

280 Remington The Forgotten Cartridge



Left to Right: Magazine length 223, 280 Remington, 175gr SMK, 180gr Berger Hybrid

Overview

This article will probably look at the least famous of the .30-06 family of cartridges that ballistically is probably the best. Jack O'Conner made the .270 Winchester very famous as a hunting cartridge and because of this and the fact that .30 cal Mags ruled the line the .280 Remington has often been overlooked. But if one takes a more serious look at the cartridge you will see that it has a lot of positives to it and within the last 10 years some of the things that held the 7mm's back, namely good bullets, no longer are an issue.

Reason

My first match rifle was an AR-10 match rifle in .308 Winchester it was and still is a very nice rifle. However with shooting it for long range I quickly saw there were some deficiencies. I read how good of a cartridge the .260 Remington was so that was the rifle I was going to shoot for everything, aside from palma. A very good friend of mine who has been an excellent shooting mentor for me told

me good shooters have a rifle and they shoot that rifle. So for me it was going to be my AR-10 in 260 Rem. However during this time I also was playing in F-Class with a 7mmWSM shooting 175gr SMKs. That bullet sliced through the wind like a hot knife through butter. Fast forward to Long Range at Camp Perry in 2008 and I found myself making 5 MOA changes left and 5 MOA right of no wind zero during a match. That winter it dawned on me that I needed something better if I was going to spend the time and money to go to Camp Perry and shoot the Nationals. I loved my 7mm WSM but it was in a McMillan A5 stock and it wasn't set up for iron sights. So I either needed to get it tapped or build a rifle. I had 7mm bullets sitting around so I looked at the brass options I had. I had .308 brass and I had .30-06 brass. Wanting something bigger than a 7mm-08 I thought about a .30-06 necked to 7mm, went online and found out that was the .280 Remington from that point on it became my main 1000yd LR cartridge.

Cartridge History

The .280 Remington is part of the .30-06 family that also encompasses the 6mm-06, 25-06, .270 Win, 6.5mm-06, 35 Wheelen, and the 338-06. Some of these have been factory cartridges some haven't been. Of the whole family the parent case is probably the most famous due to the adoption by the US military and also as a hunting cartridge. It is said the .30-06 has probably killed more game in the United States than any other cartridge. US target shooting history for a long long time was ruled by .30 calibers and thus the .30-06 was also gained a following here. The 270 Winchester was the next on the scene and it gained a cult following by the writings of Jack O'Connor, making it a very popular hunting round. In 1957, 32 years after the .270 Winchester came on board Remington released the 280 Remington. Basically sales were never that great, partly due to Remington's continual ability to design a good cartridge then handicap it with a crappy reamer and barrel twist (see the 6mm Remington, .260 Remington). The other issue is the cartridge was designed around their Remington 740 Semi-Auto and Remington 760 pump rifles. Neither action is as strong as a bolt action so factory ammo had to be

downloaded. In 1979 they renamed it the 7mm Remington Express to boost sales, well all this managed to do was have people get it confused with the 7mm Remington Magnum. So in 1981 they changed the name back to the 280 Remington. So Remington was again shooting itself in the foot with a downloaded cartridge.

If one looks at the 270, 280 and the 30-06 one can quickly see that the 280 is the better cartridge. It has more case capacity than the 270 due to the shoulder being 0.050" farther forward. Also there are a lot of good 7mm bullets out there, .277 cal not so much. It has been said if Jack O'Conner chose the 280 Remington, the .270 would have been extinct and everyone would be shooting a 280. Ballistically it beats the .30-06 due to the better ballistics of the 7mm bullet. The more rare 6.5mm-06 while also having a ballistically superior caliber is an extreme barrel burner. However America has tended to be a .30caliber country and any millimeter caliber is seen as European and thus not good. Ironically the 280 never gained a following in Europe due to the 7x64mm Brenneke.

For those people that were ok with the 7mm for hunting or target shooting you had the 7mm Rem Mag, and until recently the belief has always been bigger is better. The 7mm Rem Mags are hard on barrels as are the 7mm RSAUMs. Winchester not wanting to be left behind came out with a 7mm WSM which will eat a barrel even faster, but Remington recaptured the 7mm bore eroder title with the 7mm Rem Ultra Mag. Again while all this development with the Ultra High Horsepower 7mm's was going on there sat the forgotten 280 Remington still sat there forgotten.

Barrel

If you're shooting the 280 you will find (and discussed later) that the slow powder is a good thing. So like most prone cartridges you want a 30" or even a 32" barrel. My first 3 barrels have been 30's but my next 2 barrels I have are 32's. As far as taper I like medium palma. As will be mentioned in the 243 article the one light palma taper barrel I shot just did not settle properly for me. My barrels are 5R, I've never shot anything else. Not saying a 4 groove wouldn't work, but I hate to change

something that works and the logic Boots has behind the 5R makes sense.

Twist wise a 1:9 twist will stabilize the 175's and 180 hybrids just fine. The newer bullets that have just come out like the 183gr SMK are said to shoot better in an 8 twist.

Chamber

As stated this is where Remington killed the 280 as soon as the trigger was pulled (aside from being introduced in a pump and semi-auto). Their reamer had a 3 degree leade on it and that causes the factory guns to be wanting accuracy wise. This came from Dave Kiff and he told me you want a reamer with a 1.5 degree leade. My reamer also has a .315" neck and a .160" freebore.

Brass

One of the strengths for the 280 is that brass can be formed from any of the family cases. With the plethora of .30-06 LC cases one can make .280 brass rather easily and cheaply. This was the driving force to why I went with this cartridge. A gentlemen a couple years back gave me a couple hundred 270 Win cases I necked them out blew the shoulder and they will work also. I just haven't shot them yet because the LC Match cases haven't worn out and I got a bunch of them to go through. A couple years back when compenents were short people shooting the 7mm RSAUM and 284 Win had a hard time finding brass. Having a cartrdige that can be made easily form necking up or down cases is a bonus.

I love LC brass. LC brass is hard as nails and lasts forever. You can either fire form the brass or use a hydraulic die. I at first fire formed, but then had Hornady make a hydro die for me and that has proven to be the easiest way. When using LC brass you want to make sure you first anneal the neck. Then blow the shoulder out. I then anneal it again. At this point I size the brass and then neck turn it. You probably don't have to turn it but I'm big on consistent neck tension and the brass that was .30caliber that is now 7mm had to go somewhere and I don't want to assume it went there evenly. The only difference you will have vs. commerical brass is the neck will be a little bit shorter but that isn't an

issue. Any brass manufacturer makes .30-06 cases so they aren't hard to find.

If you don't want to use .30-06 brass you can find commercial brass from Remington and Norma. Also AI cases made by Hornady can be ran through a straight 280 sizing die to make regular 280 brass.

When using .30-06 brass you will find that your neck will be a little bit shorter than factory cases. I have not found this to be an issue at all. If anything its kind of nice because you really don't have to worry about trimming your cases.

As talked about in the 223 article there really isn't any benefit to case sorting weighing. The my 280 LC brass has a water capacity of 69.6gr of H₂O. So any minor difference is pretty much erased. The one thing I do do is that I index my cases. I read Creighton Audette's article and it made sense so I figured why not do it. Once you do it you just have to remark as you can still faintly see a sharpie on the case even after you clean it.

Bullets

This is the main reason to choose a 7mm the bullets. The 7mm bullet line has the highest BC of any caliber save the heavy 30's or 33's which will cause you to take a serious beating. Sierra for years has produced a 168gr SMK, in second half of the 2000's they came out with a 175gr SMK that is a very solid bullet. They also have a 180gr SMK and the newly released 183gr SMK. Berger has their old trusty 168gr and 180gr VLDs. In the past 5 years they came out with the gold standard of the 180gr Hybrid and their new 195gr Hybrid. Barnes makes a very nice target bullet also. My experience has been with the 175gr SMK and the 180gr Hybrid. The Hybrid has better BC, but to be honest I've shot the same scores with the Sierra as I've shot with the Hybrid. The only real difference I notice is cost. Generally I will shoot the Sierra for all matches except Nationals where I will shoot the Bergers my thinking being if I'm getting a little bit of a help I can use it there.

I have not tried the 183gr SMK yet some say you need a 8 twist, but I'm not sure. I did test the

Cauterucio 177 and 189's and the 189's shot nicely in a 9 twist. The 195 has killer BC, but is too heavy for the cartridge. The VLD's and the 168gr SMK there really is no need to shoot those as they're outclassed by the aforementioned 175gr SMK and 180gr Hybrid in BC and ease of getting to shoot (referring to the VLDs).

While we are talking bullets let's talk pointing. You don't have to, but you will gain about a MOA at 1k if you properly point your bullets. This increases as you go smaller in caliber and decreases as you go larger. So your choice on what you want to do, I point.

Powder

The 280 Remington will work with powder from the 4350 through H1000, and maybe slower. I started off under recommendation with H4831SC. The load was 56.5gr (later 57.5gr) with a 175gr SMK. It shot very well. However I started playing around on Quickload and looking at other powders. I was looking for velocity but also wanting better barrel life. I quickly stumbled across H1000 and I haven't gone back. H1000 really lets the 280 come to life. You can shoot 175SMK/180 Hybrids at 2920fps pretty easily, which ironically is where the USAMU downloaded their RSAUMs to shoot. That load isn't too terribly hard on the brass, you can push it a little hotter if you want but you won't really gain that much except strain on your brass. The other benefit of this change was I was running at a slightly lower pressure than the 4831SC load with more velocity and getting better barrel life. A win win in my category. However to stuff the 61.5gr in the case you need to drop tube. Below you will see the velocity with the other powders running about 2-4k higher in pressure as the H1000 load along with their barrel life.

Powder	Velocity	Barrel life
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H1000	2,910fps	2,580 (actual)
H4831SC	2,850 fps	1,967 (calculated)
IMR-4350	2,850 fps	2,274 (calculated)
N160	2,815 fps	2,795 (calculated)
N165	2,830 fps	3,107 (calculated)

It is worth to note though that a well accomplished prone shooter also started with H4831SC in his straight 284 and he then switched to 4350 because he found a quicker powder shot more accurately. I don't doubt his results but I haven't tested that personally in this cartridge.

Molly

I love molly on any of the cartridges I shoot. The 280 has the case capacity so why not. I think it really helps with the pressure. Also the bearing surfaces on the bullets are long and over time in theory I think it should help with barrel life. My first barrel was shot most of its life with naked, the second barrel with molly. The second barrel lasted longer, plus the shiny gray bullets look cool.

Load Data

Ok first let me say these are loads worked up in my chamber with my brass, it doesn't mean it will safely work in your rifle.

Originally the load was worked up just shooting groups at 100yds as I didn't have access to a 300yd range to test. But once I did I verified with the Audette ladder test and what it showed was the load I had found.

Running H1000 and molly coated 175's my load is 61.7gr of H1000 jumping 0.010". With the 180gr Hybrids it is 61.5gr of H1000 jumping 0.020". The H4831SC load was 56.5gr but I later bumped it up a grain.

Impressions

The 280 ballistically at 2,910-2,920 fps will shoot inside anything else. To look at that we will

use the lag time formula which is mentioned in Applied Ballistics for Long Range Shooting, by Bryan Litz. While he goes into more detail, basically it is a more accurate way to look at wind drift than a standard wind drift table. Also shown is the standard wind drift value at 1k.

280 Rem (2,920 fps with 180 Hybrid)	0.3206 / 5.4 moa
284 Win (2,840 fps with 180 Hybrid)	0.3347 / 5.6 moa
243 Win (3,250 fps with 105 Hybrid)	0.3584 / 6.0 moa
6.5x284 Win (2,950 fps with 140 Hybrid)	0.3521sec / 5.9 moa

Also that is about the most recoil you really want to take IMHO. The 280 can run a little bit faster, and other 7's can run a lot faster but to be honest you start taking more of a beating and your not gaining a whole lot more. It does have some recoil to it but it isn't that bad. The slower H1000 has a low impulse and so its a shove not a sharp jab.

As far as the more prevelant 284 Win, I think the 280 has the advantage on brass availability and it can just run a bullet faster due to the greater capacity and being able to run H1000.

The 7mm RSAUM is the other 7mm cartridge you will see on the line. It can push the 180s up to 3,050 fps. That is where the AMU use to run theirs at and also around where Thomas Colyer the 2015 Wimbledon Champion runs his at. However the AMU backed theirs down to (drumb roll.....) 2,920fps because they found it shot more consistantly and weren't relaly giving up that much (hmm, read that somewhere before I think). So basically using the RSAUM at that speed is just giving you a 280 with more expensive and harder to find brass.

The main reason I think why people shy away from it is that it is a long action cartridge where as the 284 Win, 7mm RSAUM, 7mm WSM are short action cartridges (in theory). However if you want to run those from a magazine you need a long action with the heavy bullets so really that argument is mute.