

Loading the .450 Nitro Express

by David Commens

I started the ball rolling with my article on the .500 Jeffery (August 2008), followed it up with an article on loading for a GP Greener 12-bore (February 2010) and now I'd like to share with you how and why I went about building a .450 Nitro Express 3.25" for use in the SSAA Big Game Black Powder Express (BPE) events. It is an addiction these large-bore rifles. You can't stop at just one or two and you have to have more. In my case, it stopped when my wife asked me "How many more rifles do you need?" Let me tell you that 'lots' is not the correct answer if you want to be fed dinner for the next week. On the bright side, at least my side-step has greatly improved!

Back on track, I listened to and asked lots of questions of fellow Big Game shooters who competed in the BPE events. A few key factors were highlighted, with the first one being the calibre - the event stipulates a minimum bore diameter of 0.4" and a minimum case capacity of 110 grains of blackpowder.

Secondly, the match is 20 rounds, with the course of fire being four rounds offhand and four rounds sitting or kneeling at 100 yards in 10 minutes per four rounds. At 50 yards, it is four rounds offhand in 10 minutes and two rounds in 10 seconds rapid-fire. The 25-yard line requires three lots of two rounds rapid-fire, with 10 seconds per two rounds. As you can see, you need a rifle and load that functions accurately for six to eight rounds without the need to clean between shots. The slow-fire sections allow around two and a half minutes per shot, which is enough time for a bore snake or similar to be employed between shots.

With a minimum case capacity of 110 grains of black powder, a long cartridge case is needed, so a break-action, falling block or rolling block action is the most common to house such long cartridges. The possible exception would be a Winchester 1886 in .50-110WCF calibre, which meets all the requirements and



The custom-made Ruger No. 1 in .450NE 3.25".

would be a peach in the rapid-fire events. As it turns out, 1886s in .50-110WCF are about as rare as frog's feathers and expensive too.

So what can the average shooter build or buy to compete in the BPE event? Probably the easiest conversion is rechambering a Ruger No. 1 in .45-70 Govt to a .45-110WCF, as it meets all the requirements for bore diameter and case capacity. A simple rechambering job will be required. No modifications to the extractor are needed, but the top edge of the safety catch may need to be shortened a little to allow the empty cases to fully clear the action. Now would also be a good time to wind up the extractor spring to maximum, as it's better to pick up the cases off the ground than to be fumbling with them while trying to reload in a rapid-fire section.

The main point to consider will be if the .45-110WCF reamer will totally clean up the old .45-70 Govt chamber without leaving a slight ridge. Reloading dies for the .45-110WCF are available from both Lyman and RCBS. Cases are available from Starline and there is an unlimited choice in

both cast and jacketed projectiles.

However, I went down the path a different way. I chose the .450 Nitro Express (NE) because the bore diameter and case capacity are ample, with a little room to spare. The calibre seemed to suit the rifle style I was aiming for and could be loaded with smokeless powder and jacketed bullets for use in the Group Two Nitro Express events as well - that's two events with the one rifle. Also, a .450NE chamber will easily clean up a .45-70 Govt chamber.

I found a Ruger No. 1 in .375 H&H Magnum at a local gunshop and after the usual paperwork, it occupied a place in my safe. I then ordered a chrome-moly super-match barrel with a one in 14" twist and a three-groove configuration from Pac-Nor Barrelling in Oregon, USA. My theory on three-groove barrels is that with fewer corners inside the barrel, there were fewer places for blackpowder fouling to hide. I also believe odd numbers of lands and grooves tend to shoot lead bullets more accurately, as there are not two opposing lands to potentially deform the soft lead bullet. This is one reason why Remington

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.30-06 Sprg	180	TTSX BT	2700 f/s
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used five-groove barrels on their successful 40XR rimfire rifles. In any case, it's just my theory, but it seems to work for me.

Pac-Nor barrels allow a full 27" to be used and their blanks are 28" long to start with. They also chambered the barrel for me and profiled it to the same as a Ruger No. 1 barrel in .45-70 Govt. Note that the Ruger No. 1 in .458 Winchester Magnum has a much heavier profile, so choose your profile with the finished rifle weight in mind.

When the barrel arrived, I bundled up the rifle and about five empty cases and went to Pine Rivers Lock & Gunsmith, where I handed all the pieces to Allan Murray and asked him to make me a rifle. This he did expertly and quite quickly. The original quarter rib, barrel band sling swivel and banded front-sight were taken off the .375 barrel and fitted to the .450NE barrel. Another flip-up rear-sight was obtained and fitted to the quarter rib to give it a 'poor man's' (that's me!) folding express sight effect. One rear-sight is used for 100-yard zero and the other for a 25- and 50-yard zero.

Other modifications included machining a new extractor to fit the bigger rim of the .450NE and shortening the top edge of the safety catch. A new Moyers trigger was fitted and adjusted perfectly to around 1lb pull weight without the slightest hint of creep. Everything was then given a trip through the blueing tank to complete the process.

I managed to find a timely set of .450NE reloading dies on eBay and purchased 50 new unprimed cases from Bruce Bertram. These cases have now had at least six firings through them and don't look like failing.

Duplex loads are permitted in the BPE event, along with full blackpowder and pyrodex loads. Jacketed bullets can be used, but only with full blackpowder loads. As I intended to use cast lead bullets exclusively, I decided that duplex would be the way to go for me. I have been using duplex loads in my .45-70s for years, so I knew what I was getting myself into.

Duplex loads are for reloaders with quite a few years' experience under their belt.



A 420-grain RCBS bullet and loaded cartridge, left, and a 520-grain Mountain Mould bullet and loaded cartridge.

Don't let me put you off from trying them, but be sure to read everything you can get your hands on before starting. Many good books are available on the subject; the better ones from our own Graeme Wright and from Paul Matthews in the USA.

A duplex load is basically a smaller amount of fast-burning smokeless powder at the bottom of the case against the primer. An amount of blackpowder is added to form a compressed load. Beeswax wads, grease cookies and vegetable fibre wads are added and a projectile is then seated. This description is greatly oversimplified of course, so a step-by-step explanation is warranted. Please remember that these loads and techniques are perfectly safe in my rifle, but may not be appropriate for your needs, so proceed with caution.

There seems to be two schools of thought on which type of primer to use with blackpowder loads, these being large rifle Magnum primers and large pistol primers. Magnum primers are thought to provide a larger 'flash', enhancing ignition, helping burn off some of the fouling and allowing for longer shot-strings before cleaning. Pistol primers, conversely, have a milder flash and are less disruptive to the



The components of a duplex load include a brass case, 8 grains of AR-2205, 85 grains of FFg Blackpowder, a beeswax disc, grease cookie of SPG lube, a Walters wad and a 420-grain RCBS lead bullet.

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process.

Because I am using duplex loads with a small amount of smokeless powder against the primer, I use Winchester large pistol primers. They easily ignite the smokeless and get the blackpowder going. I did try large rifle Magnum primers, but shot-to-shot variation over the chronograph was greater. The other side-effect Magnum primers had was a lack of a greasy lube star at the muzzle, indicating they may have been burning off or melting some of the bullet lube.

On to the powder charge. Most literature you read on duplex loads calls for a powder around the burning rate of SR4759 and IMR4227 for the starter charge. As DuPont powder is not available in Australia, I use AR2205 as my powder of choice, as the burning rate is similar to but not the same as IMR4227.

BPE rules state that duplex loads must be made up of at least 80 per cent blackpowder. The *Cartridges of the World* book is a good place to find out what the original blackpowder charge weights were for cartridges where it is not self-explanatory.

A .450NE has a capacity of 120 grains of blackpowder. Remember that one grain of smokeless powder has the equivalent energy of 3 grains of blackpowder, so you



Cast lead bullets that were tried in the .450NE included a 300 RCBS, left, 405 RCBS, 500 RCBS, 475 Lyman, 510 RCBS BPS, 520 Mountain Mould.

will need to juggle some figures to arrive at the loads for both powder types. I ended up using 8 grains of AR2205 underneath 85 grains of FFG blackpowder. This gives the equivalent load of 109 grains of blackpowder, a little less than the original load, but I'm using 400- and 520-grain projectiles, not the original 300-grain Express bullets.

A word of caution here: You can use your powder thrower for the smokeless charge, but under no circumstances should you

use a thrower for blackpowder, unless it is specifically designed for blackpowder. The static electricity generated in a thrower with a plastic hopper could very well be the last thing you notice for a very long time.

You might need to increase the blackpowder charge by a few grains to adjust the charge height. This is to allow for a slight compression of the powder charge after the wad, grease cookie and bullet are seated. A slight compression of the powder charge is absolutely vital in a duplex load, as you do



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not want the smokeless and blackpowder to have any chance of mixing together at all.

The next step is to add a beeswax disc on top of the powder charge. A thin layer is pushed onto the case mouth, acting as a cutter. I then push this disc down with a piece of wooden dowel of the appropriate size. Beeswax foundation sheet is the one to use, as it's the right thickness, is easy to use and easy to come by. I have made my own sheet previously. Just melt the beeswax in a double boiler and pour it onto a tray that has some water in it, at least 12mm deep. The beeswax will float and self-level to become your sheet. Figuring out what volumes of beeswax you need to pour to get your own sheet is a trial-and-error process. You can use hot water in the tray to stop the beeswax setting too quickly.

The beeswax holds everything in, allowing the charged case to be inverted to cut the grease cookie, which is a 1/8"-thick ribbon of bullet lube extruded from a Montana Arms grease cookie extruder. I use SPG lube for both the grease cookie and bullet lube. On top of that goes a 60-thou-thick Walters vegetable fibre wad to stop the grease cookie sticking to the bullet base. The projectile is then seated in the normal manner. After lubing your projectiles, make absolutely certain the bases are wiped clean. Fliers will show if the wad sticks to the bullet base.

I have tried bullet weights ranging from 300 to 550 grains and have settled on a bullet cast of 1 part tin to 30 parts pure

lead from the RCBS 45-405-FN mould. With gas-check and lube applied, it weighs 420 grains and has a crimp groove in the right position for my powder column height with the wads added as well. The bullet has quite a short nose and holds plenty of bullet lube. I cast all my blackpowder bullets from the same 1:30 mix. It is soft enough to bump up to groove diameter and firm enough not to produce leading. The bullets are lightly crimped in place, so they don't pop out under pressure from compressing the lube and powder charge.

Velocities have run out at 1520fps for the load mentioned, which is not too shabby for a blackpowder load in my opinion. Accuracy is acceptable, with five-shot groups hovering around the 40 to 50mm diameter at 100m. Considering the bead front-sight and the U-shaped rear-sight, I believe this to be pretty good. The rifle is a little jumpy under recoil when fired from the bench. Did I mention it only weighs 8lb 2oz? This is on the light side for this calibre.

Upon looking back into my load records, I have tried some 520-grain projectiles from a custom-made Mountain Mould that shot well and chronographed at 1385fps. This didn't set any velocity records, but considering thousands of buffalo were shot on the North American Frontier with similar ballistics, it can't be all bad.

Working out a duplex load can be very frustrating. The number of variables in a blackpowder load are considerably more than for a smokeless load and changing any one of them can either give you the results you desire or can send you straight back to the drawing board. But, when you do get it right, the satisfaction is enormous. ●

A .223 Remington, left, .375 H&H Magnum, .45-70 Govt, .450NE, .416 Rigby, .460 Weatherby Magnum, .470NE, .500NE and .500 Jeffery.

