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Clockwise from top right, a Model 29 with 5-inch barrel, Hand Ejector 4th Model Target, Model 21-4 Thunder Ranch and Model 29 with 8.75-inch barrel. Pistol photos by Gerald Hudson.



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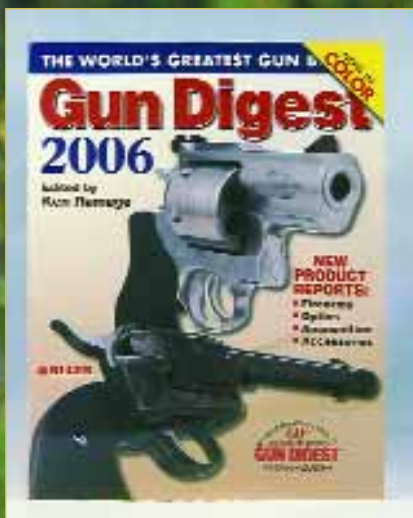
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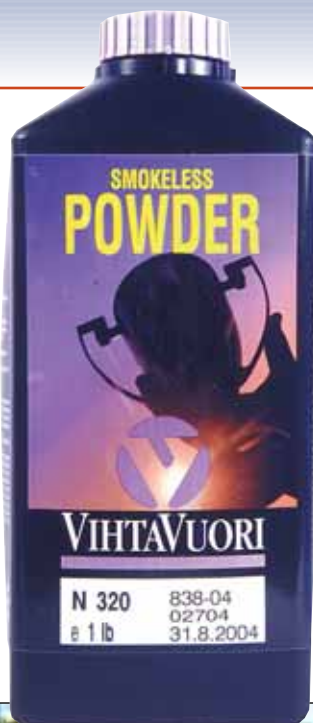
R.H. VanDenburg, Jr.

VIHTAVUORI N320

We began our look at Vihtavuori handgun powders in the last issue. This group of powders consists of five members of the N300 series and three special propellants. The N300 series powders are N310, N320, N330, N340 and N350, from fastest to slowest. The special propellants are 3N37, 3N38 and N105. N110, considered a rifle powder, is also quite useful in many handgun cartridges.

Vihtavuori powders are manufactured in Finland and have been around since 1926. A reader from Marseille, France, wrote in recently reminding me that I haven't updated our readers on the latest changes in the European powder scene. I had written of the somewhat convoluted ownership history of Vihtavuori in reviewing its rifle powders.

However, briefly, the Vihtavuori commercial powder effort has been separated from the defense and explosives line and, a few years ago, merged with a sister company, Lapua, makers of ammunition and components. This new entity joined with the Swedish powder manufacturer Bofors and, more recently, with the French powder company SNPE (Societe Nationale des Poudres et Explosifs). The result is the world's largest powder producer. As many readers know, Bofors is the manufacturer of Norma powders and our own Alliant Reloder series. SNPE makes the Vectan line of powders and, through its Belgian facilities, some of the Western Powder Ramshot line. Indeed, I'm informed, some of the Czech Republic powders imported by the Accurate Powder Company (now part of Western Powders) actually originated at SNPE in France



before being shipped to the Czech facilities for blending and sale. Suffice it to say, it's a very small world.

This issue's subject is N320, a fast-burning powder on the order of Alliant's Red Dot, W-231 or Hodgdon's HP-38. Vihtavuori publishes load data for cartridges from the 9mm Luger to the .45 Colt. As with other Vihtavuori handgun powders, N320 is a single-base, extruded powder. Although similar, its specific characteristics differ from the faster-burning N310. N320's nominal dimensions are a length of 1.0mm (.039 inch) and a diameter of .8mm (.031 inch). The powder's energy content is 4,200 J/g, and its bulk density is 560 g/l.

This means that N320 is a fairly fluffy powder, occupying a satisfying amount of case space even in small quantities, with a very high energy level. Its burning rate is 270 based on Vihtavuori's assignment of 100 to its N110 powder. In addition to its load data for various cartridges at normal pressures, Vihtavuori lists N320 loads for cartridges popular in cowboy action shooting at lower velocities and pressures. N320 is also suitable for use in 12-gauge shotshells in 24 to 32 gram – ⅞- to 1½-ounce – loads.

When I reviewed N310, I commented that I frequently had difficulty reaching Vihtavuori's projected velocity levels even at its published maximum powder charges. I was using the hardcover *Vihtavuori Reloading Manual, 3rd Edition* as my source. Subsequently I've come to realize the later *Vihtavuori Reloading Guide for Centerfire Cartridges* dated January 2004 has several revised loads for N300 series powders that reflect different charge weights. This revised load data is what I referred to in this review. A newer manual is expected some time this year.

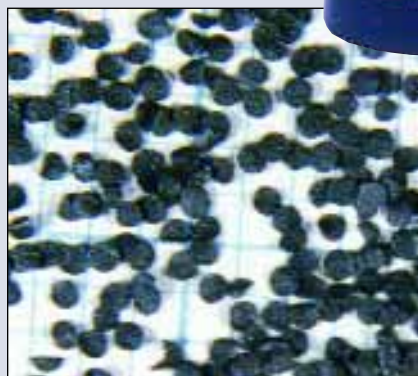
Beginning with the smallest cartridge for which N320 load data is available, the 9mm Luger, it's obvious slower powders produce higher velocities, but N320 has its place. I particularly liked it with the 115-grain Hornady HP-XTP and 124-grain cast bullets. Both starting and maximum powder charges are down from the previous reloading manual data, as are expected velocities. Still, the powder performed well.

In the .38 Special, I limited my testing to a 140-grain jacketed bullet from Speer. Again, I could

ALLIANT'S GREEN DOT

When most of us think of Green Dot powder, we associate it solely with shotshells. Rightly so, perhaps, as the powder has developed an enviable reputation, especially as a 12-gauge target powder. Green Dot is especially known for its performance in handicap or other long-range shooting, as the powder has a demonstrable record of keeping much of its shot near the center of the pattern, spreading out more slowly than with faster powders. Many trap shooters load Red Dot, or something similar, for their 16-yard and doubles shooting and Green Dot for their handicap loads with complete satisfaction.

In the smaller gauges, Green Dot becomes a



“faster” powder but finds frequent use in one-ounce, 16-gauge loads, ⅞-ounce loads in the 20 gauge and even the standard ¾-ounce loads in the 28 gauge.

Green Dot is also interesting to those of us who are intrigued by such things as it is now in its third iteration. First introduced in 1965 by Hercules (now Alliant) as a continuation of the “Dot” series, Green Dot was, and is, slightly slower burning than the company’s famed Red Dot. It was “improved” in 1971 and frequently referred to as “Improved Green Dot.” Its burning rate also changed, apparently, becoming somewhat faster burning and closing the gap between itself and Red Dot. The powder was improved again in the late 1990s after the purchase of the Hercules smokeless powder division by Alliant Techsystems

and the move of the manufacturing facilities to the government arsenal at Radford, Virginia. Made cleaner this time, the burning rate changed little, if at all. It is still a double-base, flake powder with a nitroglycerin content of about 20 percent. Physical dimensions remain at a diameter of

about .065 inch and a thickness of about .005 inch. As with other members of the “Dot” series, a few flakes are dyed green, of course. The rest are dark gray.

The use of Green Dot in metallic reloading is less well publicized despite a proliferation of published data. It’s a shame, really, as the powder produces fine results in a variety of cartridges.

Did you know, for example, that of all Alliant’s powders, the one to provide the highest velocity in the .25 ACP is Green Dot? Actually, that is probably the only cartridge for which Green Dot earns top honors. Usually it simply provides average to good velocities with a wide range of bullet weights and cartridges along with very good accuracy.

Not bad for most of our shooting and worth remembering by those who load for both shotguns and handguns and would like to minimize their powder inventory or, perhaps, take advantage of the cost savings of that 8-pound keg. Green Dot is available in one-, 4- and 8-pound canisters. •

Selected Loads of Alliant's Green Dot

	bullet (grains)	charge (grains)	velocity (fps)	comments
.25 ACP	50	1.4	792	
9mm Luger	115	4.7	1,133	
.38 Special	148	3.0	810	cast
.41 Magnum	210	8.5	1,121	cast
.44 Special	240	5.0	792	cast
.45 Colt	250	7.0	869	cast

not match published velocities, but I was using a much shorter barrel (4½ versus 6½ inches). Still, 5.0 grains pushed bullets to about 900 fps, and the maximum charge of 5.3 grains clocked 960 fps.

With the .357 Magnum – same gun – I tested only the 158-grain Speer. Vihtavuori raised the powder charge maximum from 6.3 to 6.7 grains in the latest reloading guide. This time I got very close

to the published figures despite the shorter barrel and consider this 6.7-grain load to be maximum for my revolver. Definitely, begin with the start load and work up carefully. Also, note that Vihtavuori chose Small Rifle primers for its .357 Magnum load development. I got satisfactory results with them and with Small Pistol Magnum primers.

While N320 had performed satisfactorily up to this point, per-

formance improved as we got in to the larger bores. It was most evident in smaller extreme spreads and in accuracy, but in the latter case, it might simply be I was using more accurate guns. At any rate in the .44 Special, I used a 240-grain cast bullet and data from the cowboy action section. A charge of 5.8 grains recorded 870 fps – clearly above most cowboy loads – and gave outstanding performance.

Selected Loads of Vihtavuori N320

	bullet (grains)	charge (grains)	velocity (fps)
9mm Luger	115	4.5	1,152
"	124	4.1	1,103
.38 Special	140	5.3	960
.357 Magnum	158	6.7	1,126
.44 Special	240	5.8	870
.44 Magnum	240	9.7	1,201
.45 Colt	250	6.8	780
.45 ACP	200	5.0	827

Notes: The 9mm 124-grain, .44 Special 240-grain, .45 Colt 250-grain and .45 ACP 200-grain bullets are cast. The rest are jacketed.

In the .44 Magnum, I chose a 240-grain jacketed bullet from Nosler. A 9.7-grain charge of N320 averaged 1,201 fps from a 7½-inch barreled Ruger Super Blackhawk. This was actually higher than projected, but my barrel was slightly longer. It is, by any measure, a very good load.

For the .45 Colt, I again chose the cowboy action data with a 250-grain cast bullet. A charge of 6.8 grains produced a cowboy action-like 780 fps. There is plenty of room for increasing velocity here as the jacketed bullet maximum for this weight is a full grain higher. N320 is a good match in the .45 Colt. None of the loads exceed the standard 14,000 psi pressure level.

My last effort was with the .45 ACP. A 5-inch Government Model gave excellent performance with 5.0 grains of N320 pushing a 200-grain cast bullet to 827 fps. This is a target load, of course, and accuracy was very good.

As with all fast-burning handgun powders, we sacrifice some velocity and terminal energy to the slower propellants, but we gain in efficiency, lower recoil and reduced reloading costs. More often than not, it's a worthwhile tradeoff. N320 and all Vihtavuori handgun powders are available in one- and 4-pound canisters. The latest reloading guide is available from Kaltron-Pettibone, 1241 Ellis Street, Bensenville IL 60106.

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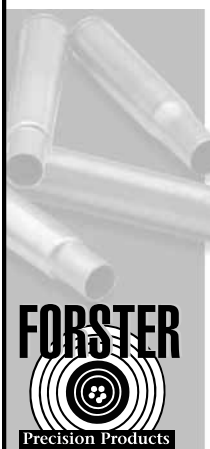
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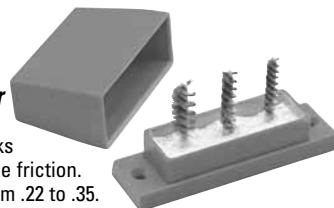
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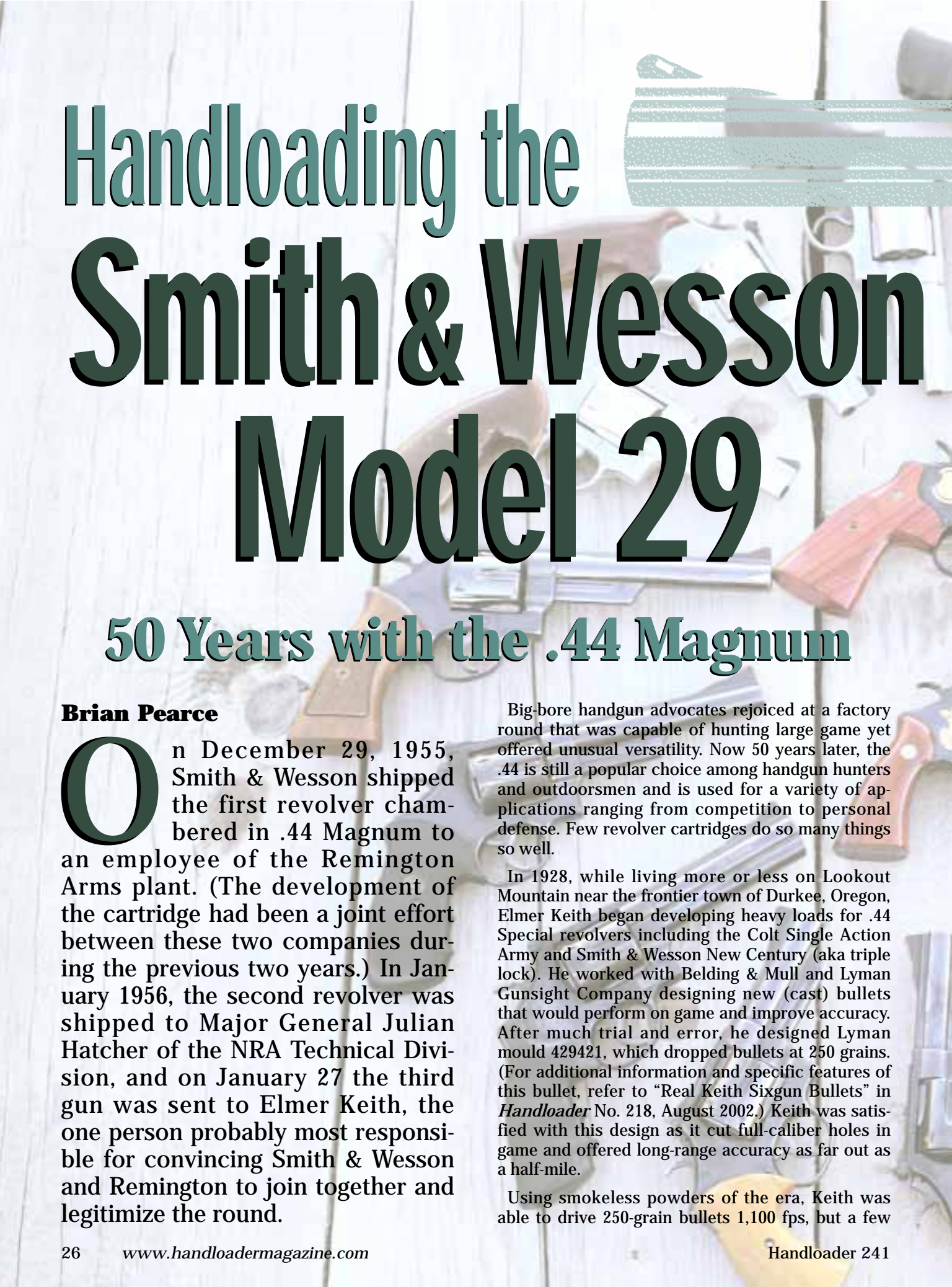


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Handloading the Smith & Wesson Model 29

50 Years with the .44 Magnum

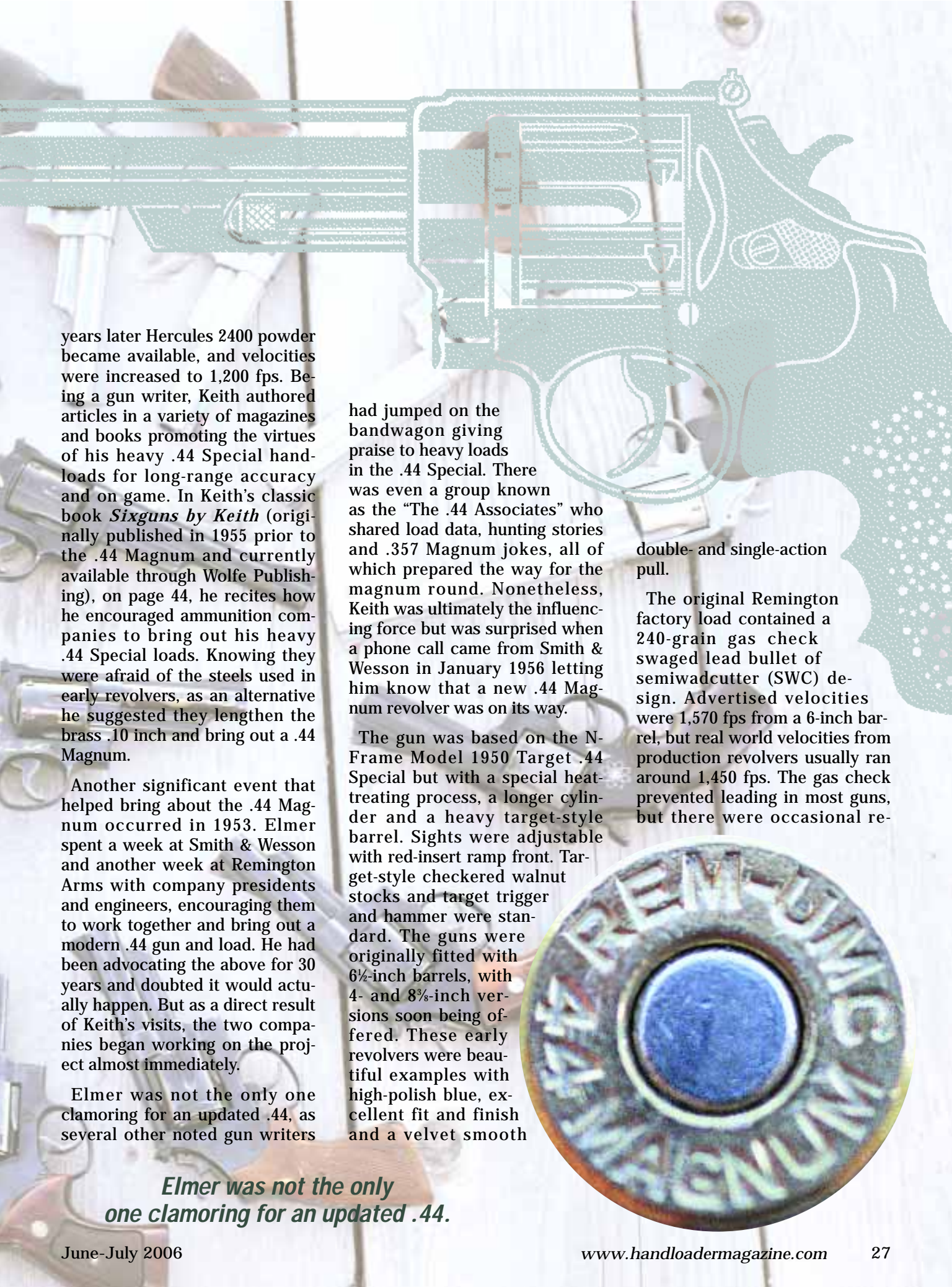
Brian Pearce

On December 29, 1955, Smith & Wesson shipped the first revolver chambered in .44 Magnum to an employee of the Remington Arms plant. (The development of the cartridge had been a joint effort between these two companies during the previous two years.) In January 1956, the second revolver was shipped to Major General Julian Hatcher of the NRA Technical Division, and on January 27 the third gun was sent to Elmer Keith, the one person probably most responsible for convincing Smith & Wesson and Remington to join together and legitimize the round.

Big-bore handgun advocates rejoiced at a factory round that was capable of hunting large game yet offered unusual versatility. Now 50 years later, the .44 is still a popular choice among handgun hunters and outdoorsmen and is used for a variety of applications ranging from competition to personal defense. Few revolver cartridges do so many things so well.

In 1928, while living more or less on Lookout Mountain near the frontier town of Durkee, Oregon, Elmer Keith began developing heavy loads for .44 Special revolvers including the Colt Single Action Army and Smith & Wesson New Century (aka triple lock). He worked with Belding & Mull and Lyman Gunsight Company designing new (cast) bullets that would perform on game and improve accuracy. After much trial and error, he designed Lyman mould 429421, which dropped bullets at 250 grains. (For additional information and specific features of this bullet, refer to "Real Keith Sixgun Bullets" in *Handloader* No. 218, August 2002.) Keith was satisfied with this design as it cut full-caliber holes in game and offered long-range accuracy as far out as a half-mile.

Using smokeless powders of the era, Keith was able to drive 250-grain bullets 1,100 fps, but a few



years later Hercules 2400 powder became available, and velocities were increased to 1,200 fps. Being a gun writer, Keith authored articles in a variety of magazines and books promoting the virtues of his heavy .44 Special handloads for long-range accuracy and on game. In Keith's classic book *Sixguns by Keith* (originally published in 1955 prior to the .44 Magnum and currently available through Wolfe Publishing), on page 44, he recites how he encouraged ammunition companies to bring out his heavy .44 Special loads. Knowing they were afraid of the steels used in early revolvers, as an alternative he suggested they lengthen the brass .10 inch and bring out a .44 Magnum.

Another significant event that helped bring about the .44 Magnum occurred in 1953. Elmer spent a week at Smith & Wesson and another week at Remington Arms with company presidents and engineers, encouraging them to work together and bring out a modern .44 gun and load. He had been advocating the above for 30 years and doubted it would actually happen. But as a direct result of Keith's visits, the two companies began working on the project almost immediately.

Elmer was not the only one clamoring for an updated .44, as several other noted gun writers

had jumped on the bandwagon giving praise to heavy loads in the .44 Special. There was even a group known as the "The .44 Associates" who shared load data, hunting stories and .357 Magnum jokes, all of which prepared the way for the magnum round. Nonetheless, Keith was ultimately the influencing force but was surprised when a phone call came from Smith & Wesson in January 1956 letting him know that a new .44 Magnum revolver was on its way.

The gun was based on the N-Frame Model 1950 Target .44 Special but with a special heat-treating process, a longer cylinder and a heavy target-style barrel. Sights were adjustable with red-insert ramp front. Target-style checkered walnut stocks and target trigger and hammer were standard. The guns were originally fitted with 6 $\frac{1}{2}$ -inch barrels, with 4- and 8 $\frac{1}{2}$ -inch versions soon being offered. These early revolvers were beautiful examples with high-polish blue, excellent fit and finish and a velvet smooth

double- and single-action pull.

The original Remington factory load contained a 240-grain gas check swaged lead bullet of semiwadcutter (SWC) design. Advertised velocities were 1,570 fps from a 6-inch barrel, but real world velocities from production revolvers usually ran around 1,450 fps. The gas check prevented leading in most guns, but there were occasional re-



***Elmer was not the only
one clamoring for an updated .44.***



Left, top to bottom: Smith & Wesson New Century (triple lock) Target, customized Colt-pattern Single Action "Keith No. 5" (a custom built reproduction) and original Smith & Wesson Model 1950 Target. Right is a 1957-era Smith & Wesson .44 Magnum (pre-Model 29).



In 1978 the stainless steel Smith & Wesson Model 629 (bottom) joined the Model 29 (top). Both have proven popular with hunters and outdoorsmen.

volvers that suffered from barrel leading. Within a few years, Winchester began offering a factory load driving a 240-grain bullet over 1,600 fps from production revolvers (although advertised at 1,650 fps). As a result Remington increased the pressure of its load. Frankly, both were excessive for all .44s of that period, and pressures and velocities were soon reduced.

Accuracy of the new gun and cartridge helped make it a legend among handgunners, and Elmer Keith was occasionally questioned regarding his comments on long-range shooting. But for those who actually witnessed his uncanny skills, there were no questions. There are still residents around Salmon, Idaho, who share first-hand stories of his skill and the remarkable accuracy obtained with his 4-inch

Model 29. The late Ralph Graham regularly hunted rabbits with Keith in the Pahsimeroi Valley and related how close he often came on coyotes at 200 to 600 yards, even connecting periodically on the first shot! There are accounts of shooters mounting scopes on the big Smith & Wesson .44 and with select handloads managing to obtain one-inch groups at 100 yards using cast and jacketed bullets.

From a handgun hunter's standpoint, the .44 Magnum has become a reference cartridge, similar to the .30-06 among riflemen. I have taken much game with it, including elk, black bear, whitetail and mule deer, coyotes and many pests. And an old S&W Model 29-2 with a 4-inch barrel gave considerable comfort while in the close presence of a cranky grizzly along the Idaho-Montana border many years ago.

Table 1

.44 Magnum Target Loads (All Smith & Wesson Models 29, 629 and 329PD)

bullet (grains)	powder	charge (grains)	velocity (fps)
210 Winchester Silvertip HP	Power Pistol	10.0	964
220 cast gas check Lyman 429215	W-231	9.0	1,087
	Unique	10.0	1,120
240 Hornady lead SWC-HP	W-231	6.5	801
	Red Dot	6.0	830
245 Lyman 429383 cast roundnose	HS-6	9.0	758
	W-231	6.5	811
	Red Dot	6.0	816
	Unique	8.5	924
250 Keith-style Lyman 429421	Bullseye	6.0	844
		6.5	895
	Red Dot	6.0	859
	Power Pistol	8.0	866

Notes: A Smith & Wesson (pre-29) .44 Magnum revolver with a 6½-inch barrel used to test loads. CCI 300 primers used throughout, along with Winchester and Starline cases. Maximum case length: 1.285 inches; trim-to length: 1.275 inches.

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

Handloading the Model 29



Early revolvers were known as "five-screw" versions, with a fourth screw on the sideplate. The cylinder stop screw located in front of the trigger guard was eliminated in 1961.

For general hunting in North America, it might be summed up that the .44 Magnum is never a mistake, but only if the right bullet is matched to the game. In the hands of a good shot, it can take big game as far out as 150 yards, but most hunters should limit shots to around 50 or 75 yards depending on skill. Most will find that with just a bit of practice they can master its recoil. And being able to properly place the bullet is far more important than using a gun of larger caliber or heavier recoil that might impede one's skills.

***In June 1957,
the factory began
stamping Mod-29
in the yoke cut.***

The Model 29, and its stainless steel counterpart the Model 629, have undergone many changes over the past 50 and 28 years, respectively. To obtain the best accuracy and tailor handloads to a given gun, it seems prudent to discuss some of those changes and how they affect handloaders.

Revolvers produced from December 1955 through mid-1958 featured a four-screw side plate and are sometimes referred to as five-screw guns. (There were four screws holding the side



plate and a fifth screw located in front of the trigger guard that plugged the hole for the cylinder stop.) The factory approved a change in 1956 that eliminated the upper side plate screw, but older style frames remained in use until serial number S167500.

In June 1957, the factory began stamping *Mod-29* in the yoke cut.

Prior to this the gun was simply known as the .44 Magnum. In December 1959, the Model 29-1 appeared that featured a left-hand thread on the extractor rod to help prevent it from working loose under recoil. In 1961 the Model 29-2 appeared wherein the cylinder stop screw (the one in front of the trigger guard) was eliminated. In 1982 the Model 29-3 appeared, which eliminated counterbored chambers and the pinned barrel and was produced through 1987.

In 1978 the stainless steel Model 629 was introduced. In 1982 the Model 629-1 appeared, which eliminated the counterbored chambers and pinned barrel.

From a handloader's standpoint, all the above pre-29s, Model 29s and 629s are in the

Table II

Midrange .44 Magnum Loads (All Smith & Wesson Models 29, 629 and 329PD)

bullet (grains)	powder	charge (grains)	velocity (fps)
200 Hornady XTP-HP	Unique	11.0	1,145
	Power Pistol	12.0	1,154
200 Speer Gold Dot HP	Red Dot	9.5	1,086
240 Speer Gold Dot HP	Universal Clays	9.0	1,007
	Unique	9.0	1,013
240 Speer JSP	AAC-7	15.5	1,101
240 Hornady XTP-HP	Red Dot	8.5	1,002
	HS-6	11.5	944
	VV-N320	8.7	1,031
	VV-3N37	10.5	987
270 Speer Gold Dot	AAC-9	14.5	1,021
220 Lyman 429215 cast gas check	Unique	11.0	1,179
249 RCBS 44-240-SWC cast	W-231	8.0	988
250 Keith-style Lyman 429421 cast	W-231	8.0	1,001
	Unique	8.5	964
		9.5	1,071
	Power Pistol	9.0	987
	HS-6	12.0	1,122
	HS-7	13.5	1,152
255 Lyman 429244 cast gas check	W-231	8.0	986
	Unique	9.5	1,041
	HS-7	13.5	1,113
	Power Pistol	9.5	1,037
	True Blue	9.0	873
		10.0	999
275 Cast Performance WFN	Unique	10.0	1,052
310 Cast RCBS 44-SWC-300	Unique	9.0	997
		10.0	1,043
	Enforcer	16.5	1,030

Notes: A Smith & Wesson (pre-29) .44 Magnum revolver with a 6½-inch barrel used to test loads. CCI 300 primers used throughout, along with Winchester and Starline cases. Maximum case length: 1.285 inches; trim-to length: 1.275 inches.

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



The E in this Model 629-2E (1) stood for "Endurance" package wherein guns were reengineered to last longer. Some of the Endurance package changes (transitioned between 1988 and 1990) included: (2) radius stud package, (3) bolt block, (4) lengthened cylinder stop notches and a special heat-treated yoke (not shown).

same category. When shot extensively with full-house loads, they have a reputation for shooting loose, developing excess cylinder end-shake and side-play. One familiar with repairing the S&W action can stretch the crane and

The new "Endurance" guns are a definite improvement.

perform other tune-up tasks to keep them in good running condition. In short they are strong but not as durable as guns produced since 1988 (which we will discuss in a moment). For this reason, I generally don't shoot large amounts of full-house loads through revolvers from this period but rather use midrange loads in volume and reserve the heavy loads for hunting or when the extra horsepower is appreciated for long-range work. This might sound like an odd comparison, but they should be treated like a fine, vintage double gun.

Respect them and use them within their intended limits, with occasional tune-up and attention, and they will serve wonderfully.

The very early five- and four-screw guns have become collectibles, and prices have soared in recent years. Furthermore, barrel steels used during this period were intended for lead bullet loads only, while jacketed versions accelerate wear. For this reason my very early guns are only used with cast bullets.

Most .44-caliber Smith & Wesson revolvers manufactured during the above era have throats

that measure .432 inch with a smaller percentage running .433 inch. When using cast bullets, I usually size them .430 to .431 inch. Some .44-caliber moulds drop bullets at .432 and .433 inch, which in theory should give better accuracy if used with a corresponding H&I neck-sizing die. The die assists in keeping the bullet straight as it passes through the throats and helps seal gases. Unfortunately, appropriate sized dies are not commonly available, and many moulds will only drop bullets measuring .431 to .432 inch.

A good alternative is to select

Early Remington .44 Magnum ammunition from 1956 contained a 240-grain gas-check lead bullet of semiwadcutter design. Velocity from most production revolvers ran around 1,450 fps.



Handloading the Model 29



Left, cast bullets ranging from 220 to 255 grains generally serve everyday needs of most .44 Magnum shooters. Examples include (left to right): Lyman 429215 220-grain gas check, Lyman 429383 245-grain roundnose, Lyman 429421 250-grain Keith design, Lyman 429244 255-grain gas check and RCBS 44-250-K 255-grain Keith style.

Table III **Full-Power .44 Magnum Loads**
(All Smith & Wesson Models 29, 629 and 329PD)

bullet (grains)	powder	charge (grains)	primer	velocity (fps)
200 Hornady XTP	H-110	28.0	Federal 155	1,598
	2400	24.0	CCI 300	1,555
	Power Pistol	14.0		1,411
210 Winchester Silvertip	Enforcer	21.0	Winchester Large Pistol	1,344
240 Hornady XTP	Enforcer	21.5		1,366
	W-296	24.0	Federal 155	1,344
240 Speer Gold Dot	H-110	24.0		1,360
	2400	20.5	CCI 300	1,345
240 Speer Jacketed Soft Point	VV-N110	20.0		1,341
240 Sierra Jacketed Hollow Cavity	2400	19.0		1,240
270 Speer Gold Dot	H-110	21.0	Federal 155	1,243
	2400	17.5	CCI 300	1,164
	VV-N110	16.5		1,145
	AAC-9	15.0		1,073
		16.0		1,120
300 Speer Plated Soft Point	Enforcer	16.4	Winchester Large Pistol	1,050
	H-110	22.5	Federal 155	1,097
220 Lyman 429215 cast gas check	AAC-7	18.0	CCI 300	1,321
	2400	23.0		1,510
	H-110	26.0	Federal 155	1,472
250 Keith-style Lyman 429421	AAC-7	17.0	CCI 300	1,251
	Enforcer	21.0		1,251
	AAC-9	20.0		1,259
	Blue Dot	16.0		1,323
	2400	20.0		1,326
		21.0		1,389
	H-110	24.5	Federal 155	1,368
255 Keith RCBS 44-250-K cast	Enforcer	20.0	Winchester Large Pistol	1,321
	H-110	23.5	Federal 155	1,335
255 Lyman 429244 cast gas check	2400	20.0	CCI 300	1,330
	H-110	25.0	Federal 155	1,399
260 Cast Performance WFN	Enforcer	20.0	CCI 300	1,203
	AAC-9	19.5		1,259
	H-110	24.0	Federal 155	1,366
275 Cast Performance WFN	AAC-9	18.7	CCI 300	1,161
	Enforcer	18.0		1,199
	H-110	23.0	Federal 155	1,296
310 RCBS 44-SWC-300 cast	Unique	10.0	CCI 300	1,082
	Enforcer	17.0		1,091
	2400	18.0		1,207
	H-110	20.0	Federal 155	1,192
		21.0		1,263
320 Cast Performance LFN	H-110	20.0		1,191

Notes: A Smith & Wesson (pre-29) .44 Magnum revolver with a 6½-inch barrel used to test loads. Winchester and Starline cases used throughout. The above loads **do not** exceed SAAMI recommended pressure limits of 36,000 psi, but they should be used sparingly in guns produced before 1988 and avoid using jacketed bullet loads in the early four- and five-screw guns. For more information see text.

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

plain-base bullets and cast them with a BHN of around 12 (for loads running under 18,000 psi) or 14 to 16 BHN for loads developing 18,000 to 35,000 psi, then size them to .430/.431 inch. So loaded the bullet base will obturate or slug up to create a gas seal and assist in keeping the bullet straight until it engages the rifling. For those occasional revolvers that are prone to leading, a gas check bullet might be beneficial but is not a guaranteed cure.

Commercial jacketed bullets generally give good accuracy. Bullets from Speer and Nosler measure .429 inch, Sierra .4295, while Hornady's runs .430 inch. In theory the latter size should give slightly better accuracy in the above throat sizes, but this is not always the case, as tests have shown that bases of Speer bullets



Above, plain-base cast bullets will obturate to fit .432- to .433-inch throats of S&W revolvers produced before 1990, as long as they are not cast too hard. Original Remington factory bullets were swaged from nearly pure lead but featured a gas check that allowed the base to upset, sealing gases and improving accuracy.

Handloading the Model 29

will obturate when used with loads generating 35,000 psi. (This was determined by removing the barrel, then firing bullets into wet sawdust and recovering them.) In my experiments of shooting more than a dozen Smith & Wesson revolvers, there is no conclusion as to which jacketed bullet will shoot best. One gun might prefer a given bullet, while another gun favors yet a different bullet.

For decades following the introduction of the .44 Magnum, SAAMI maximum average pressures were 43,500 CUP, which has now been wisely reduced to 36,000 psi. Loads generating the former pressures took a toll on guns when shot in volume,



Most Smith & Wesson .44 Magnums will stay under one inch at 25 yards with good ammunition and iron sights, while some will group into less than $\frac{3}{4}$ inch. Certain scoped versions have gone under one inch at 100 yards.



even causing serious mechanical breakdowns. Over the years, there has been considerable .44 Magnum data. Often these loads exceed today's recommended pressure limits and were developed when safety and long gun life were not so much a concern. Much of this data is still commonly published. For these reasons, I have included load data intended specifically for all Model 29s and 629s that is within

SAAMI recommended limits. Be certain to use loads exactly as shown. Included are light target loads that are suitable for practice, hunting and even defense. The midrange loads add to the versatility of the gun and cartridge and are useful for most everyday purposes. Most of the loads in the "Full-Power" table perform on par and often exceed the factory offerings from Winchester, Remington and Federal.

THE 50TH ANNIVERSARY S&W MODEL 29-10

The Smith & Wesson .44 Magnum and Model 29 were in continuous production from 1956 through 1994, wherein the stronger sales of its stainless steel counterpart, the Model 629, forced it from production. To those of us who enjoy the beauty of a blue-finished gun, that was a sad day.

To celebrate the gun and cartridge, for 2006 Smith & Wesson is offering a blue-finished Model 29-10 50th anniversary model. Some extra effort was made in creating this gun, and it is a real shooter. Naturally it features the Endurance package but also has the square butt grip frame (dis-

continued in 1994), a 6½-inch barrel (discontinued in 1979) and a four-screw side plate (dropped by 1958). The front sight is a red insert, while the rear is white outlined. The 50th anniversary emblem is inlaid on the side plate, along with the Smith & Wesson logo. There is a mahogany presentation case with a blue lining, similar to guns of a bygone era. The wood stocks are checkered target style, but in this area Smith & Wesson missed the boat, as their shape scarcely resembles the originals.

The sample gun locks up tightly with minimal cylinder side-play and end-shake, is well machined



To celebrate the 50th anniversary of the .44 Magnum, Smith & Wesson is offering a Model 29-10 that is reminiscent of the original gun with a 6½-inch barrel, square butt, four-screw sideplate and mahogany presentation case.

Moving on to guns produced from 1988 to date, when Model 29s and 629s developed excess cylinder end-shake or were incorrectly fit, their cylinders were occasionally known to unlock and turn clockwise (or backward) one chamber while the gun was being fired and recoiling. This resulted in an odd situation: When the gun was cocked again, the chamber that was just previously fired would be brought again to rest under the hammer. High-speed photography revealed the causes, and Smith & Wesson engineers did a splendid job of correcting them on Model 29s and 629s.

Three basic changes were made, and these revolvers are commonly referred to as "Endurance" guns. Beginning in 1988, the yoke was heat treated to toughen the cylinder suspension point and prevent premature end-shake from developing. In 1989 the "Radius Stud Package"

and a worthy shooter. Using a load of 20.5 grains of Alliant 2400 and 250-grain cast bullets from Lyman mould 429421 capped with Federal 150 primers for 1,381 fps, 25-yard groups consistently clustered around one inch. Switching to 20.0 grains of Hodgdon H-110 and cast bullets from RCBS mould 44-300-SWC (a 310-grain gas check), velocity ran 1,241 fps, and four shots cut into less than ¾ inch. Using the Speer 240-grain Gold Dot Hollow Point seated over 21.5 grains of Ramshot Enforcer and capped with a CCI 300 primer generates 1,389 fps and managed to stay under one inch as long as I did my part.

This is a limited production gun and will only be offered through 2006. Suggested retail is \$985. For more information contact Smith & Wesson at 2100 Roosevelt Avenue, Springfield MA 01104-1698, call 1-800-331-0852; or you can visit online at: www.smith-wesson.com. •

appeared that strengthened internal studs to prevent breaking and effectively doubled the life expectancy of the handgun. These changes were reflected in the Model 29-3E, 29-4, 629-2 and 629-2E.

The .44 Magnum is one of our finest revolver cartridges.

Beginning in late 1989 and early 1990, the cylinder stop notch was lengthened along with the stop. This was done to assure that the stop was always engaged in the cylinder stop notch while firing. And last a new bolt block was added that positively prevented the cylinder from unlocking while firing. This clever device is mounted inside the frame and is linked to the trigger. When the trigger is pulled, the bolt block moves into position and positively blocks the bolt. These last two changes appeared with the Models 29-5 and 629-3 and were the final "Endurance" improvements to the great Smith. Additional model changes are largely external or cosmetic, such as sights, round butt, extractor, etc. and will not have an effect on handloaders.

One change that occurred in the late 1990s and is not indicated in the model numbers was the rifling. In developing a new rifling system, the company began using an EDM process that leaves the lands/grooves less than sharp. This change is easily identified with the naked eye. These are good barrels, but many cast bullet shooters (myself included) prefer the older style rifling. Nonetheless, they are accurate with jacketed bullets and shoot well with lead bullets. At about this same period, the firing pin was changed from hammer mounted to frame mounted. The latter system handles primer flow issues better (which is rare in this caliber), while the former delivers a heavier blow to the

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primer. (This is something to keep in mind if you like especially light action jobs.)

The new "Endurance" guns are a definite improvement, as they can easily digest full-house loads, and the overall accuracy has been improved. For example, shortly after the Endurance package and bolt block were added, Smith & Wesson began considering what other areas could be targeted to improve accuracy. The cylinder side-play had already been tightened, so the focus changed to assure that chamber-to-bore alignment was nearly perfect, the forcing cone carefully cut and polished and chamber throats tightened.

In measuring many revolvers, the early 1990-era guns measured .432 inch but were soon changed to .428 to .4285 inch. The factory chose to reduce throats to this size after much development with ammunition containing .429-inch jacketed bullets. These guns are unusually accurate as can be seen with the 629DX and other models. On the flip side, driving .429- and .430-inch jacketed bullets through these "smaller than bullet diameter" throats increases chamber pressures significantly.

I have fired factory fodder that gave sticky extraction but upon opening throats .002 inch, extraction was no problem. (For what it's worth, I'm convinced that a throat measuring .429 or .430 inch for jacketed bullets of the same diameter will likely give best accuracy anyway.) Certainly jacketed bullets will "spring back" when pushed through throats that are .001 to .002 inch smaller and explains why the Smith & Wesson guns are still able to deliver excellent accuracy.

Cast bullet shooters will generally benefit from having the throats opened to .430 inch, then sizing bullets accordingly. I have made this change on three 629s and one Model 29, carefully check-

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ing velocity and accuracy before and after. In each instance identical loads showed less pressure and improved accuracy. As previously mentioned, in some instances, loads that gave sticky extraction prior to opening the throat extracted easily after opening. As expected, velocity decreased slightly.

My approach to handloading the Endurance-equipped guns is really no different than the early models. They might be stronger, but I still don't load them beyond current SAAMI recommendations. I do, however, shoot them regularly with full-house loads, again something I don't do with older guns. In addition to driving traditional 240- and 250-grain jacketed and cast bullets 1,300 to 1,400 fps, they are an excellent platform for driving 300- to 320-grain bullets 1,200 fps, which can be accomplished within industry pressure limits (see accompanying table). So loaded the .44 Magnum is capable of taking any game animal on the North American continent and for that matter has taken all of Africa's big five. Again, just be certain to match the bullet to the game.

Clearly the .44 Magnum is one of our finest revolver cartridges. With 200- to 250-grain cast bullets driven 800 or 900 fps, it will kill small game with little meat damage and gives little recoil. With cast and jacketed bullets driven "midrange," typically between 900 and 1,100 fps, it serves nicely for defense or for taking deer-sized game. When 240- to 320-grain bullets are driven 1,200 to 1,400 fps, it serves well as a long-range sixgun. With a controlled expanding bullet, it is a top choice for hunting whitetail deer, often dropping them as if it were a larger cartridge. When stoked with 250- to 320-grain cast bullets, it will drive through moose or the great Alaskan brown bear. The Belt Mountain 300-grain "Punch" solid shows remarkable penetration, even on African game

and would be an excellent choice for taking heavy, dangerous game. (This bullet was not included in the accompanying load data but will be discussed another day.)

The various Smith & Wesson .44 Magnum revolvers rank among my favorite guns. In the hands of a master, they can be fired in the double-action mode with speed and accuracy, making them suit-

able for personal defense. The precise single-action trigger pull, excellent adjustable sights and grip frame assist in accurate slow-fire work. It is of practical size and weight for everyday belt "hip" carry, or just kicking around the hills, especially the 4-inch barreled versions. With its handsome looks, we have a classic in the purest sense. •

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REDDING UNIVERSAL DECAPPING DIES

For most of us, most of the time, removing a spent primer is a simple matter of running the case through a full-length sizing die that resizes the case and removes the primer at the same time. When we wish to partially size or neck size only, a decapping rod is still part of the tool.

There are times, however, when we want to remove the primers without otherwise touching the cases. The most likely reason is that the cases are dirty. Either we haven't used them in awhile or perhaps they are range pickups. Either way, we want to clean them before running them through a sizing/depriming die and not risk scarring the die's inner surface. And while we're at it, we might as well clean the primer pockets too. Ergo: deprime, then clean, then resize. Another good reason is that we've acquired some military or other cases with crimped-in primers and, again, we don't want to risk a sizing die. There are others, as well. Just recently, I loaded and fired a number of rounds in several cartridges using black powder. After the obligatory soap and water bath, the cases were still black and filthy. I've discovered a way to get them shiny bright again, but before the final step of tumbling the cases, I wanted to deprime them.

For many years, my solution to depriming only was a hand tool comprised of a base to hold the case mouth up, a rod with a decapping pin in one end and a hammer. Actually, there were two of them – a .22-caliber set that was better suited to holding smaller cases and a .30-caliber set for larger cases. For really

large cases, I simply centered the case on top of the base and banged away. Such tools are still sold. They are virtually indestructible and can handle most any case up to about 3.25 inches long, assuming a standard flash hole. They are also noisy and moderately inconvenient, in that after every few primers are removed and fall through a hole in the base, they must be cleared away to make room for more.

To address the original problem and do away with the shortcomings of the manual approach,

any standard reloading press. The dies have decapping stems but no expander buttons, and the die interiors appear to be bored out so the case does not touch the die in operation.

Each die has a knurled lock ring and set screw. Redding lists the small die as being suitable for any case from .22 to .50 caliber up to 2.5 inches in length. The optional decapping rod (for .17- and .20-caliber cases) has a decapping pin that is compatible with the .060-inch flash holes found in PPC and BR cases.



Redding Reloading Equipment has come up with a press-operated tool called the Universal Decapping Die that does all that, and a few other things as well.

Actually, I should say dies, for there is a small decapping die, a large decapping die and an optional decapping rod to fit the small die that will decap .17- and .20-caliber cases. The above items are sold separately or together in kit form. The dies look much like normal full-length sizing dies in that they are cylindrical with a knurled upper section and $\frac{1}{8}$ x14 threaded lower to fit

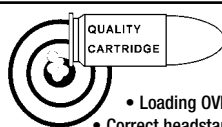
The standard large and small decapping rods have a shoulder to restrict upper movement as primers are removed and a C clip to hold the rods in place. The optional .17- and .20-caliber rod is too small in diameter for a shoulder and instead utilizes two C clips, one lower, in place of a shoulder, and one upper to secure it in place.

The large decapping die is similar to the small die but a bit longer. According to Redding, it will accommodate cases up to 3.00 inches in length. Redding literature also clearly states that

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the large decapping die will not accept a neck diameter of less than 7mm (.284 inch). Several of these restrictions are not true.

In use, the appropriate shellholder is installed on the press ram and the ram raised to its highest position. The Universal Decapping Die is screwed into the press until it touches the shellholder and then secured in place. After that, the cases to be deprimed are simply inserted in the shellholder and the ram raised. It's just like resizing except no lube and no sizing, just depriming.

As I began to examine the dies more closely, I determined that the small die is about 3.125 inches in length. The decapping rod has a diameter of .186 inch. The optional .17- and .20-caliber rod is .156 inch. The interior diameter of the die is about .562 inch. The interior depth, as best as I could measure it, is about 2.450 inches. Putting all these figures together suggested the small die could accommodate .20-caliber cases without the .17- and .20-caliber rod and would also handle cases longer than 2.500 inches (2.450 plus the standard working depth of a shellholder of .125 inch = 2.575 inches). I was able to decap cases as small as the .20 Tactical and .204 Ruger, as short as the .25 ACP, as large as the .500 S&W and as long as the .270 Winchester (2.540 inches) with the standard small rod without a hitch. I would still need the optional decapping rod for cases with .060-inch flash holes or for .17-caliber cases and, to be fair, the optional rod does give a bit more working room for the .20-caliber cases, but otherwise the small die will handle most of the cartridges most of us reload.

The large die has its place, though. It measures about 3.5 inches in length with an interior diameter of .610 inch. Its interior depth, again as well as I could measure it, is 2.865 inches. To-

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gether with the shellholder working depth, this suggests a maximum case length of 2.990 inches. The decapping rod diameter is .249 inch, clearly providing the ability to deprime cases smaller than 7mm.

Using the larger die, I found I could deprime cases as small as the .25 ACP with its .251-inch bullet diameter. This cleared the way for all the .257 diameter rifle cases and anything larger. The additional length is necessary for magnum cases such as the H&H series, the Weatherby cartridges, the .300 Winchester Magnum and the Remington Ultra Mags, among others. For the truly long, black-powder cartridges, American or British, we are back to the hand tool or a Pope-type decapper. For 6mm (.243 inch) or smaller cases, we must use the small die set.

Completing my review, I called Patrick Ryan, Redding's chief engineer, to discuss what I felt was the company's overly conservative catalog and instructional language. Ryan indicated some changes would likely occur to better reflect the dies' usefulness. He also noted an engineering change to make the interior top of the small die flat rather than tapered to prevent the lower C clip on the optional decapping rod from popping loose – apparently a rare occurrence, but enough for the company to make a change.

I found I really appreciated the Universal Decapping Dies from Redding. They are quick, quiet and efficient. Disassembly for cleaning is a snap, and the price is right. I suspect you'll appreciate them as well. – R.H. VanDenburg, Jr.

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NEW LASER RANGEFINDING SCOPE FROM BURRIS

This is something so new it's not yet available for testing. I usually don't report on new products until I've had a chance to get my hands on one and put it through its paces, but this news is too exciting to keep.

The Burris Company has just announced that a new rangefinding scope will soon be available. The LaserScope is a 4-12x 42mm riflescope with an integral 800-yard laser rangefinder that will allow hunters to range the target just before they shoot. The new scope could eliminate the need to carry a separate laser rangefinder afield.

Several years ago, Swarovski introduced the first commercial riflescope to incorporate a laser rangefinder. This was a large, relatively bulky, heavy affair measuring over 15 inches long, 3 inches high, 2.6 inches wide and weighing a hefty 40 ounces. An even bigger drawback was the scope's intimidating \$3,900 price.

The new Burris LaserScope will be considerably smaller and lighter – just 13 inches long and tipping the scales at only 26 ounces. Even more important, the “real world” pricing will be just under \$1,000.

Burris says its new LaserScope will “produce extremely vivid, bright and crystal clear optics and Burris rock-solid severe recoil performance.” The company also notes the scope will eliminate the need for a handheld rangefinder, dramatically decreasing the time needed to range a trophy and get a shot off.

The LaserScope will come equipped with Burris's proven Ballistic Plex trajectory compen-

sating reticle. Once the shooter ranges the target, he can hold dead on to hit game at any reasonable distance.

The laser is activated by a single button located midway along the scope, on the left side of the tube. A remote activator can be strapped to the rifle's forearm or



to the objective bell of the scope. The remote activator is said to make ranging steadier and more natural while you look through the scope.

A specially designed mount allows mounting the LaserScope as low as possible over the rifle. Because of the LaserScope's construction and shape, the shooter's eye is positioned much higher than it is with a conventional riflescope. The mounting system places the LaserScope at roughly the same height high rings do with a conventional riflescope. Like other Burris

Specifications

Laser scope model:	4-12x 42mm
Laser range*:	(yards reflective) 800
Laser range*:	(yards deer) 550
Laser accuracy:	±1 yard
Batteries:	2 each AAA
Battery life:	1,100 cycles
Operating temperature:	14°F to 122°F
Field of view	
(low to high feet @ 100 yards):	25 to 9
Exit pupil (mm) low to high:	10.5 to 3.5
Click value (inches at 100 yards):	.25
Maximum adjustment (inches at 100 yards):	50
Weight with mount and battery:	26 ounces
Optimum eye relief (inches):	3 to 3.5
Objective end diameter (mm):	60
Clear objective diameter (mm):	42
Ocular end diameter (mm):	39
Overall length (inches):	13
Mounting rail length (inches):	5.7
Reticle subtensions (inches at 100 yards):	
B Plex Dim. A High Mag:	.22
B Plex Dim. A Low Mag:	.65
B Plex Dim. B High Mag:	.59
B Plex Dim. B Low Mag:	1.8
B Plex Dim. W High Mag:	6.5
B Plex Dim. W Low Mag:	19.4

*Environmental conditions may limit range.

products, the LaserScope is “Warranted Forever.”

Burris's new LaserScope could be on dealers' shelves by the time you read this. For more information, contact: The Burris Company, Inc., Dept. HL, 331 East 8th Street, Greeley CO 80631-9559; or online at: www.burrisoptics.com.

Leica's Geovid 10x42mm BRF Rangefinding Binocular

When I saw Leica's first Geovid rangefinder several years ago, I was blown away! Unlike the awkward, optically challenged rangefinding monoculars other manufacturers then offered, the Geovid combined an extremely accurate laser rangefinder with the optical performance of its superb 7x42mm binocular.

I used an early Geovid 7x42

BDA laser rangefinder on a handful of prairie dog and pronghorn hunts, and it handily outclassed all the other rangefinders I compared it with. Unfortunately, “outclassing” also extended to price. I can't recall the exact tab for that first Geovid rangefinder (which incorporated a digital magnetic compass), but it was around \$4,000.