Smallest Weatherby: Varmint Master .224 Magnum!

Exclusive Data!
Barnes XPB Loads

In Search of:
The Perfect Velocity

Old West Pistol Performance!

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Each year as I prowl the aisles of the annual SHOT Show, I make it a point to stop at a growing number of booths. At many of them, I’ve gotten to know the folks fairly well, having used and often tested their products and published my findings in Handloader and elsewhere.

At the 2006 show, as I approached the Vihtavuori/Lapua booth, I was again met with familiar faces. Kaltron-Pettibone of Bensenville, Illinois, is the importer for both lines, and I’ve worked with them for a number of years. After the usual exchange of pleasantries and my demand for a newer reloading pamphlet and manual (soon, I’m promised), we got down to business.

As most readers know by now, Vihtavuori smokeless powders are manufactured in central Finland. Begun in 1928, Vihtavuori produces well over 100 different powders for military and civilian use. Many are canister powders for the reloading trade and, of them, a number are imported into the U.S. For the most part these U.S.-imported powders are in three groups: the N100 series of single-base rifle powders, the N500 series of double-base rifle powders and the N300 series of single-base handgun powders. All are extruded.


As our conversation continued, I was somewhat surprised to find it turning to shotshell powders. Vihtavuori makes them and those first six editions of the reloading guide carried a limited amount of shotshell reloading data, employing American components, for three Vihtavuori shotshell powders: N3SL, N3SM and N3SH. I was even more surprised when asked if I would put the powders through their paces and also develop some metallic load data for them. I was flattered and grateful for any new column material. It also occurred to me that we writers are supposed to take advantage of the manufacturers, not the other way around. Oh well, hoping I wasn’t starting a trend, I readily agreed.

It wasn’t long before a package arrived with several 250-gram (about ½ pound) canisters of N3SH. This is the slowest-burn-
ing of the three and, in those early reloading guide editions, was shown only in the 20 and 28 gauges except for a single steel shot, 12-gauge target load. Looking closely at the powder’s burning rate – similar to Hi-Skor 800-X – it’s clear the powder has much broader potential in hunting loads and in the 12 and 16 gauges as well. N3SH differs from the Vihtavuori powders we’re familiar with in that, instead of being extruded, it is sheet cut. That is, in manufacture, the wet powder is poured on a flat surface, al-

As we browse through modern reloading manuals, we find a broad range of cartridges for which IMR-4320 is suitable. We begin with the .222 Remington. In it and the slightly larger .223 Remington, IMR-4320 is quite useful, but in most cases top loads are compressed. In the .222 Remington Magnum, we get full cases but without compressed charges. As we continue through the .22-caliber cartridges with increasingly larger case capacity, we find IMR-4320 is always in the running but not necessarily producing the highest velocity. In the now-defunct .225 Winchester, the latest Lyman 48th Reloading Handbook rated IMR-4320 “most accurate powder” in bullet weights of 45, 50, 52 and 63 grains.

In most 6mm cartridges, IMR-4320 is at its best with lighter bullets, but its flexibility allows it to also perform well with bullets of 100 grains or so.

Most .30-caliber cartridges benefit from IMR-4320 from the .30-30 through the .30-06. Early military .308 ammunition, I’ve read, was loaded with non-canister 4320. Match shooters of .308s at long ranges frequently prefer IMR-4320 for its inherent accuracy. In the .30-06, Lyman found IMR-4320 to be its most accurate powder with 125- and 190-grain bullets.

In the .338-06, Nosler, in its reloading guide, fifth edition, rated IMR-4320 “most accurate powder tested” with 225-grain Partitions. The powder seems to come into its own again in .35-caliber cartridges. From the .35 Remington to the .358 Norma Magnum, IMR-4320 is among the best. In the .35 Whelen, Lyman gives it top marks with 180-grain bullets and Nosler with 250s. Nosler again chose IMR-4320 in the .350 Remington Magnum with 225-grain bullets.

As diameters grow and expansion ratios climb, IMR-4320 keeps plugging along. In the .458 Winchester and .458 Lott, in the .495 A-Square and .500 Jeffery, in the .45-70 in heavy bullets and beyond, IMR-4320 just does its job, without fanfare, one round at a time. Kind of the way I like it.

<table>
<thead>
<tr>
<th>Selected Loads</th>
<th>IMR-4320</th>
</tr>
</thead>
<tbody>
<tr>
<td>bullet (grains)</td>
<td>charge (grains)</td>
</tr>
<tr>
<td>.223 Remington</td>
<td>69</td>
</tr>
<tr>
<td>.243 Winchester</td>
<td>80</td>
</tr>
<tr>
<td>.30-30 Winchester</td>
<td>150</td>
</tr>
<tr>
<td>.30-06</td>
<td>190</td>
</tr>
<tr>
<td>.35 Whelen</td>
<td>250</td>
</tr>
<tr>
<td>.45-70*</td>
<td>405</td>
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</tbody>
</table>

* 26-inch barrel

Be Alert – Publisher cannot accept responsibility for errors in published load data.

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<table>
<thead>
<tr>
<th>Selected Loads – Vihtavuori N3SH</th>
</tr>
</thead>
<tbody>
<tr>
<td>bullet (grains)</td>
</tr>
<tr>
<td>.38 Special</td>
</tr>
<tr>
<td>.375 Magnum</td>
</tr>
<tr>
<td>.41 Magnum</td>
</tr>
<tr>
<td>.44 Special</td>
</tr>
<tr>
<td>.44 Magnum</td>
</tr>
<tr>
<td>.45 Colt</td>
</tr>
<tr>
<td>.45 ACP</td>
</tr>
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allowed to dry and cut into little parallelograms. Each resulting flake measures about .060 by .060 inch with a thickness of about .012 inch. Although my load data was developed with weighed charges, the powder meters well. N3SH is also single base, meaning no nitroglycerin is added to the mixture. It is available in 250-gram canisters and 4-pound jugs.

A couple of sample shotshell loads, taken from the published data, are these:

### 20-gauge, 2¾-inch
- Remington Premier hull
- Remington 209P primer
- Remington SP20 wad
- one-ounce lead shot
- 17.0 grains N3SH
- Velocity: 1,165 fps
- Pressure: 11,700 psi

### 28-gauge, 2¾-inch
- Remington plastic-disk base hull
- CCI 209 primer
- Remington SP28 wad
- ¾-ounce lead shot
- 14.0 grains N3SH
- Velocity: 1,204 fps
- Pressure: 8,900 psi

As I bent to the task of developing metallic load data, I did have some help. First, the early reloading guides had burning rate charts that included N3SH, and Vihtavuori staffers assured me the N3SH burning rate was between N340 and N350. This gave me parameters. Next, by firing maximum loads of N340 and N350 with the same bullet I intended to use with N3SH and measuring and comparing case expansion in front of the rim, I could establish a quantifiable stopping point. Primer appearance and ease of extraction were also considered, but each can be less reliable than expansion measurements. For the most part, I only worked with cartridges with published data for both N340 and N350.

I began with the .38 Special, pairing it with 125- and 140-grain bullets. Seven grains with Winchester 125-grain bullets and 6.2 grains with the 140-grain Speer must be considered maximum.

In the .357 Magnum, with the same 140-grain Speer bullet, 9.0 grains was tops. I included the...
standard 158-grain Speer with 8.5 grains. Accuracy was quite good in both of these small capacity cases, but I found the pressure curve to be rather steep. Small increases of N3SH can have surprising results.

One cartridge I would have liked to try with N3SH but didn’t was the .40 S&W, especially with 155- and 170-grain bullets. I suspect it is a great match. I did try the .41 Magnum with 210-grain Sierras. I was able to work up to 11.0 grains in complete safety, but I think 10.5 grains at about 1,200 fps is a better all-around load.

I reached nirvana with 240-grain cast bullets in the .44 Special. I recorded my smallest groups and extreme spreads of all the tests with 8.0 grains. This was in a Ruger Super Blackhawk with a 7½-inch barrel. For lighter guns I’d prefer 7.5 grains, still a very fine load.

In earlier reloading guides, in a section devoted to cowboy action shooting, Vihtavuori included N3SH in several cartridges, although the powder sometimes appeared as 3NSH. It’s the same propellant. I first explored the concept in the .44 Magnum, eventually developing both a cowboy load and a field load. The cowboy load used a cast 240-grain bullet and the field load a 240-grain Sierra.

In the .45 Colt I found a range of powder charges that performed well. For a Colt-like velocity level of 850 to 900 fps with 250-grain cast bullets, 10.0 grains of N3SH was very effective. For Rugers and other stronger-framed guns, this can be increased to 11.0 grains.

I did work with one autoloader, a .45 ACP Colt Government model. A 230-grain Sierra pushed by 6.5 grains of N3SH performed very well. With a 200-grain cast bullet, I found 6.3 grains promising.

Throughout all the testing, I was very pleased with N3SH. It must be understood, however, that for any bullet/cartridge combination, there is always going to be a slower powder that will produce higher velocities at safe pressures. N3SH should be considered a middle-of-the-road powder in metallic cartridges, but that is what most of us strive for anyway. Any attempt to duplicate my efforts must begin by cutting the powder charge by 10 percent. Guns differ, as do bullets, cases, primers and powder lots. Only standard force primers were used.

With mail-order firms now offering N3SH in 4-pound canisters at very attractive prices, it’s another viable choice in our reloading.

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Faster than a Speeding Superman

New US869 powder gives you amazing velocity and a high rate of consistency. Less time in the air means less time being affected by crosswinds, gravity and other factors. Who needs kryptonite when you have US869?
For a great many handloaders, only one perfect muzzle velocity exists: the fastest possible. This does not necessarily mean the safest, fastest velocity.

A few years ago, an acquaintance had a custom rifle built chambered for a wildcat variation on the .338-06 (a cartridge we often forget is no longer wild, but the .338-06 A-Square, chambered both by that company and Weatherby). One evening in a saloon in central Wyoming, my acquaintance started bragging on the muzzle velocity he was getting with a 225-grain bullet.

I have been handloading both the .338-06 and its big brother, the .338 Winchester Magnum, for some years. The speed he quoted was about 10 percent higher than normally listed for the .338-06, more in the range of the .338 Winchester, so I asked the barrel length of his rifle, since he could have had a 30-inch barrel fitted. Nope, it was something standard, a 22 or 24.

I told him his pressures were over the top. He said he had encountered no stiff bolt lifts. I sighed and tried to explain that doesn’t mean much with today’s custom rifles, featuring ultra-square surfaces on the bolt lugs and recesses, and very smooth chambers. This did not convince him.

After he’d had a couple more drinks, however, he asked a question: Why did a primer occasionally fall out of a case when he opened the bolt after firing a shot? I told him this was a classic symptom of way

"2,700 fps or Bust"
too much pressure. His brow furrowed, and then he weaved off to bed. The next time I ran into him, a year or so later, I asked what load he’d settled on, and he said the same one, because it would be too much trouble to pull the bullets on the 100 rounds he’d loaded. He’s a lucky man, because his rifle’s action is among the strongest ever made. However, even very strong bolt actions have life-limits when stressed by loads well above normal pressures.

If we shoot and handload much, we commonly run into such handloaders. They often believe they have magic rifles, with barrels that are somehow “faster” than the average. They also tend to believe they are incredibly skilled handloaders, able to perform ballistic miracles far beyond those of the average mortal. The real deal is that any handloader can make any case exceed its standard velocity limits. All that’s needed is more powder and fewer brains.

Handloaders with brains approach the same problem in another way. A handloader with brains would instead buy a .338 Winchester Magnum and load it within normal limits, thereby ensuring that his brains remain inside his skull.

The other side of the “absolute highest velocity” school of handloading is that the (maybe) 150 fps difference between standard and red-line loads doesn’t much matter. This is a strange concept for many handloaders. In fact, after making that statement during a ballistic discussion (known to many shooters as a “bull session”), I have received angry responses from people who firmly believe that 150 fps does matter.

Well, it does in some ways. Obviously, if your ego is shored up by another 150 fps written on a box of your handloads, why, go for it. But it would be easier and safer just to write it down without actually trying to achieve it. A little, white 150-fps lie is a lot easier on your rifle than an actual red-line 150 fps.

As an example of what I’m talking about, let’s use the .338-06 A-Square and .338 Winchester Magnum. Loading manuals list maximum muzzle velocities for 225-grain bullets at around 2,600 to 2,700 fps in the .338-06, and around 2,800 to 2,900 fps in the .338 Winchester. (The variations between manuals are mostly due to differences in bullets and barrels.)

From this we can conclude that the .338 Winches-
These “old” cartridge/bullet weight combinations are still favored by many shooters. What they all have in common is a muzzle velocity between about 2,000 and 2,400 fps (left to right): 6.5x55, 160; 7x57, 175 (in this case the military “hardball” favored by W.D.M. Bell for elephant hunting); 30-30, 170; .30-06, 220; .303 British, 180; .35 Remington, 200; 9.3x62, 286; .35 Whelen, 250; .416 Rigby, 400 and .458 Winchester, 500.

The Perfect Velocity

Raised 1.2 inches, making the actual difference in trajectory 2.6 inches. At 400 yards the difference would increase to 5.6 inches.

Big whoop. In reality I doubt whether most hunters can tell if their rifle is sighted in 1.7 or 2.1 inches high at 100. And since this figure often varies with shooting position, light conditions and temperature, we’re talking in
right on at 200, down about 8
inches at 300 and down just
about 2 feet at 400. This is not a
hard trajectory to memorize or
use in the field, one reason I
load most of my big game car-
grades to that approximate speed,
whether the 7x57mm Mauser,
.30-06 or .375 H&H.

Four hundred yards is also a
heck of a long way for most of us
to shoot. While I have killed
varmints out to twice that range,
called “ordinary” bullets. They
also don’t chew up nearly as
much good-tasting meat as bul-
lets started at “modern” veloc-
ities of 3,000+ fps.

Even though considered “slow”
these days, any load using a
spitzer of moderate sectional
density at 2,700 fps shoots plenty
flat for most hunting. Sight in 2
inches high (or 1.7 or 2.1 inches)
at 100 yards and bullets land

The original title
for this essay was going
to be “2,700.”

units much larger than .1 inch
anyway.

The same nit-picker might also
point out that the .338-06’s veloc-
ity at 400 yards of 1,872 fps might
now allow the bullet to expand.
That might be right. In the ex-
pansion/penetration test Gary
Sciuchetti published in Hand-
loader No. 193, around 1,900 fps
was the bottom line for expansion
with most lead-core hunting
bullets (in the test’s case 180-
grain .30s). But I have shot sev-
eral big game animals at around
400 yards with spitzer bullets
started around 2,700 fps, and all
the bullets expanded nicely.

In fact, the original title for this
essay was going to be “2,700,” be-
cause over the years I’ve become
convinced that boring speed
(tyipified by the most boring fac-
tory load for the most boring
cartridge in existence, the 180-
grain .30-06) is perhaps the ideal
all-around muzzle velocity for
shooting most big game. Why?
Well, most spitzer bullets started
at 2,700 fps hold up pretty well
when striking game, even so-

With modern powders and long
bullets, many rifles produce their
best accuracy with “maximum”
loads. This 7x57 load was devel-
oped in a Serengeti Walkabout
and shows a rather typical pro-
gression from merely okay to very
fine accuracy with each increase
in powder charge.

Ballistic Figures for .338 Bullets

<table>
<thead>
<tr>
<th>Cartridge</th>
<th>Muzzle Velocity (fps)</th>
<th>100</th>
<th>200</th>
<th>300</th>
<th>400</th>
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<tbody>
<tr>
<td>.338-06</td>
<td>2,700</td>
<td>2,477</td>
<td>2,265</td>
<td>2,063</td>
<td>1,872</td>
</tr>
<tr>
<td>.338-06 Trajectory (inches)</td>
<td>-1.5</td>
<td>+2.1</td>
<td>-0</td>
<td>-8.9</td>
<td>-26.0</td>
</tr>
<tr>
<td>.338 WM</td>
<td>2,900</td>
<td>2,667</td>
<td>2,445</td>
<td>2,235</td>
<td>2,034</td>
</tr>
<tr>
<td>.338 WM Trajectory (inches)</td>
<td>-1.5</td>
<td>+1.7</td>
<td>-0</td>
<td>-7.5</td>
<td>-22.0</td>
</tr>
</tbody>
</table>

These cartridges are all world-
wide standards. They got that
way because of muzzle velocities
of around 3,000 fps with their
most useful bullet weights, al-
lowing hunters to aim “right on”
at normal ranges (left to right):
.243 WCF, .25-06 Remington,
.270 WCF, 7mm Remington
Magnum and .300 Winchester
Magnum.
But there are other perfect velocities out there. The same argument could be made for 3,200 fps. Why? Well, a spitzer started at 3,200, sighted-in 2 inches high at 100 yards, lands about 3 inches low at 300 yards. No time need be wasted guessing or measuring the range, out to where at least 95 percent of all big game is killed.

I do load some rounds up to 3,200 fps or more when in my entire life only about 5 percent of the unwounded big game animals taken have been shot past 300 yards, and only about 1 percent at 400 or more. (And yes, I killed all the animals at 400+, though I’ve missed a few at around 300, mostly by holding too high, something a 200-yard zero tends to fix.)

Now we can go back and compare the .338-06 and .338 Winchester Magnum again, and find that it’s possible to load the magnum to 2,700 fps with a 250-grain bullet. If we do, its trajectory varies a little from the faster 225-grain load – by about 3 whole inches at 400 yards. (This is the bullet weight that has always made the most sense to me in the .338 Winchester Magnum. Use anything lighter and you might as well shoot a .300 magnum of some sort.)

The .375 H&H has survived challenges from dozens of newer and supposedly “better” cartridges for almost a century, because its muzzle velocities with either 270- or 300-grain bullets are just about perfect for most hunting. The 270-grain bullet at 2,700 fps or so works out to 400 yards, while the slower 300 grainer does wonders at “thornbush” ranges, such as the 100-yard shot that took this Botswana kudu.

This feral boar was taken with a shot through the shoulders and spine with a Serengeti Walkabout 7x57mm Mauser using a 160-grain North Fork bullet started at just about 2,700 fps. After decades of using the 7x57, John has decided that a bullet of about 160 grains at 2,700 fps works fine as an all-around load, at any sane range.

John took this Wyoming pronghorn in 2005 with a Sako .308 Winchester and Federal factory loads featuring 150-grain Nosler Ballistic Tips. Muzzle velocity from the 20-inch barrel was just over 2,700 fps and the range about 250 yards. The “perfect” muzzle velocity of 2,700 fps works just fine at any normal hunting range.

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hunting where a fast shot might have to be made at some distance. This normally occurs on some sort of trophy hunt, such as the mule deer hunt made in Sonora last winter. There you might only get a brief glimpse of a big buck, with an even brief chance to even guess the range, let alone apply a laser rangefinder.

But I also expect to lose quite a bit of edible meat when using such a load, even with the toughest bullets made. My Sonoran buck was taken with a 168-grain Barnes Triple-Shock on a severely angling shot at around 200 yards. Even at that distance the bullet chewed up at least 10 pounds of fine meat from the front edge of the rump and the loin.

Once upon a time, I also shot a mule deer doe with a Mark Bansner .270 Weatherby Magnum, using the 130-grain Swift Scirocco started at over 3,300 fps. This is not anything like my normal doe rifle, but I was primarily hunting a big buck and happened upon the doe. She quartered toward me slightly at around 125 yards, so I very carefully placed the bullet behind the shoulder. At the shot she leapt in the air, then came down running, piling up after about 75 yards. The inside of the chest was blood soup, and altogether about one front quarter of the meat was turned into inedible shreds. This

One reason the .250 Savage has such a sterling reputation as a deer killer is that its standard 100-grain load develops 2,700 to 2,800 fps at the muzzle. This allows even “standard” bullets to work just fine, even on frontal shots like the one that took this Montana mule deer doe at 150 yards. (The rifle is a Winchester Model 70 Carbine, the load a 100-grain Speer Hot-Cor at just about 2,750 fps.)

This scimitar-horned oryx was taken in South Texas brush with John’s custom Sisk rifle chambered for the 9.3 B-S, using a 286-grain Nosler Partition started at about 2,400 fps. This is plenty of velocity for any “woods” ranges and in fact works out to 200+ yards just fine.
is why my normal meat-hunting loads start no faster than 2,700 fps.

This experience also brings up the velocity theory of “killing power.” According to common wisdom (a contradiction in terms: In my experience wisdom is not common.) a fast-expanding bullet started at warp speed supposedly drops game upon impact, but I have not found this to be necessarily so. In fact I have found that 2,700 fps does just about as well, perhaps because more of the bullet’s expansion takes place inside the animal, instead of near the entrance wound.

Another magic muzzle velocity range would be 2,000 to 2,400 fps. This works about perfectly for either solid bullets or blunt-nosed softpoints, the sort traditionally chosen for hunting at “woods” or “timber” ranges (also known in Africa as “thornbush” or “bushveld” ranges). Start solids much faster and they stand a good chance of veering or tumbling after impact; start them much slower and penetration suffers, not a good thing when hunting solid-bullet game, whether Cape buffalo or elephants.

Start cup-and-core, blunt-nosed softpoints much faster and they can come apart on impact or penetrate insufficiently. The wide lead nose promotes rapid expansion, the reason many woods hunters feel roundnose bullets whop game more noticeably than pointed bullets do. But too high an impact velocity can turn the same bullet inside-out.

Another aspect of the perfect velocity is accuracy. In ancient times (such as the 1960s, when I was learning to handload), many claimed that the best-shooting loads often were found a few grains below maximum. This was often true, and for a good reason: Many of the common powders back then were designed to operate most consistently at about 50,000 psi, well below the 60,000+ psi generated by many modern rifle cartridges. A good example is IMR-4895, still one of the best-selling powders on the market, and for good reason, since it often produces fine accuracy and burns pretty cleanly.

But IMR-4895 was created for the Garand rifle and the 172-grain .30-06 service load, which produces less pressure than your average bolt-action big game round, especially those designed since World War II. Most slower-burning powders are designed to burn best at around 60,000 psi. They normally won’t produce their most consistent muzzle velocities until the powder charge produces somewhere around that pressure.

Also, many modern hunting bullets are longer for their weight than when rifling twists were originally designed. Place a traditional lead-core spitzer like a Speer Hot-Cor next to a Barnes Triple-Shock, Nosler AccuBond or Swift Scirocco of the same weight and observe the difference in length. A new-generation bullet will be a lot longer. Thus the “perfect” twist worked out when all bullets were of simple cup-and-core design might be a trifle too slow for perfect stabilization at moderate muzzle velocities. This new bullet might also be “harder.” The jacket will be thicker at the base or, in the case of the Barns, non-existent.

Cup-and-core bullets will often “slug up” to groove diameter when bumped in the base by a charge of relatively fast-burning powder such as IMR-4895, and thus will often shoot well even at moderate pressures and muzzle velocities. But a hard-butted bullet sometimes needs to be kicked along more convincingly to shoot well, especially in a factory bar-
and there's a noticeable variation in magnums as well. Particularly with Ramshot's modern-age Ball powders, I've found a magnum primer can shrink groups even in standard cartridges.

All this does not mean, of course, adding powder to the point where primers fall out of fired cases. But then you knew that. Didn't you?

Put modern powders together with longer and harder bullets, and the old advice about finding the most accurate load a few grains under maximum often does not work. I've lost count over the past few years of the times I've started working up a load with one of the new super powders, such as Alliant Reloder 22, Hodgdon H-4831sc Extreme or Ramshot Hunter, and found the starting load grouping into close to 2 inches. Now, that is sufficient accuracy for most big game hunting, but pretty pitiful for a modern bolt action with a scope turned up to 9x or more, and a twenty-first-century Wonder Bullet.

Then I've shot the next load up and seen the groups shrink to, say, an inch or maybe 1.5 inches. And the next load up, nearing maximum, groups under an inch. The final load, that dreaded Maximum avoided by many cautious handloaders, often zips them all into a cluster more like a three-leaf clover.

I have seen this pattern so many times that it's convinced me that the reason some handloaders haven't found fine accuracy in loads using Triple-Shocks, AccuBonds or Sciroccos is a simple lack of pressure and velocity. When handloaders contact me about why their rifle won't shoot bugholes with any of these new super-bullets, I ask about muzzle velocities. More often than not, I end up suggesting the addition of another grain or two of powder - and all of a sudden the expensive bullet they “wasted” extra money on is their best friend.

This is also partly why a change in powder and primer also can make a big difference in accuracy. Even if the powder supposedly has a similar burn rate to the one that's not producing fine accuracy, it might bump the bullet in question a little differently. The same often happens when switching primers. Some standard rifle primers are just about as hot as magnums nowadays, and there's a noticeable variation in magnums as well. Particularly with Ramshot's modern-age Ball powders, I've found a magnum primer can shrink groups even in standard cartridges.

All this does not mean, of course, adding powder to the point where primers fall out of fired cases. But then you knew that. Didn't you?
Lyman’s 1500XP  
ELECTRONIC SCALE

V ersatile, simple to set up and use, Lyman’s new electronic scale gives almost instantaneous readings and lends new meaning to the adjective compact.

Formed from a gray plastic, the unit’s body is only 7½ inches long, 5 inches wide and 3½ inches tall at its highest point when its transparent dust cover is closed.

A storage tray is hidden inside the 1500’s body. To gain access to it, an operator merely needs to push the back of the tray in, and it will rebound, protruding far enough to be grasped with the fingers and pulled free. In addition to a brass-colored powder pan, the tray holds a powder trickler reservoir, its tubular-shaped base and a powder feed tube, each of which sits or is clamped in a separate assigned space, especially shaped to contain it. Last but not least, there’s a small brush, 3 inches long, ensconced (there’s a word you don’t see very often these days) in a dedicated groove located in front of the loading tray on top of the scale’s body.

The Lyman scale can be powered by household electricity via an AC adapter (included) or by four AA batteries that can be installed in a small compartment hidden behind a sliding cover found on the unit’s underside. If batteries are used, an automatic shut-off will be activated whenever the scale is left unused for 15 minutes. When the batteries begin to lose their power, an image of a battery will flash on the display panel to warn the operator of the impending problem.

Speaking of the display panel, it’s positioned on the front of the 1500’s body. It’s 2 inches wide and ¾ inch high. The easy-to-read numerals that appear there are almost as tall and highly visible.

The panel is flanked by two orange-colored control buttons on each end. The upper left button is marked ZERO and is used during the calibration process. Below it is another bearing the legend MODE. That permits the operator to let the scale display its weights in grains or grams. The upper right button is marked with the self-explanatory ON/OFF. The button beneath it, marked CAL, also plays a role when the scale is being calibrated. Those four buttons are all it takes to operate and control the scale.

Calibration is simple, involving six steps. There’s no point in going over them here but the entire operation is pretty straightforward and takes very little time. To find out exactly how much, my trusty stopwatch was brought out and the entire process timed - twice. I didn’t hurry but moved at a normal pace. The first run-through took 54 seconds. The second was 53 seconds. Calibrating a 1500 is strictly uncomplicated.

VERSATILE, SIMPLE TO SET UP AND USE, LYMANS NEW ELECTRONIC SCALE GIVES ALMOST INSTANTANEOUS READINGS AND LENDS NEW MEANING TO THE ADJECTIVE COMPACT.

FORMED FROM A GRAY PLASTIC, THE UNIT’S BODY IS ONLY 7½ INCHES LONG, 5 INCHES WIDE AND 3½ INCHES TALL AT ITS HIGHEST POINT WHEN ITS TRANSPARENT DUST COVER IS CLOSED.

A STORAGE TRAY IS HIDDEN INSIDE THE 1500’S BODY. TO GAIN ACCESS TO IT, AN OPERATOR MERELY NEEDS TO PUSH THE BACK OF THE TRAY IN, AND IT WILL REBOUND, PROTRUDING FAR ENOUGH TO BE GRASPED WITH THE FINGERS AND PULLED FREE. IN ADDITION TO A BRASS-COLORED POWDER PAN, THE TRAY HOLDS A POWDER TRICKLER RESERVOIR, ITS TUBULAR-SHAPED BASE AND A POWDER FEED TUBE, EACH OF WHICH SITS OR IS CLAMPED IN A SEPARATE ASSIGNED SPACE, ESPECIALLY SHAPED TO CONTAIN IT. LAST BUT NOT LEAST, THERE’S A SMALL BRUSH, 3 INCHES LONG, ENCONCED (THERE’S A WORD YOU DON’T SEE VERY OFTEN THESE DAYS) IN A DEDICATED GROOVE LOCATED IN FRONT OF THE LOADING TRAY ON TOP OF THE SCALE’S BODY.

THE LYMAN SCALE CAN BE POWERED BY HOUSEHOLD ELECTRICITY VIA AN AC ADAPTER (INCLUDED) OR BY FOUR AA BATTERIES THAT CAN BE INSTALLED IN A SMALL COMPARTMENT HIDDEN BEHIND A SLIDING COVER FOUND ON THE UNIT’S UNDERSIDE. IF BATTERIES ARE USED, AN AUTOMATIC SHUT-OFF WILL BE ACTIVATED WHENEVER THE SCALE IS LEFT UNUSED FOR 15 MINUTES. WHEN THE BATTERIES BEGIN TO LOSE THEIR POWER, AN IMAGE OF A BATTERY WILL FLASH ON THE DISPLAY PANEL TO WARN THE OPERATOR OF THE IMPENDING PROBLEM.

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40 CAL./.30MM 150 GR. TMJ $64.00/1000
9MM 124 GR. FMJ $47.00/1000
9MM 115 GR. FMJ $45.00/1000
9MM 115 GR. TMJ $44.00/1000

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Once calibrated, the scale’s display panel shows a double zero with the loading platform still empty. The final step is to place the empty powder pan on the platform, then press the ZERO button. That compensates for the pan’s weight and resets the scale to zero.

Since electronic scales probably see more use establishing and verifying charges thrown by powder measures than anything else, that seemed a logical place to start testing the scale. Besides, I needed to assemble a couple of additional experimental loads for a project that’s been in the works for some time. So the powder was selected, the RCBS Competition measure filled, the charge weight chosen, the Micrometer Adjustment Screw set on the measure and, after calibrating the 1500XP again (just to be sure I had the drill down pat), the first charge was weighed.

Under .7 grain. Another charge was thrown and weighed after turning the Micrometer screw in a couple of turns. Still .4 grains too low. A twitch of the screw and another charge – .2 grain too heavy. Another nudge of the screw, another charge thrown – right on! Two more charges – just to be sure – both were spot-on. The measure was set.

When 20 cases were charged, a different caliber was tackled. That called for a new powder and a different charge but the same approach. After the usual trial settings, an acceptable charge was set on the measure.

In each instance, it’s my habit to throw a check-charge after every 10th case is filled to ensure that all settings remain unchanged. You never know . . .

The 1500XP worked flawlessly. Thanks to its help, 40 rounds, representing two different cartridges are ready for the next range session.

Putting the powder trickler together was easy enough, but for some strange reason, the instructions made a point of stating: “Insert the powder feed tube through the reservoir. Be sure the open end is angled downwards.”

Downwards? Why? Out of curiosity, the tube was shoved through the holes in the side of the reservoir with its open end pointing up. Absolutely nothing untoward happened. Wonder what the instruction’s author had in mind there?

Those same instructions direct the handloader to rotate the feeding tube in a clockwise direction when trickling powder into the pan below but don’t bother to ex-
Balls to the Wall

Two powder trickling experiments were also conducted: one with H-4227, a fine-grained propellant, and another with IMR-7828, a coarse, stick-grained type. Both fed uniformly through the trickler, and once I developed a feel for the dispenser tube, controlling the powder flow became next to second nature.

As a cast-bullet aficionado from way back, weighing as-cast slugs has become SOP before attempting to size or lube them. That being so, it seemed a bonny idea to see how the 1500 would handle that chore.

First up were some sized, lubed and gas-checked custom-moulded handgun bullets cast from RCBS mould 357-180-SIL. Eighteen were weighed. Catalog weights, as indicated, were 180 grains, but these had been cast hard (alloy not identified), and in addition, their lubricant and gas checks were responsible for a few additional grains. On the Lyman scale, their weights only varied from 188.6 to 189.7 grains - not bad.

They were followed by 22 Oregon Trail .44-caliber semiwadcutter bullets. Lubricated with one wide ringful, their advertised weights were listed as 240 grains. Their weights ran from a low of 237.7 grains to top out at 239.3 grains. These bullets have delivered excellent accuracy from three different .44 Special revolvers and two .44 Magnums.

Next were some of the same firm’s .458-caliber rifle bullets. Twenty-one were weighed. A plain-based design with one lube ring and a flat nose, these hard-cast slugs have delivered first-class accuracy from four different .45-70s. Weights varied from 343.0 to 345.8 grains.

The last cast bullet weighed has been an excellent performer in a Mannlicher carbine. Its mould is no longer listed in Lyman’s catalog, so there’s no point in repeating it here. It’s a slender missile, 1¾ inches long, sporting three lube rings and a slightly flat nose. Driven from 1,500 to 1,600 fps, they turn the carbine into a deadly small-game rig. Twenty-five of them, as-cast, were weighed. They tipped the scale from 154.3 to 160.4 grains. That’s too much of a spread. They’ll have to be divided into two lots: those weighing from 154 to 157 grains and those from 157.1 to 160.4. They’ll be loaded and zeroed separately, of course.

While I was at it, it seemed like a good idea to see how some commercial, jacketed bullet weights stacked up. Twenty-one, 160-grain Hornady 6.5mm roundnose weights were responsible for a few additional grains. On the Lyman scale, their weights only varied from 189.7 to 190.1 grains - and six of the 21 registered an exact 190.0 grains.

Twenty Sierra 7mm, 140-grain
So much for the weighing tests. Admittedly, there are many more exciting, certainly more interesting ways to spend time at a loading bench, but as any cast-bullet fan will testify, few more profitable. Weighing alloy slugs is the quickest, surest way to detect hidden flaws and prevent what otherwise could be a few inexplicable flyers.

Lyman’s 1500XP made bullet weighing much faster than any electronic scale I’ve tried previously. When a bullet was placed on the scale, its weight was flashed on the display panel within two seconds – and part of those two seconds was consumed by my inability to hit the stopwatch buttons fast enough. It would be more accurate to state that it “took less than two seconds for the weight of an object to be flashed on the 1500’s display panel.” That might not sound like a big deal, but to somebody in the process of weighing scores, perhaps hundreds, of cast bullets or powder charges, anything that can speed things up is worth a cheer or two.

As you might suspect, there’s a flip side to all this speed and accuracy: The accompanying instructions make it clear that the Lyman scale won’t tolerate any rough treatment. They emphasize the fact that the 1500XP is a delicate instrument and must be handled accordingly. For example, they advise against mounting the scale on the same bench or table where a loading tool is secured. Vibration emanating from the latter’s operations could disturb the scale’s innards and affect its readings.

The 1500XP enjoys a one-year warranty, which states that a defective scale will be repaired or replaced free of charge “provided that the returned product has not been subjected to abuse, unreasonable use, tampering, neglect or excessive wear.”

Suggested retail price of a 1500XP is $169.99. – Al Miller
Starline Brass has announced teaming up with Todd Jarrett to build a new case named the “.38 TJ.” “It's great when a shooter of Todd's caliber comes to Starline, because he knows we provide the highest quality brass at a fair price,” said Starline Vice President Robert Hayden.

The .38 TJ is a heavy-duty, rimless version of Starline's .38 Super case. This design allows reloaders to resize the case all the way down to the extractor groove, virtually eliminating any bulge at the base. The rimless feature is designed to assure more reliable feeding with high-capacity magazines. Heavier material, precise manufacturing and special design enable this case to withstand the elevated pressures of major loads, Starline says. When loading the .38 TJ, 9mm or .233, shellholders are recommended for most reloading equipment.

Sierra Offers .308, .224 and 6.8 MatchKings

In response to the increasing demands of long-range shooters, Sierra has announced the availability of new .30-caliber, 210 grain; 115-grain 6.8mm; and .22-caliber, 90-grain hollowpoint boat-tail (HPBT) MatchKing bullets.

Featuring a reduced-drag design, the new .30-caliber MatchKing is expected to be a popular choice with 1,000-yard shooters. “Keeping the long-range design in mind, we built this bullet with a longer ogive, smaller meplat and improved boat-tail to preserve downrange efficiency, enhance accuracy and reduce wind drift,” Sierra says. A one-in-10-inch twist is recommended for optimum stability and performance.

Ballistic coefficient ratings (BC) for this bullet are .601 for 2,600 fps or higher velocities, .575 for velocities between 2,300 and 2,599 fps, .523 between 2,050 and 2,299 fps and .450 for velocities from 1,800 to 2,049 or slower.

These bullets are available in boxes of 50 (stock #2235) with a suggested retail of $25.33 per box, or in boxes of 500 (stock #9240) with a suggested retail of $214.63 per box.

With the increasing popularity of AR-15/M16 rifles in long-range competition, Sierra designed a bullet to maximize the ballistic

The .38 TJ case was designed to meet Jarrett's specifications for durability and reliability. Jarrett is a nine-time USPSA national champion and four-time IPSC world champion.

The .38 TJ is the most recent addition to Starline’s extensive list of more than 70 standard and custom cartridge cases. MSRP is $144 for a box of 1,000 and $68 for a box of 500. Starline cases are offered factory direct. For more information, or to place an order for brass cases, call toll-free: 1-800-280-6660, or visit the Starline website: www.starlinebrass.com. Cartridge cases are usually shipped on the same day, or the day after, the order is received.