The gear to load 12-bore brass cases with a single lead bullet is not at all that easy to come across. Most of my tools were either totally made by or modified by gunsmith Jim Kent. The first such tool was a bullet-sizing die made from a short section of old rifle barre. Due to the size of the projectile, the thread diameter Jim used was 1.25-12, which is the same as the thread in my Rockchucker Supreme with the bushing removed. A tapered reamer was used to cut a section to ease the projectile into line. The last 20mm is parallel and exactly .731", which

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is two thou over bore diameter. A pusher rod, which clips into the press shell-holder slot, is made to a neat fit to aid in pushing the projectile through the die. Incidentally, this sizing takes quite a bit of force, so I use Lanotec grease. When sparingly applied, it's about the only thing that works for me.

If you don't want all the fancy gear, you can stay with using round balls and a brush wad and crimp using a standard shotgun press. However, just remember to mark the round ball loads so they don't get mixed up with any shot loads.

There are no flies on a 570-grain bullet at 1400fps and it turns up 2480 ft-lb of muzzle energy. At 100m, it is still travelling 1000fps and has 1300 ft-lb of energy. However, sighted at 50m, the round ball will drop 18cm at 100m. The wind drift in a 15kph wind is 20cm at 100m. To me, round balls are much underrated projectiles.

If you want to load and shoot any Paradox-style projectiles, you will need specialised loading tools. One such tool is a roll-crimper, but it needs to be modified to allow the nose of the bullet to enter the roll-crimper. A crimper intended for shot loads and a card over shot wad won't work. Vic Pedersen in Darwin makes the correct crimper or you could get a gunsmith to modify an existing roll-crimper.

I have a couple of hints on using a roll-crimper. The first one is to make yourself a simple wooden shell vice. I use my home-made one with a drill press, which works well and makes the whole process a lot faster and very repeatable. The second hint is the speed. I find my roll-crimper works best when spun at around 200 to 220rpm; any faster and the plastic case will melt. Don't be in a hurry when roll-crimping. Take your time and work without using too much down pressure to roll over the edge. It will take a few rounds to get the feel of it. Try to be as consistent as possible in your technique and the amount of roll-crimp you apply. The ballistic uniformity will be far greater and extreme spreads in velocity will be lower and more uniform.

The loading die I use for the brass cases is the RCBS Cowboy set in 12-gauge. The set comes with a taper crimper, depriming assembly and shell-holder. I had Jim Kent make me a couple of neck-sizing bushings to suit. In this way, it works on the same principle as a bushing die set used by target and Benchrest shooters. A bit of trial and error may be required to get the correct amount of sizing, allowing for spring-back in the brass and the diameter of the projectile. Another bushing is made to resemble a Lyman 'M' die to very slightly bell the



Activ plastic and RMC Lathe-turned brass cases loaded with CBE hollow-point and solid cast lead projectiles.

case mouth. This allows the lead bullet to enter the case a little more easily. To seat the bullet, another bushing is used. It rests against the shoulder of the CBE Paradox bullet and pushes it squarely into the case. Finally, I use the supplied RCBS crimping bushing to very lightly crimp the bullet in place and it's more or less just taking the slight belling off the case so it enters the chamber easily.

I hope this article has given anyone interested in shooting a bore gun some food for thought. I don't pretend that the methods I have mentioned here are the only ways to load for a bore gun, but they do work for me and if they work for you, then the purpose of this article has been fulfilled. Load it, shoot it and have fun with it! ●

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