



PROFESSIONAL GRADE WEAPONRY®





ere we are with Ballistic's fourth "Precision" edition, and the discipline of long-range precision shooting hasn't even hit its peak. It simply continues to grow in popularity.

As you'll notice from our main cover (our subscribers cover got the gear-only treatment), we spent some quality time with former SEAL sniper and trainer Charlie Melton, who trained some of our most elite snipers in the War on Terror. Beginning on page 36, Charlie walks us through an abbreviated training session, helps us to shoot a mile and master moving targets, then sits down with us and chops it up in a revealing exclusive interview. Be sure to visit ballisticmag.com for companion video content.

There is still much to unpack from the precision trunk of knowledge, and you'll find out just how much you don't know when you visit the Modern Day Rifleman website created by two former military snipers turned Modern Day Snipers. Check out the MDR spotlight on page 18.

Ballistic solvers abound and are a must for the cutting-edge rifleman. On page 156, Rei

Hoang, an ELR and precision rifle shooting powerhouse, walks us through a few of the better offerings to help us nail that important shot. Also, multi-time King of 2 Mile winner Paul Phillips introduces us to what is likely the most underrated aspect of precision shooting-spotting. His article, beginning on page 46, is full of useful tips to become an effective spotter.

For newcomers to the sport, beginning on page 26 Kendl Wong will show you how to get into precision rifle shooting the right way, with her first-ever precision rifle build. After its completion, she heads straight to the Max Ordinate Academy for comprehensive precision rifle training.

There's much more in the pages ahead, but we'd be remiss to forget letting you



outdoorgroupstore.com.





CHARLIE'S COVER RIFLE: Gunwerks Verdict 6mm Creedmoor. Specs: 18-inch/1:7 twist barrel, 37.5-inch OAL, TriggerTech trigger, 14 pounds OAW with Revic PMR 428 optic and CGS Group Hyperion QD

suppressor.

know that our successful (and free) "Ballistic Long-Range Precision" video series (ballisticmag.com/LRP3) is in its third season, and we take on more topics that are useful to the precision shooter. Our "Zero to Hero" episode focuses on what it takes to get your rifle set up for consistent hits at distance by truing it up with the aid of a chronograph and ballistic app. Other episodes include proper rifle fitment, precision triggers, and we take on the debate of gas guns versus bolt actions.

We're on scope, on rifle and ready. Time to send it. -Sean Utley





ballistic

EDITORIAL DIRECTOR Nino Bosaz EDITOR-IN-CHIEF Linas Cernauskas EDITOR AT LARGE Sean Utley* **SENIOR EDITOR** ART DIRECTOR/COVER DESIGN

PREMEDIA DIGITAL MANAGER **EDITORIAL ASSISTANT** CIRCULATION CONSULTANT Scott Hill/ProCirc **COVER PHOTOS** Sean Utley* **EDITORIAL INQUIRIES**

Mark Chesnut* Rory Slifkin Franco Nguyen Chad Adams Richard Ortega editdesk@athlonoutdoors.com

SUBSCRIPTIONS/SINGLE COPY INQUIRIES 800-284-5668; subscriptions@athlonmediagroup.com

personaldefenseworld.com • tactical-life.com realworldsurvivor.com • ballisticmag.com

ATHLONOUTDOORS

athlonoutdoors.com SVP/GENERAL MANAGER Nick Seifert

ATHLON OUTDOORS ATHLON SPORTS

ADVERTISING SALES National Office

212-478-1910; sales@athlonoutdoors.com

Independent Account Representatives

SOUTHEAST & UPPER MIDWEST WESTERN REGION MIDWEST/CENTRAL SOUTH SPECIALTY/AT LARGE

NORTHEAST REGION Scott Buchmayr • 978-462-6335 Amos Crowley • 216-378-9811 Scott J. Cherek • 307-635-8899 Dan Flavin • 248-515-8654 Mark Pack • 949-683-0083

DIRECT RESPONSE ADVERTISING Jim Coen • 212-478-1949 SENIOR DIRECTOR **MARKETING & OPERATIONS DIGITAL SALES DEVELOPMENT &** MARKETING DIRECTOR

Brock Norman

MARKETING & Niki Morrison PROGRAM MANAGER MARKETING COORDINATOR/ Maureen Pichner **ADMINISTRATOR**

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ATHLON MEDIA GROUP

Corporate Officers

PRESIDENT, CEO CFO/TREASURER **CORPORATE ADDRESSES** Chuck Allen Mary Lee Vanderkooi

New York: 60 E. 42nd St., Suite 820.

NY, NY 10165

Nashville:

2451 Atrium Way, Suite 320 Nashville, TN 37214

* Consultant

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KADRE™ GLOVE \$49*

Built from a lightweight and breathable mesh and outfitted with a high-dexterity Ax Laredo palm, the Kadre gloves are fit for rough duty. The backhand features an integrated bump knuckle, while the uniquely patterned palm provides an unrivaled grip for pistol and rifle use.



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OPERATUS™ GLOVE \$29

Duty gear defined by its low-profile silhouette, the Operatus virtually eliminates trigger housing interference issues, allowing incredible hand-feel and dexterity. The Coolskin™ palm provides superior grip, while still allowing critical moisture transfer. Additionally, the thumb valley features leather for reinforcement from handgun slides.











STOCKPILE

NEW AND HOT PRODUCTS FOR PRECISION SHOOTERS

BY SEAN UTLEY

2. Eberlestock Lodrag II: Featuring several bag/packs with rifle retention, Eberlestock is a friend to the precision rifle shooter. We opted for the X31 Lodrag II pack. It's a lightweight pack meant for a day romp to get some shooting done. It's minimalist in nature with two good-sized pockets on the exterior of the upper and lower front flaps. Inside is a hydration sleeve, and a fold-away shelf to separate the top and bottom portions of the interior space. It has a volume of 2,400 cubic inches, and is available in five colors. **[eberlestock.com]**

3. Gray Ops CNC Brass Marker:

Gray Ops machined brass marker allows you to keep up with and identify those precision chamber-specific pieces, which you worked so hard to load to perfection, after the shot goes off and the bolt has been run. It features spaces for

three Sharpie-style markers so that you can choose the color scheme you think will be distinguishable when it's time to pick up brass. They're available for .223, standard (.308), and magnum-size brass. [grayopscnc.com]

- **4. Gray Ops Arca:** The Labradar Arca allows you to quickly and easily attach your Labradar chronograph to a RRS or other brand tripod. Machined from 6061 aluminum, it's four-sided and allows you to mount your Labradar in any of four directions. It also features a captive stainless steel screw. The Labrador Arca is one of those little things that means a lot. **[grayopscnc.com]**
- be better. Also with the introduction of the NRL Hunter series of competition, weight matters. The Grayboe Trekker stock weighs just 23 ounces, features a vertical grip with thumb shelf, and adjustable length of pull thanks to spacers, embedded bubble, and a Grayboe memory foam recoil pad to soak up recoil. It requires bottom metal, which you can get from Grayboe or another supplier (BDL or M5 style). The Trekker fits Remington 700-style actions and barrel profiles up to a Proof Sendero. [grayboe.com]
- parator kit will help ensure you load to the best of your ability. This incredibly well machined kit has two configurations: a standard that works with loaded ammo and can fit .338 Lapua with solid turned bullets, and a short body comparator, which can be used to measure brass or bullets only. Comparator inserts are available for bullet, as well as for caliber/shoulder angle of varying degrees, and also let you measure COAL or base to ogive. [shortactioncustoms.com]



BALLISTIC 08-09 2021

You'll be able to tighten down (or remove) your action, level

and set your optic in rings, and add and remove attached

accessories to the correct torque spec. This kit has saved

my butt many times. (fixitsticks.com)

THE RIGHT TO HEAR FOR YEARS TO COME

Left: SilencerCo Sparrow 22 patented in 2010

Right: Original Maxim silencer patented in 1909





- 7. SAC Bravo Barrel Vice: The increase in actions with pre-fit barrel capability means you can change calibers without a trip to your smith or builders. But, you will need a barrel vise. SAC's Bravo Barrel Vise has a two-bolt design that clamps the bottom and the top together. It's made from 7075 aluminum and comes with a standard "V" bushing that fits 1.250-, 1.200- and 1.0-inch diameter shanks. You can also purchase other bushings for different sized barrels. [shortactioncustoms.com]
- **8. SAC Final Scope Level:** While leveling a scope can be a pain in the butt, the SAC Final Scope Level will have you straight and plumb in short order. It features a base with Pic rail for attachment of your optic in rings. Once secured, you can use a small bubble level and dial the base adjustment knobs to ensure the base is level. Then you can level your scope using a plumb line or use another bubble level to align the optic in the rings. **[shortactioncustoms.com]**
- **9. Tract Spotter Eyepieces:** If you want to get serious about your long range game, you need a good spotting scope, and thankfully Tract Optics (see page 54 for more) has what you

need. The Toric UHD 27-55x80 is a lot of spotter with expandable capabilities. Tract also offers different eyepieces that feature the reticles for measuring. Available in either a 22x or 30x fixed, they feature Tracts MRAD PRS reticle or MRAD ELR reticle respectively. (tractoptics.com)

- **10. MDT Vertical Grip Elite:** MDT is a powerhouse in the long-range precision realm. The Vertical Grip Elite is a grip replacement for the AR-15 grip interface on the ACC and other chassis. The VGE is fat and comfortable, and seeing that I've had one of the early prototypes for quite some time, I'm happy to see the production unit roll out. It's adjustable fore and aft (distance to trigger), as well as for angle. It also features up to 10 degrees of rearward angle. [mdttac.com]
- 11. MDT Bolt Knob: The MDT bolt knob is installed over the top of your current knob. It can also be threaded onto 5/16-24. It's larger, grippy and easy to get hold of. It's available in thread-on for specific models, as well as the universal model. [mdttac.com]
- 12. MDT M-LOK Data Card Holder:

Dope is important, and so is being able to see it

at a glance. The MDT M-LOK Data Card Holder is polymer and features interlocking polymer links so that you can adjust it to your viewing pleasure. It's designed to fit in the magwell section of the ACC chassis, but includes M-LOK hardware for fitment in other M-LOK slots and rifles. A dry erase pen and data card are included. [mdttac.com]

13. Really Right Stuff S.O.A.R.: Never finished with innovating and refining, RRS has released another enhancement to the dovetail platform. First, you should know the Arca is not a standard, while the RRS 1.5-inch Dovetail is, and an open source standard at that. That means that with this standard, all your dovetail-type pieces lock up solid. Now we have the R-Lock system, which adds safety-stop features built into a mounting rail and quick-release clamp. A 5mm diameter steel pin rides in the clamp, while 5mm holes reside in the rail. Once the lever is closed, the pin engages the hole(s). Throwing the lever to the open position allows the clamp to slide along the rail. You can now adjust the tension on the clamp when it is in the open position. The parts are made of 6061-T6 aluminum, the unit is backward compatible with non R-Lock accessories. (soar.reallyrightstuff.com)

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A LOOK AT TWO SMALL COMPANIES THAT'LL KEEP YOU BIGLY SAFE AND ACCURATE

BY FRANK MELLONI

NEWBOLD TARGETS

While steel targets deliver the satisfying "PING" when struck, it is a little hard to ignore the elephant in the room that is known as spall. For those who are not familiar with the term, it is the combination of copper and lead bullet fragments that splatter off of a steel target when struck. I wish I could say that I am not familiar, but unfortunately a piece of spall left me in the hospital a few years back. In my defense, the person that set the target up did so improperly, but nonetheless I found myself digging through my range bag for combat gauze nearly 30 miles from the closest hospital.

Afterward, I sought out an idiot-proof solution to reactive targets. That solution came from a small company called Newbold with its patented Throom Material. This self-healing polymer takes the beating of even a .50-caliber and sucks back up as if it was never struck (unlike my ankle). During the process, the target absorbs enough of the bullet's kinetic energy to react and, in essence, works just like steel, except is far safer. This hard-to-strike balance of safety and reaction took over 20 years to

perfect and is the product of rigorous testing across more than 300 different target designs.

Today, Newbold has boiled this development down to a handful of trouble-free varieties that are perfect substitutes for their steel counterparts, or even provide a new level of fun or training altogether. The Dueling Tree and the HangTuff plate racks both stay in place through the ricochet-free alpha stands that come together with simple 2x4 lumber and Throom





constructed unions. These can be left in place or transported easily, as setup and breakdown don't require any tools. I love both of these targets for CQB practice, as nothing is stopping you from putting your gun just an inch away and blasting them! The Newbold Throom Target line extends out to include fun knock-down targets that come in a variety of familiar shapes that keep new shooters interested and give old shooters an excuse to dust off their favorite polymer poppers.

The family-owned company has been at it since 1995 and has absolutely no intentions of calling it quits anytime soon. Last year brought about some of its most innovative products to date, along with an array of new shapes and colors. While the company call tag hit me right in the feels, it does a great job of getting across why you ought to train with Newbold Targets—"Bullets pass through instead of back at you." For more information, visit throomtargets.com.

LONG SHOT PRECISION

Rear support on a rifle is often overlooked and, in many cases, even just plain. However, if you give a machinist with a love for precision shooting enough time, he will come up with a solution that intersects both passions like a pair of finely drawn crosshairs. Meet Long Shot Precision and its pioneer product, the Adjustable Bag Rider. Most of us are familiar with using a sand sock or some sort of rear bag to support the buttstock of our rifle and provide the elevation adjustment we need to achieve our hold. When it is just about there, nearly every one of us squeezes this bag to fine-tune where we need to be. The only problem with this is that all (and I mean ALL) muscles relax or react as the rifle is firing, moving your crosshairs off of your target milliseconds before the bullet leaves the barrel. The Adjustable Bag Rider solves this problem the only way possible, through precision. After attaching it to your buttstock, a system of hand-turned stainless steel dowels and linear ball bearing provide



an adjustable platform that allows you to raise or lower the rear of your rifle at will. This system provides exponentially more surface contact than a monopod and supports the rifle at just about as far back as possible. This increases its support radius and maximizes stability. All of these parts are hand-fitted for straightness and checked with a micrometer to ensure they are within diminutive tolerances. The labor is intensive, but the final product is free of wobble and doesn't require an exaggerated effort to raise or lower.

I tested my ABR on a Savage Elite Precision, which utilizes an MDT ACC chassis stock. The ABR came with the necessary hardware, and installation took less than

five minutes with just the use of an angled Torx wrench. I ran it with an Allen's ThermoBlock Rear bag and enjoyed a relatively hands-free shooting system that returned to my natural point of aim with little to no effort. Although I praise myself as a competent shooter, I did indeed see some group size reduction and best of all, my hand and forearm weren't stiff at the end of the session. As I packed up, I thought of the words of owner David Pobutkiewicz when he said, "You will not want to shoot without one once you try it, so don't waste any ammo until you get one!"

He was right, and that ABR is on my rifle to this day. For more information, visit adjustablebagrider.com.





he history of the bolt action rifle in America isn't really as long as one might think, especially when couched in terms of its popularity as a hunting rifle. Since we have to start somewhere, I don't think I'd get much argument when I say it started with the U. S. Army's adoption of the M1903 Springfield. While it's true that the Krag-Jorgensen chambered in .30-40 Krag had served as the U. S. martial arm since 1893 and was indeed a bolt action centerfire rifle, its magazine system was too weird to be representative of what we came to envision as the archetypal bolt-action rifle.

THE EARLY DAYS

To say the '03 Springfield was heavily influenced by the Mauser would be an understatement, so much so that our government paid about \$3 million to the Mauser people for copying it. The '03 had a head start here because if

you were an NRA member you could pick up a Springfield starting in 1910, whereas '98 Mausers (and earlier variations thereof), didn't become generally available until the 1920s.

It was a time when the lever action rifle reigned supreme with America's hunters—a trend that would continue until the 1950s, despite the fact that even the most potent lever gun cartridges paled in both power and trajectory when compared to the .30-06. It was our boys returning from the Great

War who had been introduced

to the superior power and accuracy of the bolt action .30-06 that started the slow transition.

In the meantime, the first American firearms manufacturer with the prescience to recognize that there just might be something to this bolt action thing was Savage, which in 1920 introduced its Model 1920. Designed around their own .250 and .300 Savage cartridges, the action was too short to handle the .30-06, which surely had something to do with it being discontinued nine years later.

Hot on Savage's heels was
Remington, which in 1921 rolled out
its Model 30. This was a rifle that had
to happen. Why? Because when the
Great War ended in November 1918, Rem-

ington was turning out some 4,000 Model '17 Enfield .30-06 rifles for Uncle Sam every day!

The basic difference between a tri-lug bolt and a Mauser-type bolt can be seen here. Above are the bolts of a T-C Venture and a Remington 700. The latter requires lug raceways, which complicates the machining of the receiver.

<<



RIFLE SYSTEM HAS EVOLVED

Suddenly they found themselves with literally thousands of complete rifles and parts on hand. By making some cosmetic changes in the action, shortening the barrel and dropping the barreled action into a sporter-type stock, it became a successful rifle for Remington, being produced right up to the start of WWII.

As for Remington's prime competitor, the Winchester folks found themselves in the same boat at the end of the war in that they, too, had been cranking out beau coups '17 Enfields for the war effort. But with Remington having acted so quickly with their Model 30, the guys in New Haven figured that coming out with another '17 Enfield-based rifle was, well, beneath them. Do keep in mind that at the time the Winchester name had far more cachet than Remington. Anyway, starting with a clean sheet of paper, the result in 1925 was the rolling out of the Model 54, Winchester's first venture into the commercial bolt action arena. Though the 54 was a completely

new design, it borrowed all the major features of the '98 Mauser—dual opposed locking lugs up front, non-rotating extractor, controlled-round feeding, inertia ejection, staggered column internal box magazine and a wing safety mounted on the bolt shroud. The 54 was well received, and helping that reception was that it was being offered in the equally new .270 Win., the hottest, flattest-shooting cartridge to come on the American scene up to that time.

MOVING ALONG

So as we entered the 1930s, we had the aforementioned bolt guns—the Savage 1920, Remington Model 30, Winchester Model 54, along with surplus, sporterized and customized Mausers, Springfields and Enfields—all doing their part to woo America's hunters and shooters. However, the most seminal event on the bolt action scene prior to Pearl Harbor was Winchester's unveiling of its Model 70

in 1936. Here was a rifle that wasn't really all that different from its predecessor, the Model 54, but every change that had been made worked together to make it the most desired rifle of the time. It was, in fact, the rifle against which all others were judged until 1964, when it was discontinued in favor of a replacement that was easier and cheaper to manufacture. Resumption of the original began in 1992 and continues to the present day.

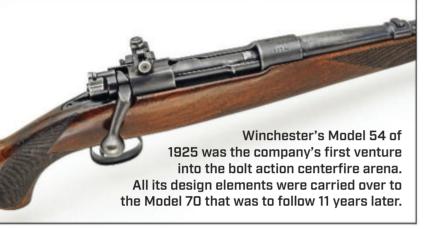
After the war—the late 1940s and early '50s—saw more and more hunters embracing bolt guns because they came to understand that the only advantage the reigning lever action had to offer was rapidity of fire, and then it wasn't really that much faster in getting off a follow-up shot. Bolt guns, on the other hand, were strong enough to digest the most powerful cartridges, were more accurate, better suited for handloading, and had the camming force needed to chamber and extract recalcitrant cartridges.

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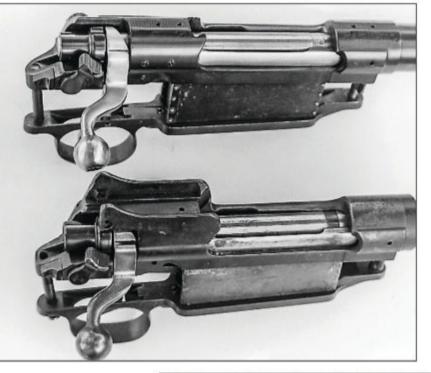
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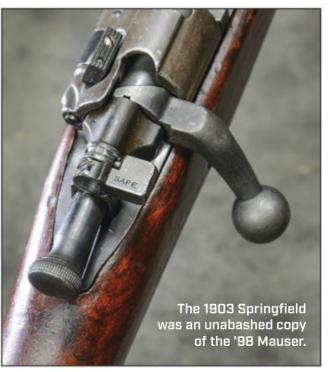
BOLTS OF GENIUS











Remington's Model 30 was simply the '17 Enfield service rifle without the rear sight base.



The next seminal event was the debut of Remington's Model 722 in 1948, and the 721 that followed a year later. Here was a rifle that virtually dictated the basic design for countless other marques that would follow. Forget the current and phenomenally successful Model 700 that was introduced in 1962 and still going strong; it is nothing more than a refined iteration of the basic Models 721/722. The defining features of this design are a tubular receiver, twin-opposed forward locking lugs, a recessed bolt face with a plunger ejector, and a washer-type recoil lug sandwiched between the barrel shoulder and receiver ring.

WEATHERBY REVOLUTION

The year 1957 was a big year for the bolt action because Roy Weatherby unveiled his Mark V Magnum and Savage its Model 110. The Mark V ushered in the age of the tri-lug fat-bolt, but it took about 50 years for other gun makers to pay attention. Though the Weatherby action has nine locking lugs, it's only a minor variation from the current spate of tri-lug actions introduced since the turn of the century. It makes no difference whether it's three rows of three lugs, two rows of six lugs, or one row of three lugs, all are oriented on 120-degree centers, making for a shorter bolt rotation (handle lift), and all have their locking lugs formed on a larger-diameter bolt by removing material at the head. The lugs do not project beyond the bolt diameter and thus require only a round hole in the receiver in which to reciprocate. When combined with other cost-saving measures such as injection molded stocks, a tri-lug rifle can be produced more economically than a Mauser-type rifle, though not all tri-lugs are budget priced, by any means.

The Winchester Model 70 Featherweight is perhaps the most successful iteration of "The Rifleman's Rifle."



~

Browning tried the American market with a straight-pull rifle called the Acera in the mid-90s. It didn't sell, but it does well in the rest of the world as the Maral, shown here.

Since the Millennium, there have been some 13 tri-lug rifles introduced, mostly European in origin like the Benelli Lupo, Merkel 16, Sauer 100, Franchi Momentum, Sabatti Saphire, Mauser M18, Sauer 202 and the Steyr SM12, to name just some. Of course, the most familiar members of that impressive list are our own Ruger American and Winchester's XPR, both of which carry MSRPs almost half of what's asked for their flagship rifles—the Model 77 and Model 70, respectively. Despite their entry-level price points, both are embarrassingly accurate and, therefore, somewhat problematic for their makers. Thompson-Center is also aboard the tri-lug train with its Icon, Venture and Dimension.

As for the Savage 110, it showed just how economically a bolt action rifle could be produced. In concert with the economy derived by starting with a tubular receiver, Savage came up with a bolt that also starts out as a simple tube, to which a separate bolt head, complete with recessed face and plunger ejector, is cross pinned in place, and at the rear the bolt handle is simply collared onto the body. The cocking cam notch is a closed hole at the rear of the bolt, and the cocking cam is a rivet-like thingy that slips into a hole in the bolt body. And it's all held together by a threaded nut at the rear. It's an innovative design and it's been the heart of the Savage centerfire lineup to the present day.

The new Sig Sauer Cross was designed from scratch as a chassis rifle, in conjunction with the proprietary .277 Sig Fury—a cartridge capable of unprecedented ballistics in a 16-inch-barreled rifle.

CHASSIS RIFLES

Without question the latest craze is the chassis rifle. Essentially, this genre is characterized by a more-or-less conventional barreled action being dropped into an aluminum chassis that's been modified to accept AR-10-style magazines, grips and adjustable buttstocks. Integral forearms that free-float the barrel are ventilated with M-LOK or KeyMod slots for mounting accessories. In other words, the chassis system makes a bolt action rifle look like an AR, but it also affords a more stable bedding system that's more conducive to accuracy and point-of-impact retention. Within the last five years, every major manufacturer (and most minor) of bolt action rifles is offering chassis-style rifles. And there's no shortage of after-market accessory companies that offer chassis-style stocks that offer drop-in capability. Either way, it's a system that's more popular with long-range recreational and competitive shooters than with hunters, but who knows

where it might lead...like perhaps the Sig Sauer Cross rifle?

The Cross is a gun that, as far as I know, is the first to be designed from scratch as a chassis-style rifle. It's a tri-lug action that locks up with the barrel, so the receiver, being a non-stressed component, can be an aluminum alloy. The weight of the

gun is 6.2 pounds with its 16-inch

barrel. Employing its folding buttstock results in an overall length of 25
inches. It is chambered in 6.5 Creedmoor, .308 Win. and the new .277 Sig
Fury—a .270-caliber cartridge that launches a
140-grain bullet at over 3,000 fps in that 16-inch
barrel! Designed as a hunting rifle, the highly
innovative Cross might well change our
concept of what a "bolt action rifle" looks

16a

like in the future.

Ballisticmag.com

BALLISTIC 08•09 2021



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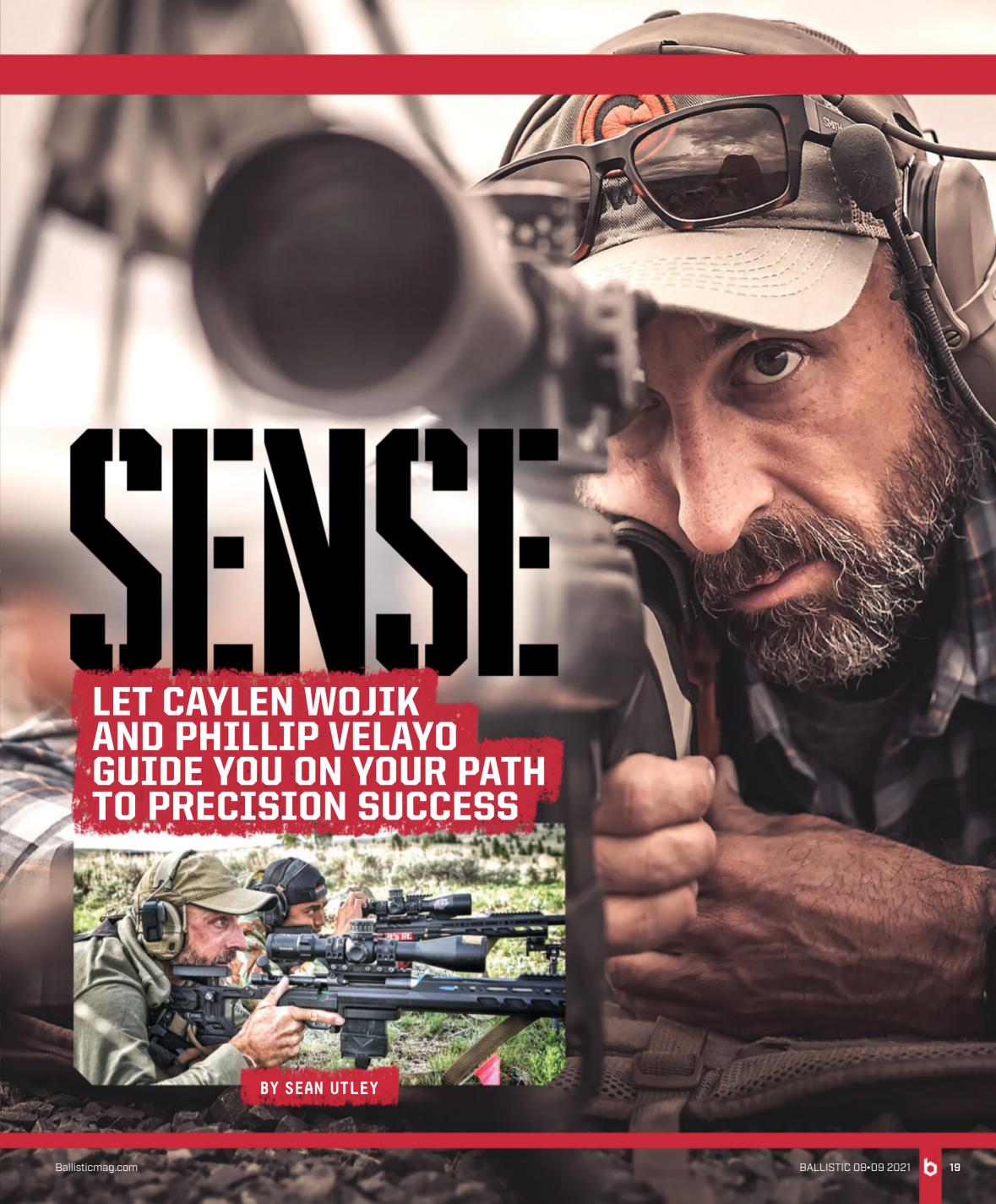




danieldefense.com/anniversary

RIFLEMAN SKILLS





SNIPER SENSE





any business, people
are the greatest asset.
It matters not how good
your product is, for
without the right human

asset you'll go nowhere. In this case, the product is less tangible than tangible. Or is it? What constitutes a "product"? Is highly useful information such? Before we venture down that rabbit hole, let's get back to people, specifically Phillip Velayo and Caylen Wojik. If you're meandering through the precision landscape and you haven't heard of them, you will—especially if you spend any time on social media.

Velayo was featured on the cover of last year's *Ballistic Precision* magazine. At that time he was the lead instructor at the Gunwerks Long Range University. *Ballistic* mag attended one of their classes and learned a ton while getting to hang with Velayo. Shortly after our knowledge-laden stent there, Velayo left Gunwerks for another venture—one that had been carefully crafted and was soon to be expertly executed by the team of expe-

rienced and no longer deploying snipers. I don't think it's right to refer to them as former.

I met Caylen at SHOT Show 2019. I had no clue of who he was or what his creds were. All I remember was is that he was a particularly sharply dressed man in a sea of tac-gear and T-shirt-laden attendees and exhibitors. I also remember that after a colleague introduced us, his mental game appeared to be as sharp as his threads. He was one of those guys that makes you say, "Well, he's going places." No doubt.

TODAY - S COPN Overview of the Parsona, Ego, and Shadow Overview of th

VIRTUAL MODERN DAY SNIPER

There are many ways to learn precision shooting. There are books, videos, online courses, and the best and most beneficial in my mind, physical instructional classes on the range. All of which Modern Day Sniper offers to the seeker of the precision rifle gospel. Each type of educational experience is offered at an expert level by the MDS team and, as far as I can tell, the response has been phenomenal. While I plan to attend an actual range class, I thought it would be a good idea to go online to the virtual world of the Modern Day Sniper to see what one might expect.

The most impressive thing about the MDS experience may be the breadth of offerings on its pages. Sections exist for free access and paying members, who are divided into monthly and annual subscribers. Those same subscribers can get access to other pages within the site.

JOINING THE COMMUNITY

The design of the MDS space is excellent. More on that in a bit. I think it's imperative to communicate the overall vibe that I got upon entering the space. If I could describe it with just one word, it would be "community." In fact, being



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SNIPER SENSE



I had long heralded the precision rifle community as one full of people ready to share information and thoughts to help others become better within the discipline and beyond. This has shifted as of late, possibly due in part to its growth in popularity. Sometimes it seems as if the discipline is falling deeper into cliques and clubs, ones that claim superiority over others. But on the MDS site it's not like that. There is a positivity that

pily sharing their successes and failures, free

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from judgment and the trolls of other places. It's not a snowflake paradise, but instead a proper and respectful place to learn and interact. I doubt you'll end your time on the MDS site shaking your head and cursing some troll under your breath. Why, you may ask? Because the subscription fee weeds out the serious from the not so, although the same vibe and professionalism extends to the non-paid sections.

Once you've received your login credentials to the MDS site, the first thing you'll enter is the social site. Think of it as Instagram, a forum and Facebook in one. It's well laid out and easy to follow and read. You can find information on someone's latest load data and testing, with images to boot, or you might find someone breaking down their thoughts on their past performance at the latest match. You'll also find helpful tips about the site from its moderator, Kassnadra Wojik.

It's easy to get caught in the social section, soaking up the shared information and experiences of others, but as good as it is, this isn't where the meat lies. Scrolling down the left side of your screen you'll see other headers labeled Topics, Events, Groups, Merch and the mother lode—MDS Schoolhouse.

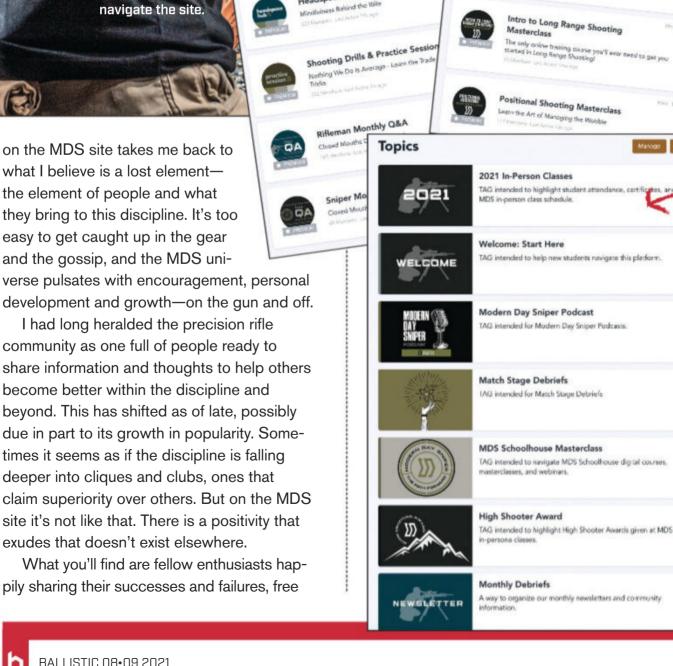
The topics tab includes information on everything that MDS is involved in including in-person classes, a welcome area with info on the MDS podcast, and match stage debriefs. The events tab lists upcoming classes and symposiums. Merch lets you buy MDS-labeled goodies. The groups tab houses several sections. Below are some notables:

MDR MONTHLY: This is a monthly subscription for the enthusiast and hunter.

MDS MONTHY: For Professional military and LE snipers. This then breaks down into a section for active-duty military snipers.

FREE STUDY HALL: An interesting section with information and recommendations on books and other information to read. The topics vary and include those such as brain science, emotional intelligence, fitness and physical training, and even business and marketing, to name just a few.

PLANK HOLDER STATUS: This is reserved space for the 200 initial MDS subscribers. Getting in early on the venture has its advantages.





5NIPER SENSE

THE MDS CORE

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If you're going to join Modern Day Rifleman, I'll assume it's because you want to become the best rifleman that you possibly can. If that is indeed the case, I suggest you sign up for access to the Master Class series of modules.

The Master Class is in the MDS School-house tab and is without a doubt the cornerstone of the site. This is where the deepest of dives commences into the ocean of precision rifle topics and information. This is that information that I wanted for many years earlier in my precision shooting endeavor, but couldn't find. If I did find it, it was tough to decipher because those that knew were hesitant, at best, to share what they knew. Now it's all in one place, and on MDS the number of topics continues to increase and roll out. It's incredible.

I've sat through countless precision shooting discussions, often hashing and rehashing the same topics to absolute boredom. But somehow MDS takes the same topics and

presents them in a way that is interesting and engaging. You just have to see it to understand. I'm the toughest of critics when it comes to my "content" ingestion. In fact, I don't watch any gun-related content on Youtube at all because, well, I can't stand it. But I could watch the MDS videos over and over.

Master class hosts Caylen Wojik and Philip Velayo escort you through several educational topics. Two of them are free, the Rifle Safety Masterclass and Precision Rifle Cleaning.

I skipped those mainly because I couldn't wait to get into the Circle of Components Masterclass, which is an overview of the rifle itself and all its components, and then dives deeper into the build and how each part works together. It also includes info on how to mount and zero an optic, ammunition and ammunition testing, and more.

Other Masterclasses dive way down into every aspect of precision shooting including marksmanship, long-range shooting and positional shooting. There's hours and hours of dense precision rifle meat for whomever longs to learn it all. It's still hard to imagine how long they worked to put all this together. It seems impossible.

MDS also has a podcast that includes different guests and topics. This is accessible to the general public, but the video of said podcasts is available only to subscribing members.

READY TO LEARN?

The world is full of haters, and I know there are people who have taken jabs at the MDS model. They've taken issue with the fact that they're charging for "free" information. I don't think that's the case at all. There is free space on the site, yes. And if you want lessons and access to more in-depth info, you'll need to subscribe. But as a professional who makes a living contributing in this space, I wouldn't hold clinics and provide information on how to take gun photos for free—not with all the experience I've amassed and all the time and effort I've put into it. The instructors at MDS are

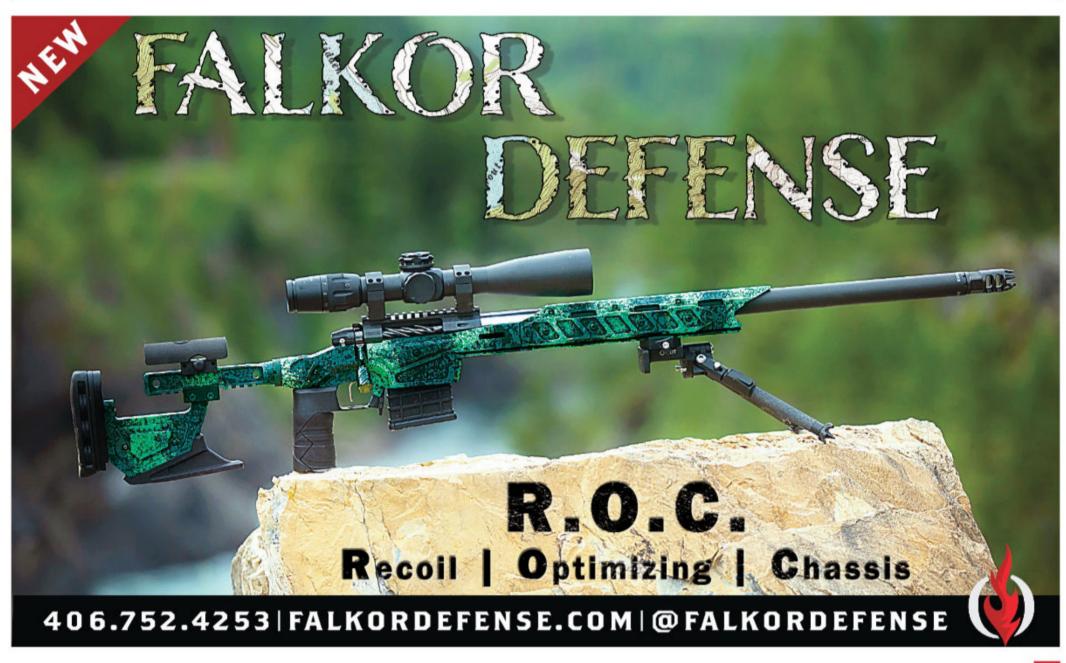




professionals that perform at the highest levels of the craft. And to put it bluntly, that level of experience and expertise didn't come for free.

MDS is presenting detailed information at the highest level of quality and production. That takes massive amounts of work, effort, planning and money. Your time is worth something, and if you want to learn the craft as quickly and completely as possible, you'll need to seek higher education from someone. Or you can just shoot, shoot and shoot on your own until you get there. Either way, you'll be spending a lot of money, and good training can help you save tons of it.

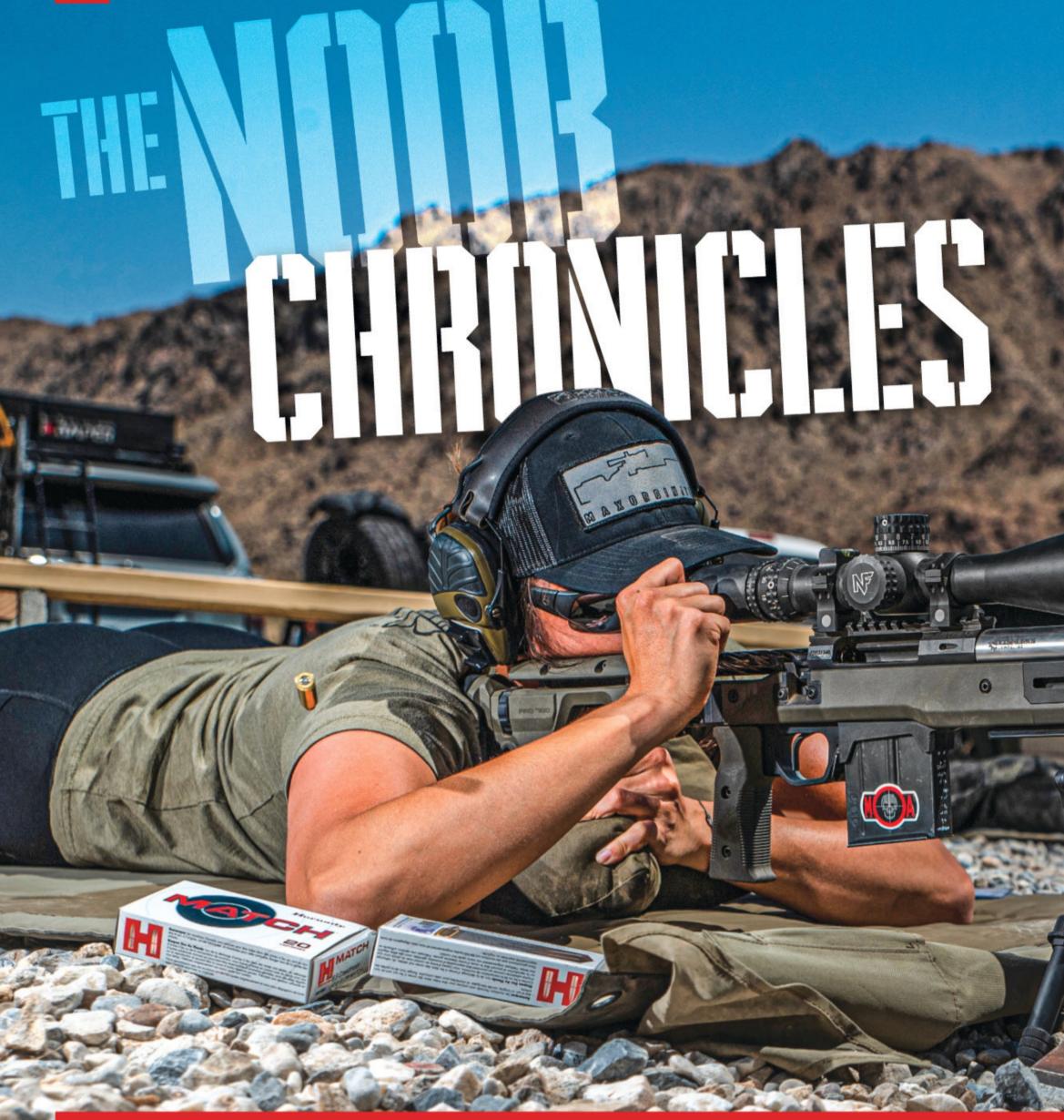
There are many resources out there, and I implore you to look at as many as you can. While much of the information might be the same, the people are not. And on top of an unrivaled e-presentation experience, that's where MDS sets itself apart—its people. If you want a strong, no hesitation, no bullshit recommendation, here it is. Join Modern Day Rifleman at moderndayrifleman.com, dive in, follow the info and reap the rewards of becoming a true, high-performing rifleman of the modern era.



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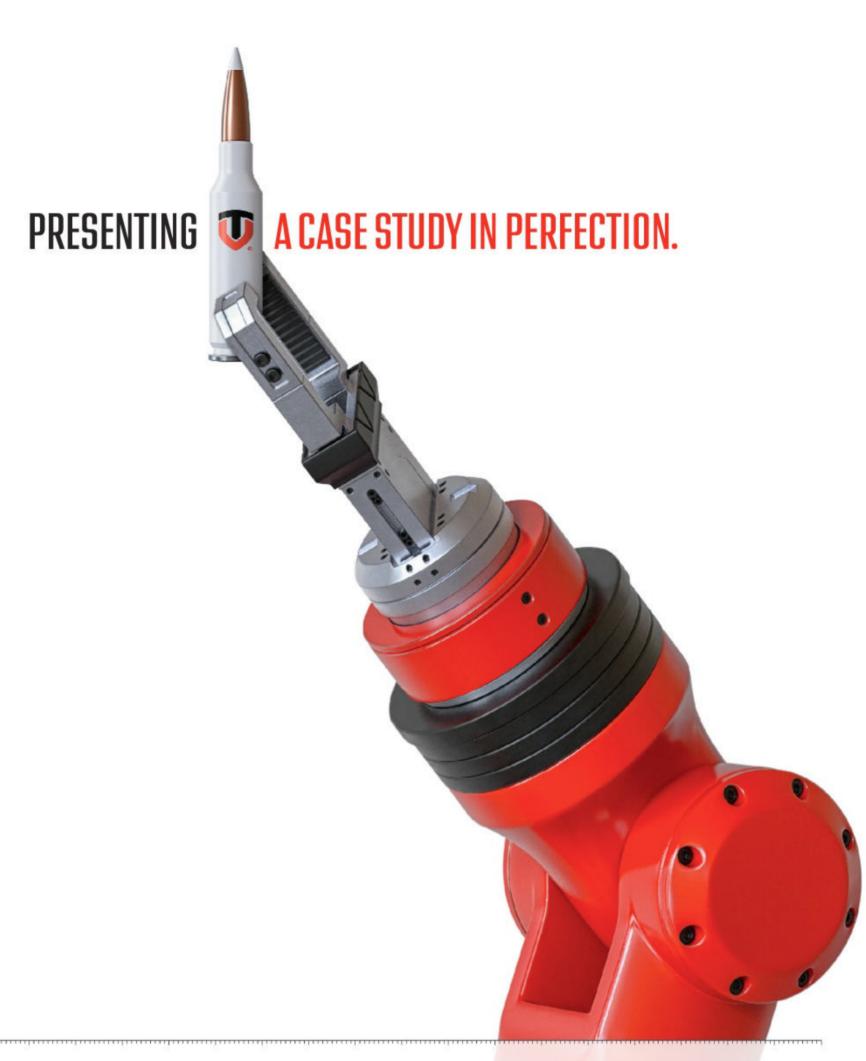






THE NOOB CHRONICLES







The perfect ammunition begins with a perfect case. Precisely designed. Exactingly engineered. Ingeniously manufactured. Resulting in single-digit standard deviation. One box will tell you everything. This is ammunition made perfect.



THE NOOB CHRONICLES



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damned if we're not the best." The "best" is clearly what they strive for. Goss spends time creating processes within the machine shop to ensure they produce high-quality bolt action rifles and components.

My barrel was chambered by Tim LaBorde of Axis Works. LaBorde has 20-plus years of experience in the industry chambering barrels for well-known rifle builders. The carpenter in me appreciated the fact that during his process he was able to feel chippage at the thousandths of an inch as he utilized assistance from the CNC lathe to spin up my barrel. After LaBorde worked his threading magic, he dry fit it to my Falkor action, then proceeded to cut the barrel to it's final 27 inches. The final steps were to cut and thread the muzzle for a Patriot Valley Arms Jet4 muzzle brake and laser engrave the barrel with the QRC code. The QRC code will allow Axis Works to access information on that particular barrel at any time.

Once the barreled action was complete, it was fitted with a Timney 520 CE-ST trigger. Although it was labeled as a 1-pound trigger, we actually measured it at 8 ounces. I then

fit my barreled action into a Magpul Pro 700 chassis. It is known for its excellent adjustability and comfortability. Any precision rifle is only as good as the optic on top. I have a high-quality build and needed to make sure I have the glass to rival such a build. My first choice was a Nightforce NX8 8-32 because you get quality Nightforce optics and HD glass, but at a price point well under the ATACR line. Unfortunately, with the high demand for optics, they did not have any available so I borrowed a friend's ATACR 7-35x56. For a bipod I chose the CAL Atlas bipod by B&T Industries, giving me a solid, stable platform with just the right amount of adjustability. The bipod was equipped with the ARMS-LS SOAR bipod clamp by Really Right Stuff (RRS). This allows the shooter to quickly move the bipod to more optimal positions.

TRAINING TIME

Once shooters have a solid rifle build, they often go straight to the range, but not me. I took it one step further and got training equivalent to my build at Max Ordinate Academy

SPECIFICATIONS

FALKOR 7EVEN/AXIS WORKS BUILD

CALIBER:	6.5mm Creedmoor
ACTION:	Falkor 7EVEN bolt action
BARREL:	27-inch Proof Research, 1:8 twist, competition profile
OA LENGTH:	49 inches
WEIGHT:	18.7 pounds
STOCK:	Magpul Pro 700
TRIGGER:	Timney 520 CE-ST
CAPACITY:	10+1
MUZZLE DEVICE:	Patriot Valley Arms Jet4
OPTIC:	Nightforce ATACR 7-35x56
MSRP:	\$5,900

Kendl spotting for her partner during positional drills.





THE NOOB CHRONICLES



(MOA) with lead instructor Tyler Hughes. I am a total book nerd as well as a video game nerd so the idea of 12 hours in classroom and 21 hours of range time was amazing. We had an intense first day covering topics such as eye relief, length of pull, sight alignment, sight picture, parallax, body positioning, trigger control, buttstock placement, scope mounting and more—a day jam packed with information. Most of day one on the range was drills to reinforce fundamentals, as well as truing our rifles out to distances of 1,290 yards.

Day two commenced with repeating drills reinforcing the fundamentals, which are bone support, muscle relaxation and natural point of aim. I don't think the average shooter understands how much science and math goes into calculating the wind and its effects. I'm used to shooting on a flat range with minimal wind, so it was a hard but good lesson to learn in MOA's valley. Day 3 was an optional day, and some students didn't stay. But those who did were rewarded with learning techniques on how to shoot moving targets and the coveted 1-mile shot, which I'm happy to say I hit! To the average shooter a mile seems far, but once you learn these techniques you see how feasible it truly is with a great rifle, solid glass and consistent ammo. This lead me to choose





FAR LEFT:

Lead Instructor, Tyler Hughes, discussing drills and expectations for the morning.

LEFT: Instructor Paul discussing proper grip strength on the support bag.

Hornady 140-grain ELDM factory ammo. Its consistency and reliability across the board enabled me to make my mile shot.

TRAINING RESULTS

Is it possible to learn to shoot well without this kind of training? Sure. But the benefit of training at this level is emphasis and elaboration on the fundamentals. This was evident with consistent drills each morning. If you told me that I could shoot groups with my eyes closed, I would think you're crazy. If you told me I could shoot a sub-MOA group with my eyes closed, I would still think you're absolutely full of it, but I learned this is possible through the natural point of aim drill. I shot a 0.69-inch group, with four rounds at 0.32 inches. Again, the Hornady 140-grain delivered across the board, not only for my mile shot, but also at 100 yards.

We finished up the three days with a brief preview into the Precision Rifle 2 course by learning nontraditional positional shooting that you would likely find in precision rifle style competitions, giving me something to look forward to in the coming months. We shot from obstacles such as small picket fences, tank traps, railroad ties and even a shopping cart. The culmination of all the drills, science and hours on the range just added more fuel to my precision rifle fire.

WRAP UP

Precision rifle is not an inexpensive discipline to say the least. After the breakdown of cost, the build came out to around \$5,900 and change with extra gear like the bipod. If we take out the cost of the borrowed scope, it drastically cuts the cost. But at the same time, I think it is worth it. We talked about there being a right and a wrong way to approach this discipline and after following through with my choices, I can tell you that this is the way.

HEATSEEVER

An innovative, affordable and lightweight chassis for the

Ruger American.

Upgrade your Ruger American to look like this!

The Sharps Bros. Heatseeker for the Ruger American Short Action (calibers: 308 WIN, 6.5 Creedmoor) allows you to easily upgrade the traditional factory rifle stock for improved versatility and a sleek, modern appearance.

This 1lb, 3-ounce chassis is machined from billet (solid block) high-strength 6061-T6 aluminum and includes a 10 ounce, 14" handguard cut from a unique extrusion shape exclusive to Sharps Bros. Both the chassis body and handguard are finished in a matte black Cerakote. The handguard features MLOK slots on 4 sides for various attachment options (light, bipod, night vision, ARCA rail) and two quick disconnect fittings per side for sling attachments. Heatseeker's standard AR15 grip interface is compatible with AR15 pistol grips, and the AR buffer interface allows you to further customize your rifle with your preferred AR15 type stock. Heatseeker is compatible with AICS short action magazines from Magpul and Accuracy International.

STRIKING RECEIVERS

The ultimate in custom AR receivers: Sharps Bros.

Featured here are the The Jack, Hellbreaker, Livewire and Overthrow from Sharps Bros. All four receivers have aggressive looks, incredible craftsmanship, and details only found on high-end receivers.

- Oversized integral trigger guards and beveled magazine flares
- A hard coat anodize finish per MIL-A-8625, the anodizing model for most military and aerospace products
- Full compatibility with all mil-spec internal parts, aftermarket mil-spec upper receivers, PMags, Hexmag and other standard capacity magazines
- Multi-caliber mark

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AVAILABLE AT WWW.SHARPSBROS.COM

1. The Jack 2. Hellbreaker 3. Livewire 4. Overthrow

HIGH-TECH

NEMU - UP

reparing for any precision shooting-based match is an exercise of patience. There is so much that has to be prepped, teased, counted, accounted for, packed, repacked,

checked and double-checked. Being able to focus and know that you have the proper tools on hand is where we all want to be under such circumstances and any one thing you can check off that list of worries is a biggie. Enter the Garmin Tactix Delta Solar with Ballistics edition.

Garmin's Tactix line of watches has enjoyed much success, but as a shooter I've often longed for the proper balance of usable features in a watch. Apple's watch is obviously popular due to the app power it packs, and the same can be said for Garmin. Keeping track of our workouts, steps and other activities goes a long way to keeping us on our good habits. Other watches like the G-Shock line, MTM and Luminox get kudos for a tactical slant and toughness, but features leaning toward shooting are still hard to find. No longer.

A wrist-worn ballistics calculator isn't new. 5.11 did it a while ago, and while I had no personal experience with it, it was crude at best. Garmin launched the 701 a couple of years ago, and while it is pretty good, it's size made it less practical for daily wear and it ate batteries for lunch. It was also a bit hard to navigate, but did have many features inside including a GPS, and the ability to receive messages and other notifications from a paired smartphone. The Tactix Delta goes further.

TACTICAL TIMEPIECE

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The Tactix Delta is a rugged and heavy watch. I like that feel. It feels rugged and durable, where an Apple watch feels like every unintentional contact with a wall edge, door knob or other stationary object will crack it. According to the specs, it is built to mil specs, so that's a plus. It features a solar charging lens to help prolong

battery life in the field, and has NV compatibility

battery life in the field, and has NV compatibility as well. A whole host of other features from music apps to workout apps and everything in between is available, but none of those is what makes it special.

Applied Ballistics is without a doubt the most recognized names in ballistics calculation. While there are many other types available, Applied Ballistics is ahead of the curve in offering solutions outside of your typical smart device app. The Garmin 701 was the first notable device to use it, but it's better in the Tactix Delta, thanks to upgraded sensors in the watch itself.







TEST RESULTS

How accurate is the AB software within the Tactix Delta? Well, it was all I used in my ELR competition for all my solutions. That's right. In fact, I was new to using it and while I was comfortable with it, my spotter, Chase Stroud, used the watch to get me all my dope and relay my come ups during my strings of fire.

I made comparisons with the data from the watch to other devices such as the Kestrel, various smart device apps and even my AB custom curve, but in the end felt most comfortable with the data from the Garmin. Several strong runs solidified the Garmin's capabilities, and the only issues would be some rifle issues as well as tricky winds at longer distances. The Garmin can't help you there other than giving you corrections based on your own wind estimates...just like any other device.

The inputs you're responsible for when using the Tactix is what you could expect from any other software. And you can enter these items in detail as well as some automatic settings. Data inputs include detailed rifle data including names and gun properties such as muzzle velocity, barrel twist, sight height zero range and offset, as well as muzzle velocity calibration. You can also set bullet properties, which includes an extensive bullet database with updated BC information and drag curves. You can also easily set up target cards, display range cards, and update environmental conditions such as temperature and humidity. The Garmin has a pressure sensor on board that is very accurate.

The Garmin Tactix Delta Solar is a powerful tool. For serious shooters and tacticians who want ballistics solutions at their fingertips, I believe it might be the best overall stand-alone option available, mainly because it's always on you, has great battery life and does so many other things as well. At an MSRP of \$1,400, I think it's better than using a smart device. For more, visit garmin.com. —Sean Utley

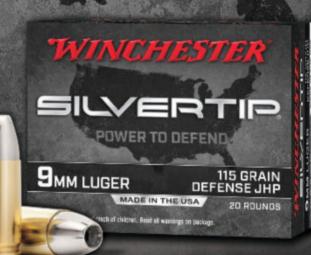


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- Hollow point provides maximum stopping power
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SILVERTIR POWER TO DEFEND WHATEL

CENTERFIRE RIFLE

- Nickel plated bullet jacket for controlled expansion
- **+** Defense Tip™ for consistent expansion
- Available in 223 Rem, 300 BLK and 308 Win



RIMFIRE

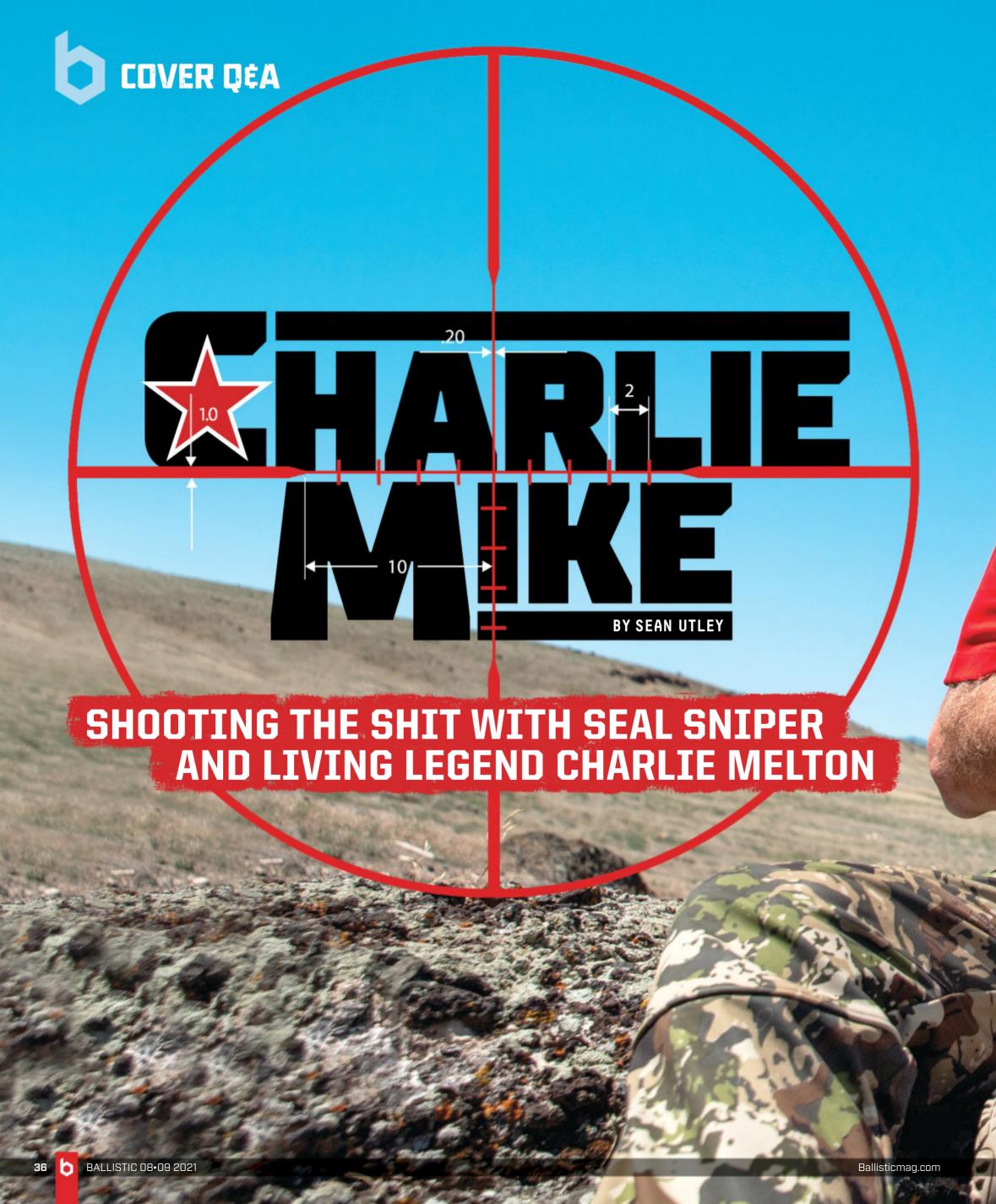
- 22LR with 37 grain plated segmenting hollow point
- Tailored for optimal performance with concealed carry handguns





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CHARLIE MIKE



that he runs. If you can get a few buddies together, he'll take you through and teach you what he learned through his experience as a frogman. As a side note, keep in mind that Charlie trained warrior-elite greats like Marcus Luttrell and Chris Kyle, but you'll never know that.

CRASH COURSE

Our abbreviated session with Melton revealed much about what you can expect from one of his courses. It can be summed up in one word—fundamentals. Yes, we hear it all the time from the bevy of capable trainers out there, but oddly in some way, I didn't expect to hear that from Charlie, and not with such insistency. Why? Probably because it sounds so—well, boring coming from a SEAL sniper.

"...KEEP IN MIND THAT CHARLIE TRAINED WARRIOR-ELITE GREATS LIKE MARCUS LUTTRELL AND CHRIS KYLE..."

As an elite level sniper, surely it must be more high speed, low drag than that. Right?

Under his training, students don't move on to other challenges until they master the basics, nor should they. This just further underlines how important the fundamentals are for all of us as precision shooters or otherwise. A man who has been in theater, been there, done that, in the true mix of it, completely underwhelmed me with that answer. So, it's the fundamentals we practice.

After a quick 100-yard zero and a couple of groups to let Charlie feel comfortable that I have some idea of what I'm doing, we go out to 500 yards, where I send Hornady's excellent 6mm Creedmoor 103-grain ELD-X's with confidence. Yes, ELD-X, not the ELD-M you'd expect. That's mainly because with the ammo shortage, Hornady was able to send out the X's in short order. But I came to find through discussions with Hornady that the Xs are pretty much on par with the Ms. I assumed otherwise.

After easy 500-yard impacts, Charlie asked if I wanted to shoot at a mile. After much consideration, I replied with a "Yes" some 40



BROWNING



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CHARLIE MIKE



milliseconds later. So I spun up the turrets on the Riton 3-24x56 Conquer X7 optic and sent it. Twenty-one mils is roughly what it took to hurtle the 103's to a mile, coming from an 18-inch barrel on a Gunwerks custom rifle. The CGS Group Hyperion QD suppressor hissed with each press of the trigger, allowing Charlie to sit comfortably, spot, and give commands and corrections without hearing protection. I knew the retired SEAL was testing me to see if I'd follow his lead, and I did with much success at a mile with several three- to four-round strings of back-to-back impacts on a 36-by-24-inch plate.

The next day, Charlie and Jeremiah Alexander, of Riton Optics, rigged up a mover from a wagon, paracord and some 2x2s. Rocks were added to the wagon for effect, along with a 23-by-35-inch silhouette to shoot at. This "low-budget mover," as we referred to it served us well and allowed Charlie to get me past my lack of confidence in shooting movers. After I understood what he was asking of me, I was able to place shots very close to each other on a walking speed target at 200 yards.



CHATTING WITH CHARLIE

Charlie is passionate about sharing the craft as he learned it and taught it while in service. But his passion doesn't end there, it overlaps with a passion to cook. Yes, Melton is as qualified in the kitchen as he was when he was deployed. The guy can straight cook, and I was fortunate to share in several meals he prepared.

After a meal of inch-thick ribeye steaks, bacon wrapped corn on the cob and cheesecrusted broccoli that Charlie expertly prepared, he and I sat and talked.

BM: Please tell us a little about your military history.

CM: I grew up in Macon, Georgia, joined the military when I was 19 years old, went to boot camp then A school and straight into SEAL training. I became a SEAL, was one for 26 years and retired in 2016.

Twenty-six years, that's a long time.

It was awesome! If I could get a new body, there is no doubt that I'd do it again.



CLASSIC INMAKING

The Dan Wesson Heritage embodies the bold characteristics and classic designs that made the line famous among 1911 enthusiasts. The Heritage sports a fiber optic front sight that glows bright in the daylight and a 5" match barrel that makes it a joy to shoot at the range. With the Heritage, shooters can experience Dan Wesson quality at the most affordable price.



@DANWESSONFIREARMS







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CHARLIE MIKE

Tell us about your time at Camp Atterbury.

Our East Coast SEAL super school was always run there; there were two separate schools, the East and West coast. I was on the East Coast when I went through sniper schools. I went through the school at Attebury in 1994, and it was the best school ever. So, fast forward 15 years later and I ended up being the senior chief of the West Coast school, and we combined the schools. We would do classroom stuff on East and West, and would come together at Atterbury for

stalking, shooting and all the skill sets.

Is there a rivalry between East and West coasts?

Oh yeah. Always.

Do you feel like the rifles available now are that much better than what you had access to when you were in service?

The gun industry has come so far, basically we modified our weapons on our own. We had to invent our own stuff. We had decent guns for back then, but now the rifles are so much smoother. I'm not saying you can't take a cheaper rifle and hit stuff, but the precision of rifles has definitely gotten better.

What brand chassis do you like?

I like the MPAs.

What types of rifles will you build?

I'll offer a hunting-type rifle and a precision chassis type.

Who taught you how to shoot?

I was always into guns and blowing stuff up. My grandpa and uncles all hunted and shot guns all the time. I got my first gun when I was 4 or 5, a single-shot .22. My uncles and grandpa taught me how to shoot, and it was mostly Kentucky windage, but they had a couple of the principles down like trigger control and aim small, miss small. Yeah, me and my brother would go hunting by ourselves at like 5 or 6 years old.

Did you know in advance that you wanted to be a SEAL?

My dad did eight years in the Navy, and he had a buddy that would come over when I was young and he would tell these stories, and supposedly he was a SEAL. Come to find out he wasn't, but it inspired me, so I knew I wanted to be a SEAL or Special Forces or something since I was 8 years old.

Did you ever want to quit?

Nope. Not once. I'm a weirdo. I grew up pretty poor and had to work for a living. I actually enjoyed BUDS. I had a good time. It was fun.

Was the first time you were exposed to a serious precision rifle at sniper school?

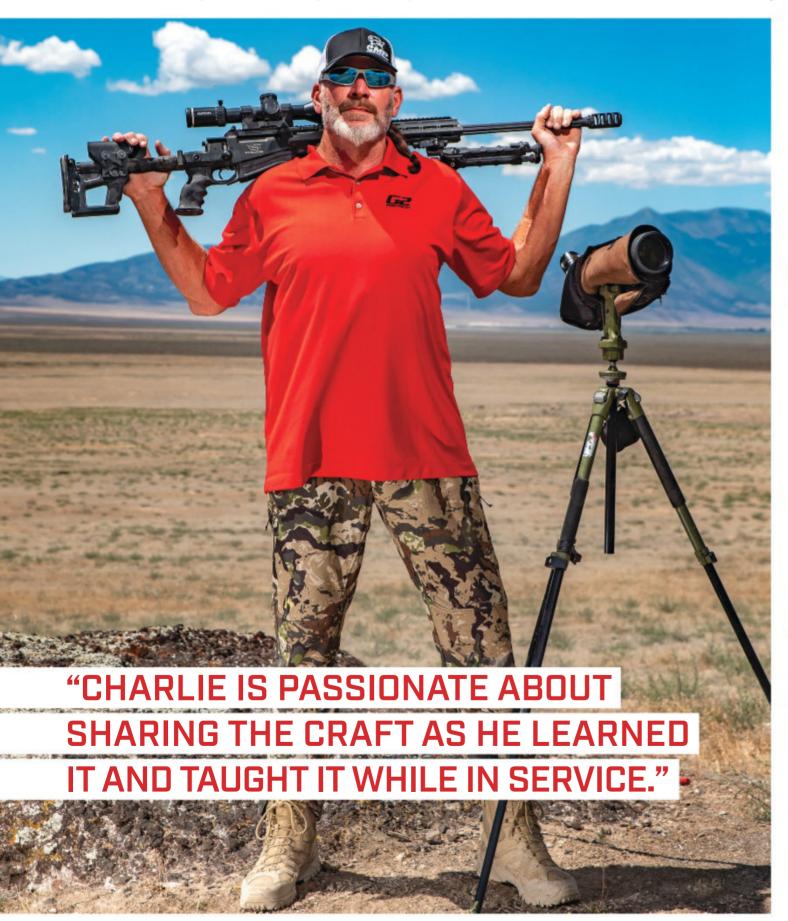
Once I got on my first team, yes. I wanted to be a sniper when I was in BUDS.

Is there a portion of sniper school that was your absolute favorite?

All of it. I loved every part of it—the fieldcraft, stalking, shooting, unknown distance. Sniper school is my favorite school I've ever been to.

What's the most notable shot you've ever made?

Most notable? I shot a guy at like 60 yards with a .50-cal. That's my most notable.





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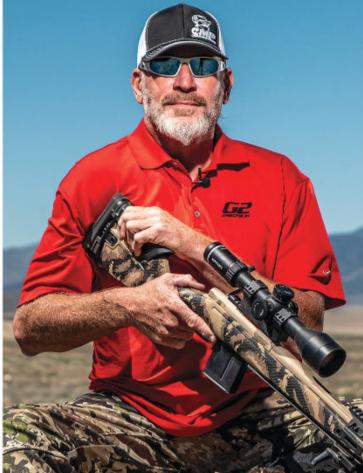












Longest shot...

On paper or combat?

Both.

My longest shot in combat was like 300 or 400 yards. Because most of my operating was done in an urban environment. And my longest paper shot was 5,025 yards.

What's your favorite caliber?

.300 Win. Mag.

What do you like about teaching?

I like interaction with people, and my favorite thing is finding someone who is having trouble with something and being able to convey the information that you're teaching to that person and seeing that light bulb come on and have them get it. It's very satisfying to me.

Do you think the average PRS-style competitor is as good as your average military sniper? Not fieldcraft, but shooting purposes.

You mean all branches of the military? Yeah.

I would say they could probably compete in the shooting aspect with some snipers. Definitely not a SEAL sniper. There's some good shooters out there. Country boys—they can shoot.

Okay. You're a foodie. You love to cook Where'd that come from?

I do love to cook. I used to help my mom and grandma cook all the time, and they taught me a lot. And, my dad and uncle grilled and smoked stuff. In the military I traveled all over

the world, and everywhere I went I'd always have someone teach me to cook a dish from that place. I enjoy cooking, feeding people and making them happy.

What's your favorite food?

Shellfish. I'm a huge shellfish fan. Whether it is lobster, crab, crawfish, oysters, shellfish is definitely my favorite...and steak (chuckles).

What's the most difficult dish that you prepare?

Crawfish Étouffée. It's a crawfish dish with rice and a sauce, but it takes about four hours to prepare to do it right. I learned it from a guy in Louisiana—his grandma's recipe.

The CMP logo. What is it? What's the inspiration?

CM stands for Charlie Mike, in the military that means continue mission. Basically it means never quit, and continue on until you get the mission done. The star stands for independence and liberty. The actual logo itself is a skull. It stands for unachievable mortality. It has a bandana on there, and that stands for protection and humility. The cowboy hat stands for walking tall and striding with confidence. The bone frog stands for the SEAL team, which represents brotherhood and loyalty. The crosshair on the eye stands for focus. So all of the things put together is kind of the principles of being a warrior.

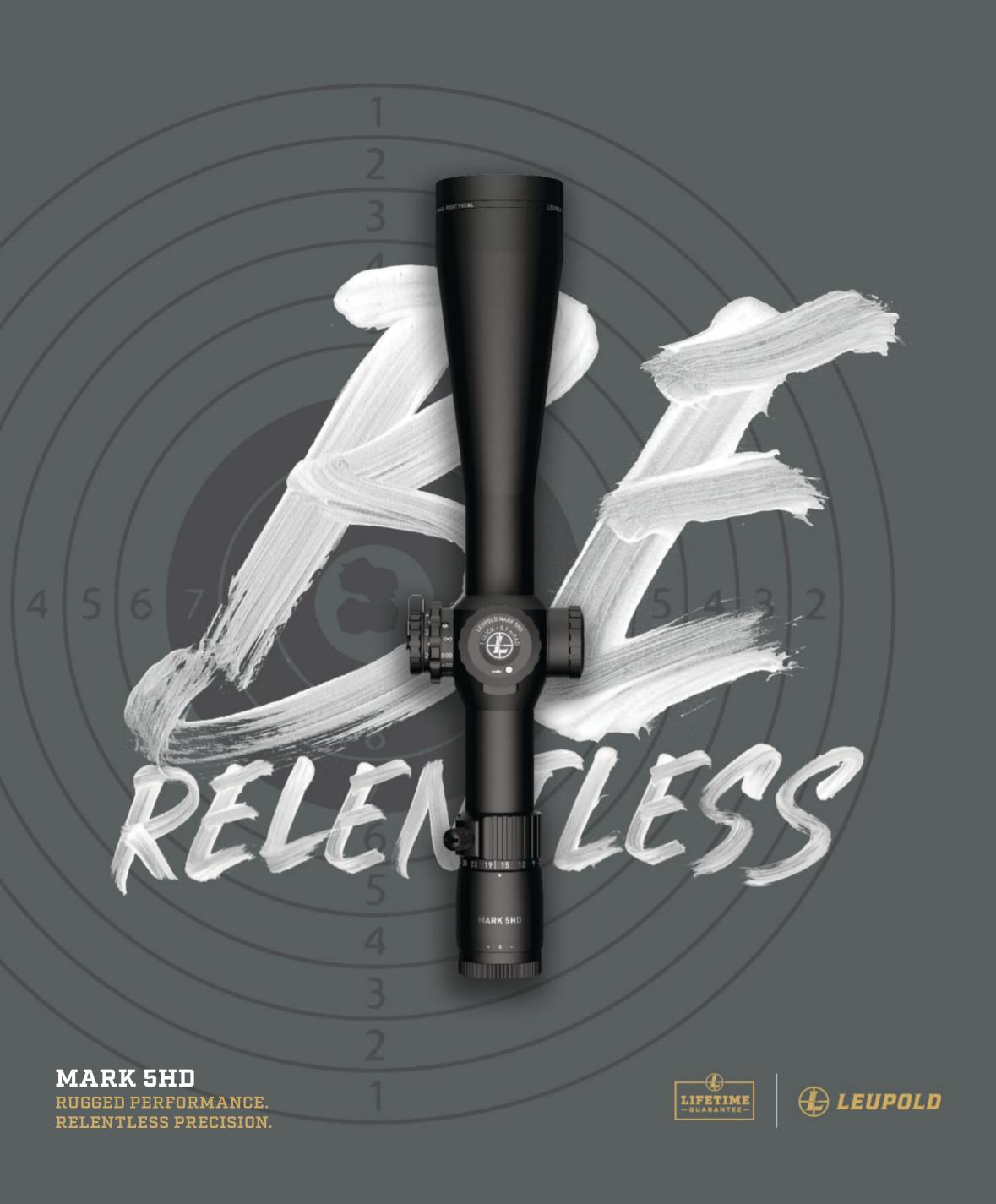
There's a lot of meaning there.

I thought long and hard on that and came up with the logo. And it's funny, you're the only person to ask. I mean people ask what the CMP stands for, but nobody has asked about the logo with the cowboy hat.

CONTINUE YOUR MISSION

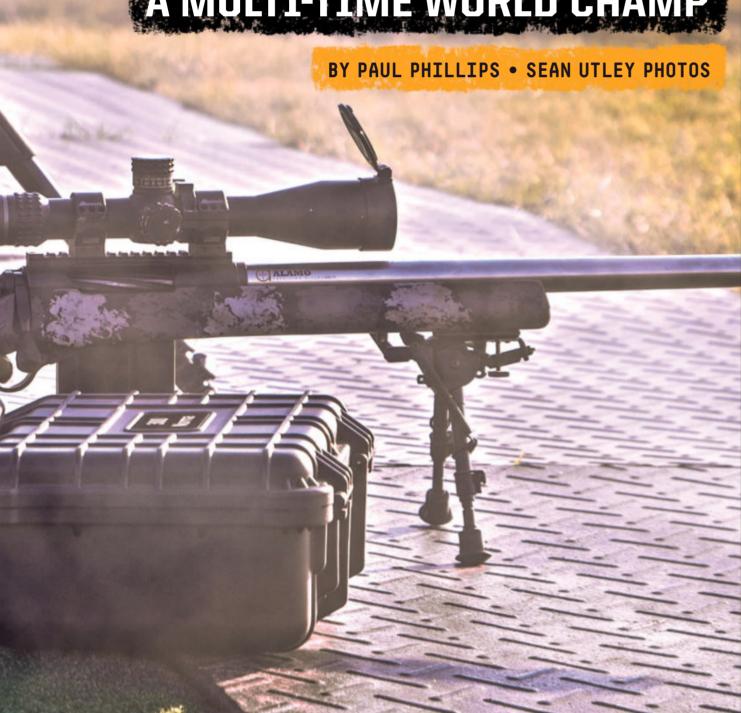
It's interesting to be in the presence of such an accomplished warrior, sniper and precision shooter. After three days, I can tell you that Charlie wants to contribute to the precision shooting community more than anything—both through his rifle instruction and through his amazing ability with food. He spends a lot of time on the spotting scope and beside the shooter giving guidance and feedback, instead of on the rifle saying, "Watch me." If you want to experience what I did (minus the grub), check out CMP at charliemikeprecision.com.

Ballisticmag.com





MASTER THE FOUR ULTIMATE KEYS TO SPOTTING FROM A MULTI-TIME WORLD CHAMP



ost long-range and extreme longrange rifle shots have a very low percentage of accurate first-round impacts. Spotting is the skill set that could determine a successful hunt, saving a life or winning a gold medal on game day. Even if you have the most accurate rifle in the world combined with the best shooter in the world, you still need to be able to identify where the bullets impact to make corrections for an accurate follow-up shot if needed.

5POT ON!

Spotting is the most underrated skill in extreme long-range shooting, in my opinion. We use spotting skills in long-range hunting, competitive shooting, law enforcement, military and recreational shooting. Regardless of what discipline you're involved in and what gear you're using, the skill set and approach should be the same. You want to be able to identify where the bullet is traveling, how the wind is affecting it and where it lands when it makes impact. Once you can master this skillset, the percentage of accurate impacts will increase.

I feel the best way to explain my process for spotting is to break things down in categories. So let's look at target acquisition, ballistics, stability and communication with the shooter.

TARGET ACQUISITION

You need to make sure you know where the target is and be able to locate it quickly on glass. There are a lot of things that can help you perform this skill quickly and accurately. First, you want to make notes before the hunt, mission or match. Any information that you receive prior to spotting that will assist you in

identifying targets quickly will help you find them faster and be ready for the shooter. Most times there will be known terrain features and or manmade objects that will assist you in

identifying targets quickly.

A simple sketch or taking notes can help with this. You can also use a red-dot sight or a low-power

Target acquisition is one of the four most important aspects of doing a good job spotting.

optic to help find targets before moving to a higher power spotting scope with a narrow field of view.

Once you find all of the targets, I like to do a dry run through the course of fire to help remember where the intended targets are located. I keep this routine and practice it, and it becomes a ritual. As a shooter, between each target engagement you should lower your magnification while transitioning to locate the next target, then increase magnification and adjust parallax before taking the shot. Performance eye protection is also very important for being able to acquire your target and see splash as a shooter. Many matches require you to wear eye protection during the match. If you have poor visibility looking through cheap safety glasses, you might have a difficult time. I have tested a lot and discovered that the Pilla Performance eyewear gives me crystal clear visibility and also the protection I need in a match. If you can't see the target clearly through your scope, there is not a high probability of seeing any splash.

BALLISTICS

I use my Kestrel/Applied Ballistics Analytics in my prep for any match, hunt or expected shoot that I might be spotting for. These tools assist me with the direction of fire, time of flight and max ordinance. I'm using science to help me predict the bullet's flight path and expected ETA. I use the Kestrel to give me the direction of fire. I use the AB analytics program to give me my time of flight and max ord. The time of flight is a very useful piece of information. Once you hear the report of the rifle, you can start counting off the seconds in your head. This gives you a very good reference point on when you need to be relaxed and ready to see

"SPOTTING
IS THE MOST
UNDERRATED
SKILL IN EXTREME
LONG-RANGE
SHOOTING..."







SPOT ON!



an impact. It's hard to keep your eyes open all of the time, and this technique will help you avoid missing the impact. Max Ordinance is the maximum height above the axis of the barrel that a bullet will reach along its flight path. This is very helpful in assisting the spotter on where to look for trace/vapor trail while in flight.

Sometimes if you're spotting in heavy vegetation or in wet areas, you may not see the impact or splash of the bullet. You can still pick up the bullets flight path and make some helpful adjustments off of that in relation to windage. This will help with wind corrections. If you can start narrowing down your wind calls, you will increase the chance of seeing splash. I find it helpful to line up directly behind the shooter and start watching at the predicted max ord elevation. If you have trouble picking up the trace, keep looking above and below what you think is the predicted max ord and you will be surprised when you see a big vapor trail. Try not to focus on one point, just relax your eyes and watch for the trace to come up from the bottom of your field of view. After learning how to use these small techniques, it

will increase your ability to identify the bullet flight path and impacts.

STABLE MEANS ABLE

While I was shooting in the finals at the 2017 King of 2 Miles, I discovered that using my riflescope in a prone position was more stable than using a conventional spotting technique. During my finals run, my spotters had a hard time seeing any impacts with their spotting scopes on their tripods while standing. After a few misses, I decided to help them out by staying in my riflescope instead of instantly reloading. This gave me very a stable spotting position. On my next shot I was able to see my splash. I made a quick correction for an accurate impact on my next shot. This caused a lightbulb to go off in my head and made me start thinking about how I could be more stable to help assist seeing the distant signatures. After learning this, I got permission from the match director to use my rifle as my spotting scope to spot for Derek Rodgers in the finals. Using my rifle as a spotting scope, we were successful impacting at 2 miles, which helped Derek Rodgers win the King of 2 Miles.

After this experience, I made it a mission to not only find the most stable method for spotting, but also find the best optics for seeing impacts at extreme long range. The rest of the competition on my down time, I went up and down the lines borrowing people's spotting scopes to determine which scope had the best clarity. I determined the best spotting scope was the Swarovski BTX 95. After acquiring this optic, I found the best method was to mount the BTX 95 on a 35-pound plate with their stability bar. This method keeps you close to the ground and very stable. I found that using a support bag under my chin kept my head stable while looking through the glass. If the glass is stable and your head is stable, you are much more likely to see a small impact. After training all year in 2018 on stable spotting platforms, the methods proved to work when my team, GPG, finished first, third and fourth at the 2019 King of 2 Miles out of 80 shooters. Stability is huge in spotting. Don't just rush into something; take the time to experiment and be able to find a stable platform with quality optics, and your shooter will greatly appreciate the help.



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COMMUNICATION

After being on three world championships teams, 14 national championship teams and three King of 2 Mile championship teams, I have learned a lot about team communication between the shooter and spotter. I like to keep communications very short and to the point with only essential information being relayed. In general, the spotter/ shooter will have a very consistent dialog to each other that is very quick and informative. You may have a dual role as a spotter/wind coach. The first thing you need to do is to make sure the shooter is on the correct target. This can be done by having him tell you some unique identifiers near the target. After you have identified the correct target and you have the correct dope, you take a quick peak at the shooter and his position. Look at the bipod legs, bubble level, rear bag, mag and ammo. You don't need to say anything to interrupt him unless there is an issue that needs to be addressed.

After this you can let your shooter know that the spotter is up. The shooter should let the spotter know when he is ready. When both the shooter and spotter have given each other the up command, the spotter can let the shooter know when to send it. This lets the shooter know that the spotter is ready and waiting for the shot. There might be times where the shooter is taking an extremely long time and at this point the shooter needs to remind the spotter that he is sending the shot. This needs to be practiced so that the spotter is not caught off guard with blinking or staring too long. Both the shooter and

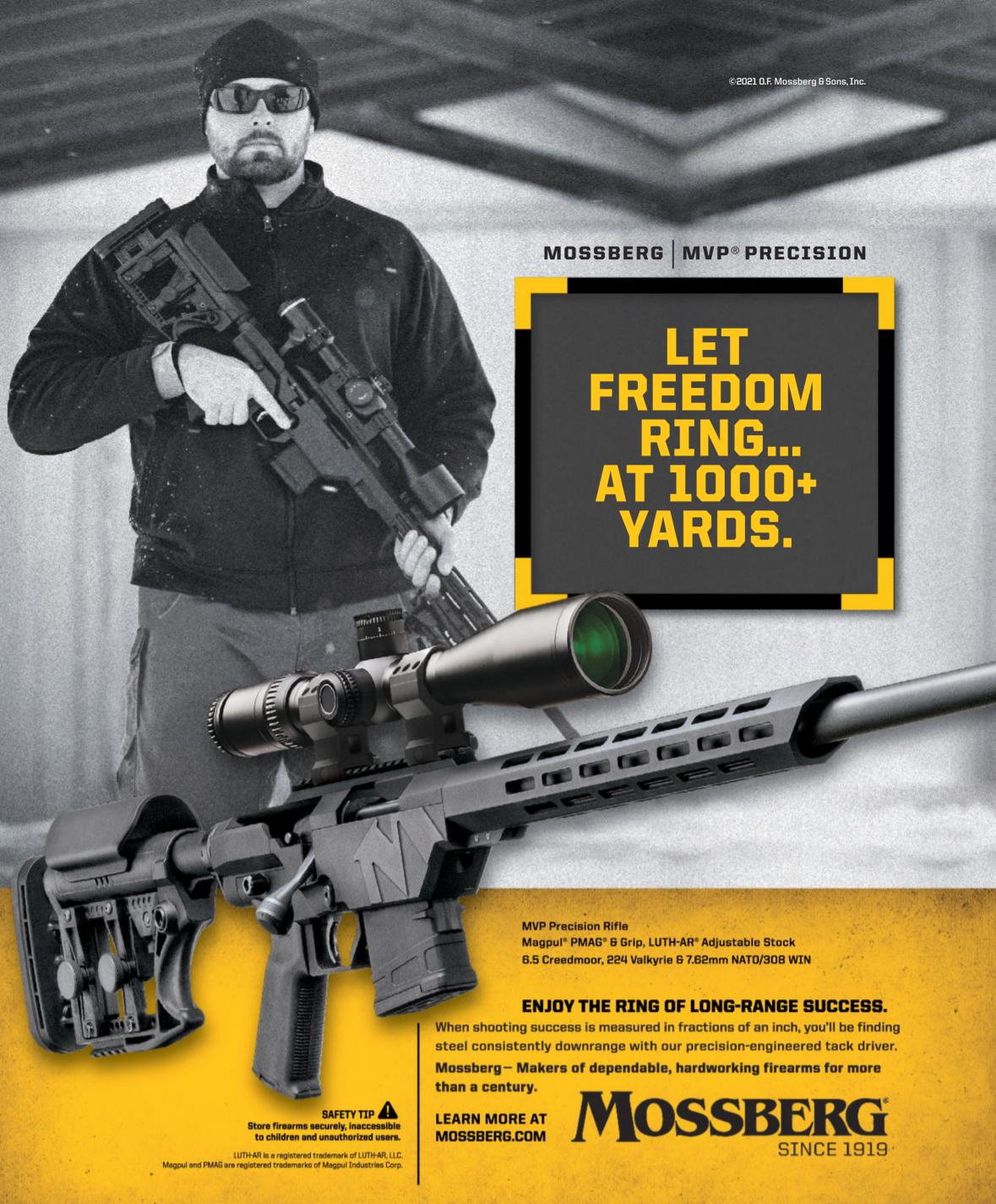
Winning the King of 2 Mile isn't an accomplishment to sneeze at. But to do so, quality spotting is as

spotter need to have excellent communications with not only spotting but with their wind calls, ballistics and shooting position issues. This all leads to success in shooting.

No matter what discipline you're spotting for and what type of gear you have, the best advice that I have is practice spotting like you practice shooting. Try different methods until you make the most out of what you have. Just remember the main points—target, ballistics, stability and communication. Good Luck!



important as great shooting.





SOME TOP SPOTTERS

IN ORDER TO PROVIDE SOLID SPOTTING,
YOU'LL NEED A GOOD SPOTTING SCOPE. THESE ARE
BUT A FEW BRANDS AND MODELS WORTH A LOOK.

1. NIGHTFORCE TS-82: The TS-82 Xtreme High Definition is Nightforce's top-dog optic and features an aluminum body, large precision and easy to use focus ring, and 82mm objective with razor-sharp resolution. This premium optic sports a premium price tag of \$3,000. [nightforceoptics.com]

2. **VORTEX WPER HID:** Shooters have come to know that Vortex will always bring incredible performance and a great value. The Viper HD 20-60x85 angled does just that with a price tag of \$1,350. It has an HD optical system and other premium level features. It's also built tough to handle hard use and the elements. [vortexoptics.com]

3

3. TRACT TORIC: Last year Tract introduced the Toric UHD 30x80 angled spotting scope. It features a 27-55 magnification range, SCHOTT HT glass and an ED lens. The Toric is a lot of spotter for the MSRP of \$1,494. It is also available with either a MRAD PRS reticle or MRAD ELR reticle. The reticle eye pieces can be purchased separately. [tractoptics.com]

4. BUSHNELL LMSS2 ELITE TACTICAL: The LMSS2 Elite

Tactical is extremely durable and made for hard field use thanks to an aluminum chassis with overmolded rubber armor. EXO barrier repels water, oil and dust. It's a straight spotter instead of angled and features a Pic rail for mounting accessories. The reticle options include the H322 or TREMOR4. Both allow for precise ranging. The LMSS2 also has excellent ED Prime glass and is compact and lightweight. The MSRP is \$1,750. [bushnell.com]

5. LEUPOLD MARK 4: Leupold is a tried and true name in the optics space, and while they have many different options for spotting scopes we prefer the Mark 4 Tactical line. The Mark 4 12-40x60 is an excellent spotter and it can be had with mil dot and TMR-type reticles. We think it's best to go with one featuring an inverted H-36 reticle for precise measurements and corrects from spotter to shooter. It's also built tough and will last pretty much as long as you decide to be a lover of precision shooting. Plus, it's one of just a few spotters with a solid history of use by military and LE snipers. Price range is \$1,700 to \$2,626. **[leupold.com]**

6. SWAROVSKI BTK: Arguably the holy grail of sport optics, Swarovski's glass is unmatched. The BTX spotting scope is the top of the heap with clarity like no other. Swarovski's BTX is ultra-premium and priced out of the range for many of us—\$3,110 to \$6,442. But if you're shooting and competing at the highest levels, that won't deter you. **[swarovskioptik.com]** — *Sean Utley*



The Ridgeline weighs in starting at 6.3 pounds and is backed by the Christensen Arms Sub-MOA Guarantee.

Select chamberings are available in a left-handed.





proven bullets for larger game at longer ranges made it even better. My only issue was the need to primarily handload. Consequently, when the 6.5 PRC was introduced, it was time to give it a try. With factory match and hunting ammunition available, it is opened up to a much larger market.

HORNADY 6.5 PRC

The brainchild of George Gardner from G.A. Precision, the 6.5 PRC was designed to touch near the PRS velocity limit of 3,200 fps using a short or medium action. While the 6.5 SAUM was viable, the PRC used a non-rebated rim, fit in more rifles and was more amenable to reloading. A standard magnum bolt face made things easier, as did Hornady's support with brass and factory ammunition. The company's

143-grain ELDX was traveling 2,960 fps from a 24-inch barrel, and the ELDM (match) ammo reached 2,910 fps. Handloads can easily surpass 3,000 fps if necessary. As long-range hunting and competition become increasingly popular, this cartridge bridges a gap between the 6.5 Creedmoor and the big .30-calibers.

LONG AND SHORT OF IT?

When I started looking at the 6.5 PRC, my assumption was any Remington 700 short action or clone is suitable. Talking to various builders, however, it was not that simple—mostly because of the factory ammunition available. Factory loads don't fit the AICS magazines and have feeding issues in some short actions, even with a .300 WSM version. Handloading would fix this, of course, but I

wanted to use factory ammunition and I really wanted to use a box magazine. Accurate Magazines' 300 WSM AICS seems the best fix for true short actions, but after talking to the folks at Alamo Precision Rifles, we decided to eliminate any issue and used one of that company's G2 long actions. This allowed me to test for both hunting and long-range PRS work, plus facilitated a later move to the .300 PRC with just a barrel change.

RIFLE PARTICULARS

Alamo Precision Rifles built a 6.5 Creedmoor for me on its new G2 action that was incredibly accurate and smooth. For the PRC, Alamo's latest G2 long action was fit with a 24-inch barrel using a nice dimpling pattern and capped with an Area 419 Hellfire 6.5mm muzzle brake. The



6.5 PRC FOR ME



scope base had 20 MOA, taking this caliber to its limits with most scopes. I dropped it in a Grayboe Ridgeback that made it suitable for most any use. TriggerTech provided its Diamond R700 trigger using a flat face and covered by a Hawkins Precision bottom metal. The magazine is a long action AICS pattern made by Accurate Mag.

Bushnell's Elite Tactical DMR 2 Pro using a G3 reticle was mounted in a set of Badger Ordnance steel rings, providing a solid platform and ED glass for long-range shooting. An OSS Suppressors Helix 762 QD was used for much of the testing. Given no back pressure, it does not add nearly as much recoil as others, with a minimal first round "pop." Hornady's 147-grain ELDM and 143-grain ELDX were the loads tested.

ACCURACY TESTS

Alamo Precision builds a very accurate rifle, and the TriggerTech quickly became one of my favorite R700 single-stage triggers. Very crisp with no take-up or overtravel, it has a positive reset and solid hammer pressure, even when set to 1.5 pounds. This combo resulted in my first three-round group during break-in using the 147-grain ELDM cutting

RIGHT: The TriggerTech Trigger set at 2 pounds proved to be a real boost to the rifle's inherent accuracy.

FAR RIGHT: The Alamo Precision Rifles action proved to be just as accurate in 6.5 PRC as in 6.5 Creedmoor.





SPECIFICATIONS

ALAMO PRECISION G2

CALIBER:	6.5 PRC	
BARREL:	24 inches	
OA LENGTH:	47 inches (including brake)	
WEIGHT:	11.4 pounds (empty)	
STOCK:	Grayboe Ridgeback	
SIGHTS:	20-MOA rail	
ACTION:	Bolt	
FINISH:	Black DLC	
CAPACITY:	5+1	
MSRP:	\$2,500	

close to a single hole at 100 yards. Post break-in, the best five-shot group was a tad under 0.5 inches. Moving to 300 yards, the groups were nearly the same at just under 1 inch. Groups with the 143-grain ELDX were maybe a bit tighter, but there was little doubt this rifle was accurate—more accurate than me most of the time.

Skipping the middle ground, the next target—a 16-by-22-inch steel silhouette—was set at 1,000 yards. Wind was moderate at 5 to 10 mph. Starting with the listed velocity of 2,910 fps, Hornady's 4DOF iPhone program was used to calculate my 6.8 mil hold. Two rounds to deal with the wind (.5 mils) were followed by three centered on steel. Moving to the 1,308-yard target, the hold was confirmed at 10.5 mils truing at closer to 2,900 fps, but







The 24-inch, dimpled barrel will accept a number of different muzzle devices. The author suggests Area 419's Hellfire brake for the range and a suppressor for hunting.

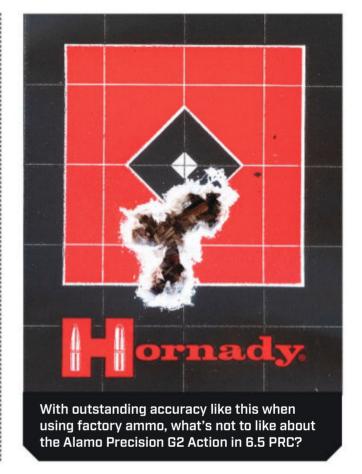
very close. At 1,500 yards on a slightly larger steel target, my first round was centered just off the edge holding 12.5 mils and just under .8 mils for wind. My next five-round string netted four out of five on steel—pretty impressive for a 147-grain bullet.

Just for kicks, I lined up the 1-mile target with 18 mils dialed in and held at the top of the 2-by-2-foot steel. Wind was kicking up, so it took more than a mil to get on, but I confirmed at least one hit, maybe two over five rounds. With no spotter, it's difficult to confirm through, even as clear a scope as the Bushnell DMR Pro, but at least one hit centered on the leeward edge. Likely outside any practical range, it does provide some indication as to how well the bullet holds its own. At a mile, the 147-grain ELDM is still making 1,095 fps, so it's got some juice. But consistent shots at this range are better suited to the .300 PRC or .300 Norma.

OTHER CONSIDERATIONS

My preference remains a standard stock; chassis systems are fine, just not my favorite. Most of my time as a police sniper was spent on a similar stock, making Grayboe's Ridgeback very comfortable. Rested on barricades and obstacles, the flat handguard is stable, bag or not. M-LOK attachments were solid, and the Atlas CAL bipod was rock solid, especially using the spikes. Even the level came in handy at the very long ranges. Cheek height adjustment is easy and stayed in place during testing. Length of pull is accomplished with spacers that are easy to add or remove, and the butt pad is very cushy. As configured, retail was \$624, and it's a ton of stock for the money.

Alamo Precision's action is very smooth with positive brass ejection. Run the bolt hard, and brass ends up about three feet to the right at 2 o'clock. Single feeding was mostly positive. On

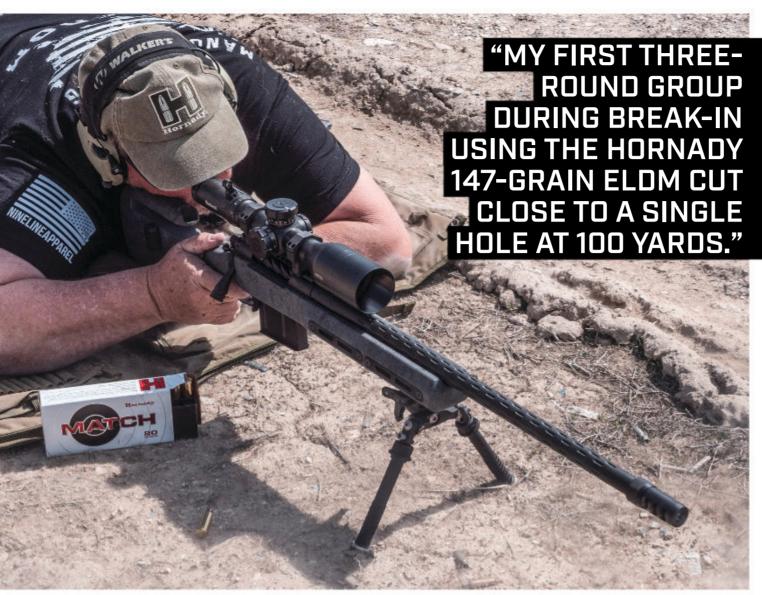


"AREA 419'S HELLFIRE MIGHT BE THE BEST MUZZLE BRAKE USED ON A RIFLE LIKE THIS."

Ballisticmag.com

BALLISTIC 08•09 2021

6.5 PRC FOR ME



occasion I had to double clutch, but generally it slid right in, even with quite a bit of jump. Feeding from the magazine was flawless. The trigger was fantastic, settled on 2 pounds, and it was easy to control and predictable, even on obstacle runs. That's a bit light for me, but this trigger did not give me any issues. Difference in length between the short and long action is about 1 inch, practically unnoticeable during position drills. Side by side with the Ridgeback short action you can hardly see the difference. It's not quite as fast during rapid bolt manipulation, but not enough to matter in a match—at my level, at least. Working in and out of obstacles was comparable, not much difference with the brake attached compared to my short-action rifles. If moving around a lot, I would double up on the hearing protection and use the brake.

Area 419's Hellfire might be the best muzzle brake used on a rifle like this. Blast at the shooter is minimal. I wouldn't want to be next to it, but shooting it is nowhere near as punishing as many. Difference in barrel movement between the brake and suppressor was noticeable, as was recoil, and that's using

60

PERFORMANCE

ALAMO PRECISION G2

LOAD	VELOCITY	ACCURACY
Hornady 143 ELDX	2,968	0.51
Hornady 147 ELDM	2,900	0.50

Groups were five rounds from prone using a bipod and bag for support. Velocities are trued to the rifle using the Kestrel Meter with Applied Ballistics Software at 1,308 yards and proven at 1,500 yards

a no-back-pressure design. I would hunt with the suppressor, but use the brake for competition. The attachment method is ingenious, allowing you to move it between rifles. Plus, it can be timed and tightened with no tools. It will definitely see some use on a couple of other rifles.

Hits on steel from 1,000 yards or longer exhibited much greater authority, moving the steel more than the .260 Rem. and 6.5 Creedmoor. Inside 100 yards, it spun the 12-inch steel quite a bit. At 1,500 yards, hits could be heard much more easily than when shooting



the 6.5s. Energy at 1,000 yards is 1,100 ft.-lbs., falling to just under 600 at 1,500 yards—300 ft.-lbs. more than the 140-grain ELDM out of a 6.5 Creedmoor at both distances.

BOTTOM LINE

Compared to the 6.5 Creedmoor, holds at 1,000 yards are 2 mils less, and closer to 5 mils less at 1,500 yards. Added velocity and a higher ballistic coefficient with the 147-grain bullet really takes over when reaching out. Energy at 700 yards is almost 500 ft.-lbs. greater, and that is important when hunting larger game. This cartridge truly does fit nicely in between the slower 6.5mm rounds and the big .30-calibers. Recoil is about the same using a brake—maybe a bit more with a suppressor—but it is anything but oppressive. It might be more noticeable if using a really light rifle, but not so much it's not worth the difference given the proper conditions.

This caliber is just starting to catch on, and ammunition is starting to show up from other companies. As much as I like my .260 Remington or 6.5 Creedmoor, this 6.5 PRC is all it's made to be, at least for me—faster, flatter and harder-hitting, with greater range and little recoil. Whether reaching out to steel at a match in a stiff wind or hunting larger game at distance, this caliber and the Alamo Precision G2 are excellent choices. For more information, visit aprifles.com.

E (C) CARTRIDGES

PRECISION PERFORMANCE TAKEN TO THE NEXT LEVEL

The Sako S20 Precision is now powered by Sako TRG Precision Cartridges, one of six new & innovative cartridge families developed by Sako and now available in the United States. Developed for unparalleled results in competition and long-range shooting, the TRG Precision Cartridge features Sako's unique brass & a Scenar L HPBT projectile.

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157A

CARTRIDGES CARTOUCHES PATRUUNAA

> 338 Lapu Nakhina Hallov ari

300 Win Mag

11,3 9

Hollow-point boat tail

175 gr

260 Rem

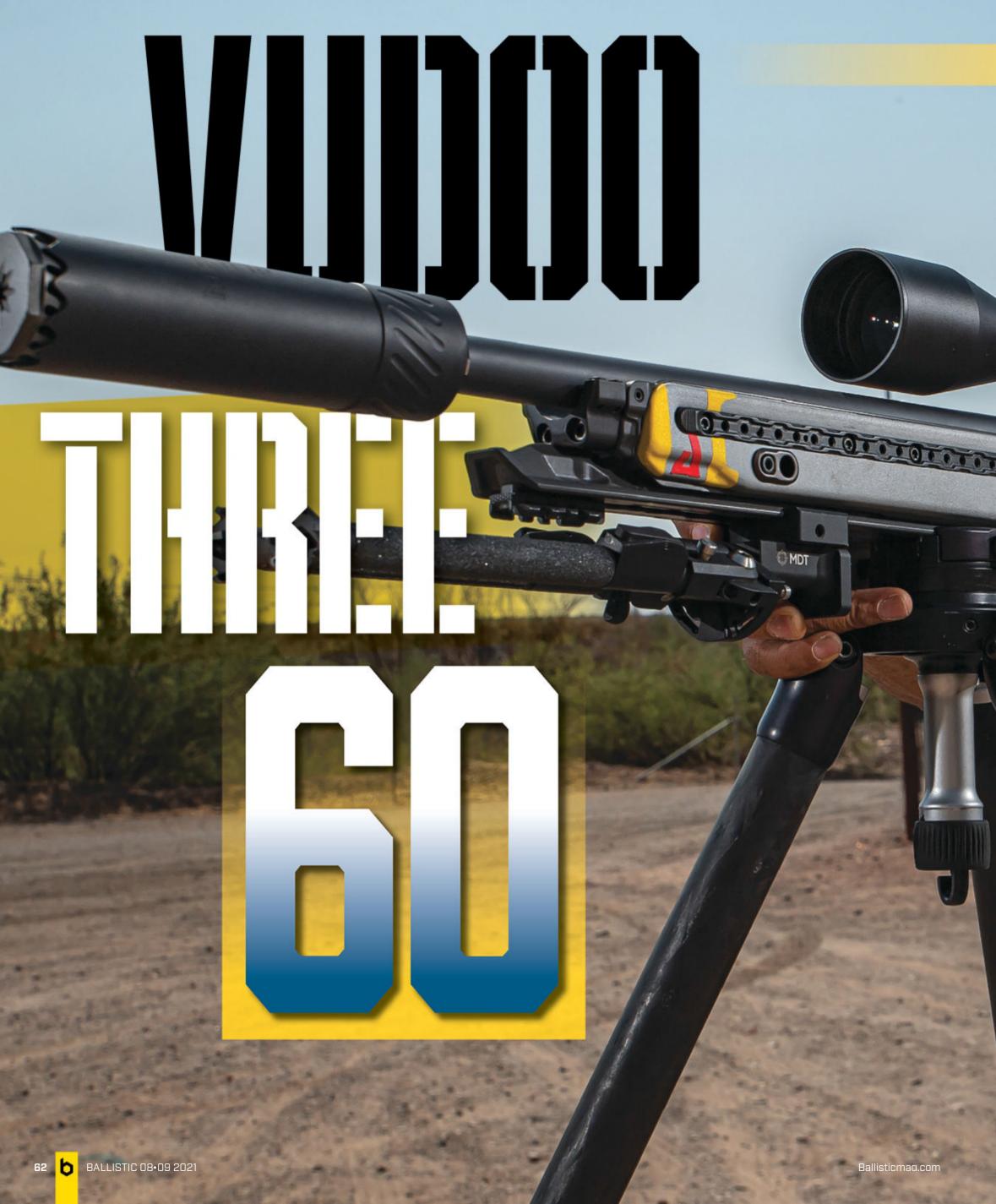
Hollow-point boat tail

Centerfire cartridges

136 gr

Scenar-L

STEINER



ROCKIN' RIMFIRE





hard to believe how quickly time zips by. It's been four years since Vudoo launched the highly sought after, addictive V-22 action, allowing hardened precision shooters the opportunity to build and have a rifle chambered in .22 LR, and yet be compatible from a training aspect with whatever their current centerfire rifle is. The action lets you attach barrels of all profiles and lengths, drop it into a Remington 700-compatible chassis or stock of your choice and hit the range. The magazine was also dimensionally equivalent to the AICS pattern to maintain functional likeness as well. It only lacked the full length of throw of a centerfire bolt action.

The action was heavy, too, made from steel and robust as can be, and you could also dry fire it to your heart's content. Its success and popularity helped drive competitive rimfire series like the NRL .22. Shooters could shoot in smaller venues, with challenging courses of fire and maintain their competitive development while saving a bit of money on ammo, even if the rifle itself still cost as much as a similar centerfire version. Or they could simply use it to practice positional work from barricades at home or elsewhere and disturb the neighbors less.

I purchased a V-22 as soon as they announced left-handed versions and I have since loved that rifle. It quickly became one of my favorite rifles because it was easy to shoot and easy to maintain. If some things needed to disappear, like annoying rodents and the like, it could happen, especially with a suppressor onboard. I shot fairly frequently in my backyard in a particularly nice neighborhood. No one was the wiser.

People will bring up the 40X and yes, that's been around a while. However, it was not

THIS .22 LR UNDERSTOOM ATTENTION

BY SEAN UTLEY

VUDDO THREE 60



designed from the ground up as a .22 LR, but instead is a conversion from a centerfire to rimfire. The 40X also doesn't have full-size AICS footprint mags like the V-22. This is possible because the V-22 utilizes full-size bottom metal and, again, with the Remington 700 footprint it can go in numerous varieties of chassis.

The V-22 would soon see competition, though, and nothing spurs on improvements and refinement like competition. Vudoo then







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Thinking ahead, Vudoo has included a threaded muzzle for the fitment of a suppressor, which is almost a must for a rimfire nowadays.



released a Gen 2 version of the V-22 that had small improvements that are natural throughout any product's life, and they added a tool-less bolt disassembly. This explanation is a bit of an oversimplification because the Vudoo action is truly a state-of-the art design and one that is machined in its entirety. With no broaching, no EDM of the raceway, it's true patented technology.

Now, Vudoo has added to the lineup a brand new version of the V-22 known simply as the Three 60.

BACK TO THE ROOTS

The V-22 Three 60 features a three-lug, 60-degree throw. It's now shorter and faster than ever—not that the previous version with its 90-degree throw was slow. In fact, running the Three 60 is almost comical. The question



VUDDO THREE 60

I found myself asking was, "How much more can I not move my hand?" It's so minimal that it's almost hard to get used to. Almost. But I found that after a couple minutes laying on my belly in the hallway, dry-firing between my pups, it had an excellent feel.

Why a three-lug, 60-degree throw? Well, apparently it was requested by many customers. And like a good company does, Vudoo responded when they realized the demand could support their efforts to with a 60-degree throw, the Three 60 will keep you more inline with that from a bolt



VUDOO GUNWORKS V-22 THREE 60 BARRELED ACTION

CALIBER: .22 LR **BARREL:** 18 inches (MTU profile) **OA LENGTH:** 28 inches **WEIGHT:** 6.6 pounds (empty) STOCK: Remington 700 compatible **SIGHTS:** None **ACTION: Bolt** FINISH: Sniper gray 10+1 **CAPACITY:**

produce it. So, if you run a centerfire action manipulation standpoint. \$1,920 (barreled action only) **MSRP:**

> An all-steel action adorned with the Vudoo **Gun Works moniker** means you've stumbled upon something special. Note the 30-MOA rail and robust bolt stop.



You still get the reliable feeding and extraction/ejection of the Gen 2. The controlled feed of the Vudoo makes it a rimfire ripper. You can run it hard or you can slow it down. Either way it will accomplish what you need it to. The Vudoo has no feed ramp; its geometry is designed to feed .22's without damaging the soft lead tips. This leads to improved accuracy and less junk in the chamber as the lead builds up in all the wrong places as it's shaved off. It doesn't take much to ruin a .22 bullet, and these days they're just as valuable as centerfire rounds.

High levels of accuracy require the right types of barrels, and when you call to order either your barreled action or complete build, you can pick brand, length and profile. I opted for an 18-inch MTU from Bartlein and 30-MOA rail. Other brands will be on the menu in the future. Four different profiles are offered: Specter, Ranch, Kuri and MTU-V. Each has its own benefit or liability in weight and maneuverability. I opted for heavy because my original V-22 is light so I thought this would balance everything out between them. Barrel lengths also vary from profile to profile. Barrel muzzles are threaded to 1/2x28, and I strongly advise taking advantage of a suppressor for your build if your state laws allow for one.

Like any quality centerfire build, there are many other options for the Three 60. It can be had in .22 LR, .17 HM2, .22 WMR or .17 HMR chamberings. The top rail is available in 0, 20, 30, 40 and 60 MOA. Don't laugh. Many rimfire ELR matches demand such angles of attack. The bolt body is one piece with a thread-on knob that allows you to change it out. While my sample is southpaw, you must know by now that RH versions are available.



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VUDDO THREE 60



PERFORMANCE

VUDOO GUNWORKS V-22 THREE 60 BARRELED ACTION

LOAD	VELOCITY	ACCURACY
Eley Tenex 40	1,095	0.25
Lapua Center-X 40	1,074	0.11

Bullet weight measured in grains, velocity in feet per second (fps) by chronograph and accuracy in inches for best five-shot groups at 45 yards.



Your barreled action can also be had in seven different standard Cerakote colors, and custom colors are available for an additional cost.

SET UP

When the V-22 Three 60 barreled action showed up I couldn't get the box open quickly enough. Inside sat the beauty coated in sniper grey, just like my first one, except with a fatter and shorter barrel. I only had a couple of chassis sitting around, one being my prized J Allen Enterprises with special race colors. The grey on the chassis complimented the barreled action nicely.

Before settling it into the chassis I had to add a trigger because they don't come with the barreled action. A Trigger Tech Diamond was slid into place and secured with the included trigger pins.

Once it was together, it only needed a couple more bits and pieces to be shooting-worthy. One thing was an optic, and I grabbed up Vortex's new Venom 5-25x56 that was on hand for this year's optics overview. The EB-7 MIL reticle would work well for the inevitable wind and elevation holds that were to come with shooting .22 LR. After adding the optic, I added at Ckye-Pod from MDT, and connected directly to the Arca rail of the J Allen.

It only needed one more thing—a suppressor. And sometimes that choice is just hard. I couldn't resist adding more weight and lines to this build, so I went with the Nex Gen 2 Max Flo 3D. It's a bit big and a bit heavy and maybe a bit unnecessary for the .22 LR, but I've seen great things happen with this can attached to the original V-22.

SIGHT IN

With the rifle completed the next step was to zero. I removed the bolt and performed a bore sight to get it on paper. I then stepped back to 25 yards to get a solid zero—while standing in my front yard. I do live outside city limits and have a residence that allows me to shoot a .22 without issue, but to do it in silence with no one the wiser is always exciting and satisfying. I used Eley subsonic hunter to get it right in the center of some 1-inch dots, and the next day I headed to the range to shoot groups.

Groups were shot at 45 yards because I could ensure the wind wouldn't have an overreaching effect on the flight of the bullet

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and I couldn't get access to the 50-yard bay at the time. Frequently, our 100-yard bays at the range experience significant winds that will blow over target stands—even ones with nice sized rocks to anchor them down.

The Vudoo did what I expected it to, by running without issue and being an absolute pleasure to shoot. It's an incredible amount of

fun to pilot, especially when suppressed. The mechanical action is exact in its movement with a fulfilling audible element as icing on the cake. And it flat out shot lights out with Lapua Center-X ammo. My best group measured 0.11 inches, which equates to .24 MOA. Given the right conditions environmentally and shooter ability, this is possibly a quarter-inch

he gun at 100 yards. But that would be tough to do. My second best group was 0.18 inches the (.39 MOA) with the same ammo.

PARTING LONG SHOTS

It's easy to fall into the mind trap that the .22 LR is a toy or "plinkster" and not to be taken seriously. But once you pair it with a solid platform—one on par with other custom precision rifles—you start to realize how useful and effective it can be. It's rather easy to shoot them 300 to 500 yards given favorable wind conditions. And with top-performing ammo you'll have consistent hits on target.

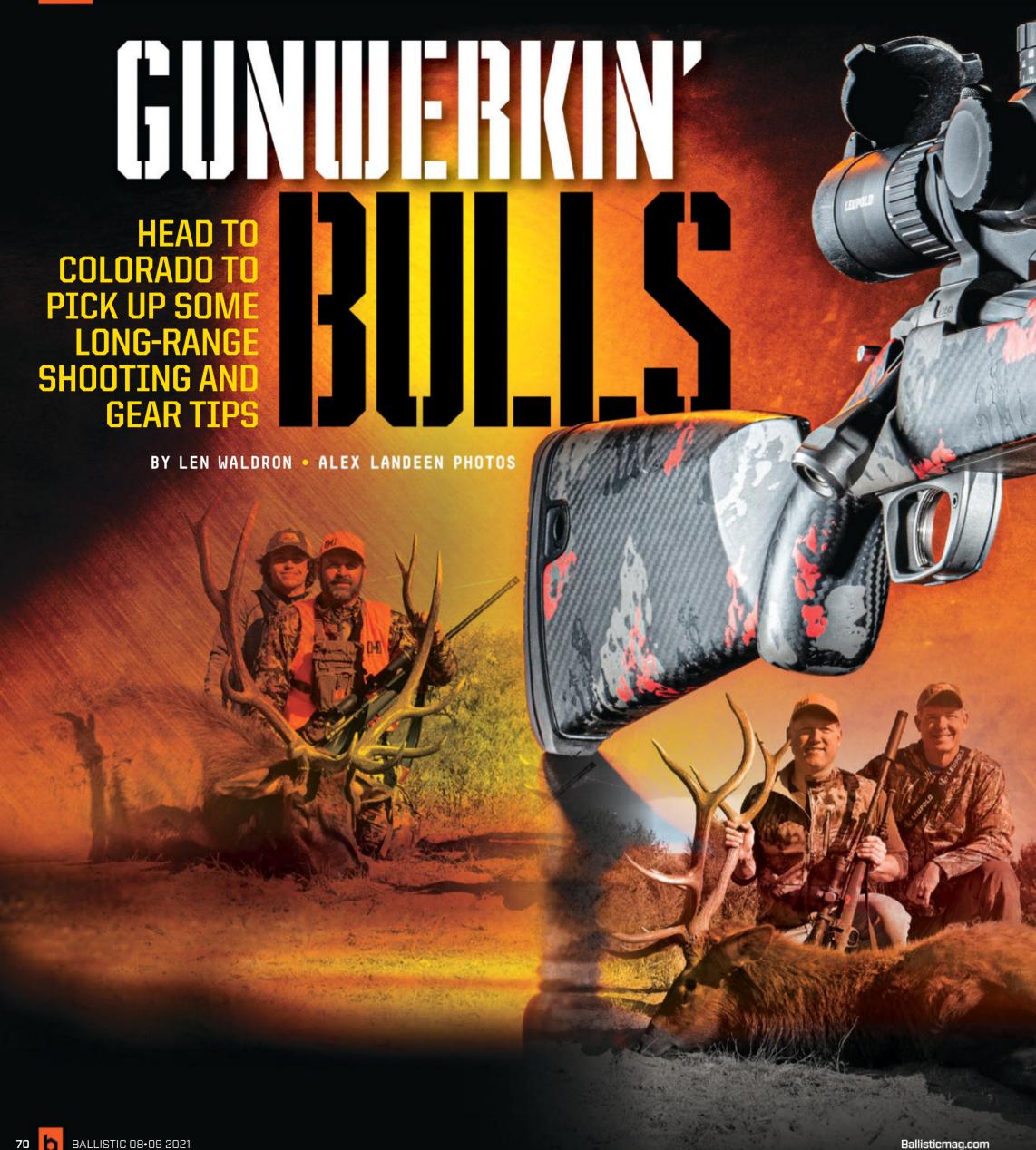
I know it's not for everyone, because you can find some very affordable rimfires out there. Bargains can be hard to pass up. But when you decide to take it seriously and start to understand how the rimfire can be an effective training tool and serious precision instrument, as well as how it can be used to hone your skills, a rifle like the V-22 Three 60 starts making a lot of sense. It can help to bring your precision shooting game full circle. For more, visit vudoogunworks.com.





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GUNWERKIN' BULLS



but also boasts sustainable populations, the likes of which are the stuff of early pioneer journals, not the 21st century.

just north of the 7,800-foot Raton Pass that crosses the Sangre de Cristo Mountains into New Mexico sits a plot of land Eichler's family has worked over the past decade to sustain wildlife and agriculture—side-by-side. The parcel has a few advantages. First, the Purgatoire River runs through most of it, bringing water to an otherwise arid landscape. The property also has several natural springs, one of which Eichler expanded to an impoundment that by one casual count held twelve species of waterfowl. This valley is not an easy place to thrive, as the name of the river implies. Natives along the river attacked and killed many Spanish explorers. Their surviving and outnumbered comrades left behind their remains without a proper Christian burial. As such, the dead

In the shadows of the Spanish Peaks

Spaniard's souls were resigned to purgatory, and the river received its name.

Known as the "East Ranch," the plains are constantly buffeted by high winds, occasional bank-busting thunderstorms and extreme winter temperatures. However, the Eichler's active, intelligent land management both sustains a small agricultural operation and provides necessary cover and food for an abundance of game. There are no high fences here, but on any given day and in many cases, a single field, one can see whitetail and mule deer, antelope, elk and turkey within sight at the same time.

ELK ON THE PRAIRIE

"Most think of elk as mountain-dwelling animals, and they certainly thrive there, but I think that in most cases, we pushed them there," Eichler told me. "They're actually a prairie-dwelling animal, and you get the chance to see that here on the ranch." Though these are the same species of Rocky Mountain elk, the change in habitat and food slightly modifies their appearance. For example, within our small lodge, we have hunters stalking the mountains with others staking out the plains. The antlers of the harvested bulls vary significantly as those from the mountains have a dark, almost chocolate color, while the plains elk are much lighter with flecks of gold within the antler. "It's both what they eat and what they rub them on, but color differences are distinct and different," Eichler said.

Not having pursued elk on the prairie, I elected that option. But a late afternoon arrival meant that I was grabbing a sleeping bag and immediately heading to the enclosed Muddy blind to spend the night so that I could be ready the next morning. I was up for the unorthodox approach but felt a bit of sorrow as I left the smells and prospect of a hot dinner behind. Eichler's rationale for the plan was the elk herd typically came out of the thick cover of the Purgatoire River bottom to feed in the closely cut alfalfa fields at night. Alternatively, arriving at nightfall or daybreak might find the herd in front of the blind and spook them out of the area. Fred credits his time as an animal control trapper for much of his wilderness knowledge. One of

the fundamental



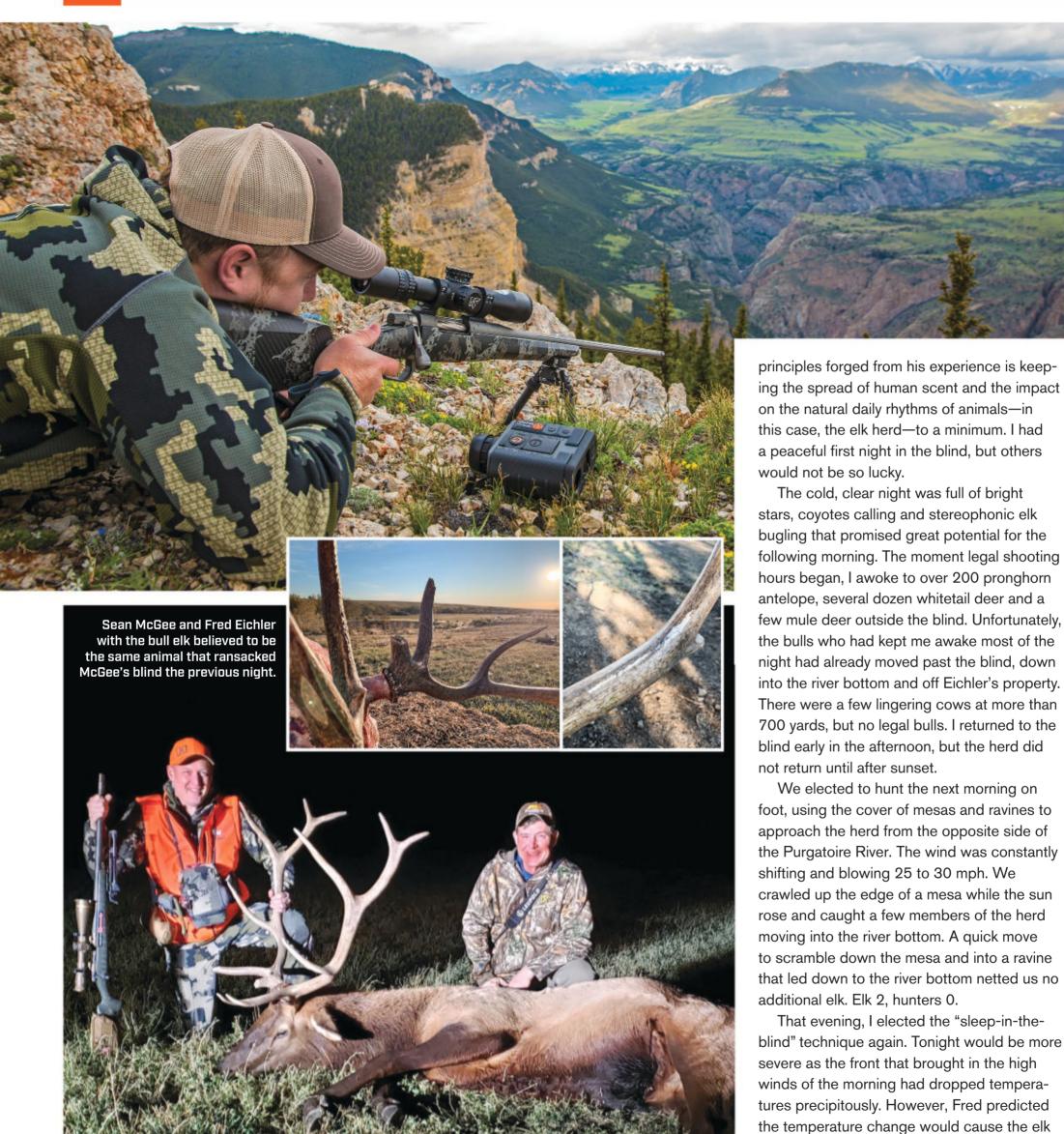
Those wanting a Gunwerks ClymR rifle can choose between stock materials, action types, action metal, action design, trigger types, trigger pull weight, barrel construction, threading and a variety of other options.



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GUNWERKIN' BULLS



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to exit the river bottom before sunset.





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GUNWERKIN' BULLS

Fred was dramatically correct. As the sun began to descend, four scouting cows jumped a low wire fence into the alfalfa field 400 yards to my left. Just over half an hour later, I saw a cloud of dust coming out of the river bottom. It was the entire herd. Over 150 elk came at full gallop out of the river bottom, across a sage flat and into the open field. When the cows arrived, I had ranged them figuring that was likely where the herd would enter the property. I dialed in +4.25 MOA to the Leupold Scope, which was the Hornady 4DOF's solution for 369 yards at this altitude and temperature. I have rarely been prone to buck fever, though, at random times, it strikes. Seeing a massive herd of elk galloping toward me was a joyful sensory overload. The cows were in front, dozens of them. Then mixed with the crowd, the bulls came.

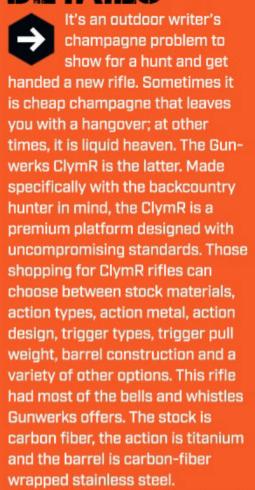
Several of the bulls were large and mature with the bright, light-colored antlers of the prairie elk. I located a large bull and grabbed my rifle and, in doing so, made a rookie error. In my heightened state, I grabbed the rifle by the scope in a manner that turned the elevation adjustment knob. Worse, I didn't re-check it before aiming. The big, old bull gave me a clear broadside view with no cows behind him. I controlled my breathing, held slightly to the right for the crosswind, and broke the shot only to see a puff of dust below and slightly past the bull. I was dumbfounded. The hold

had been good, and the trigger had broken cleanly. I looked up at the vertical turret—2.0 MOA. My ham-fisted snatch of the rifle had knocked two and a half minutes of angle, or almost 4 inches, off the point of aim. The inadvertent turret movement, combined with the blind height and slope of the land, was just enough to push the round under his belly and into the dirt. The sound of the shot sent the herd bolting back to the river bottom. Elk 3, hunter 0.

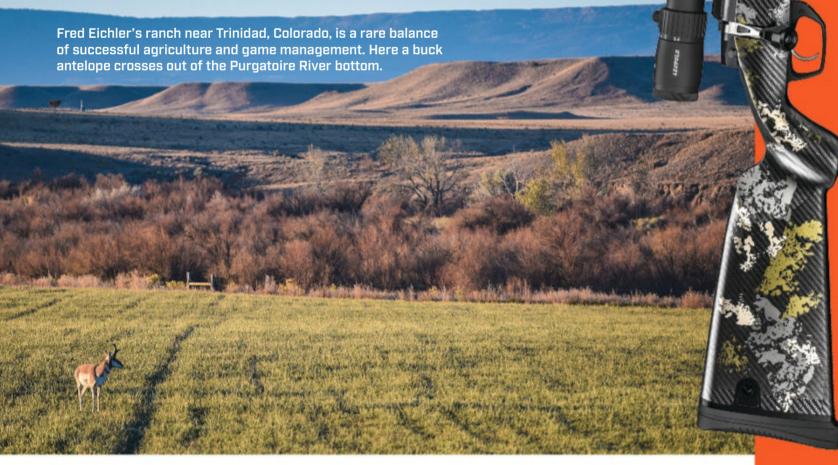
But a glimmer of hope emerged. I had a SilencerCo Omega suppressor attached to the Gunwerks ClymR. Those more familiar with suppressors than fake TV sound effects know the supersonic crack of the bullet is *not* eliminated, but its direction *is* more difficult to discern. The elk heard the shot but weren't sure where it had originated. The herd fled more than 500 yards down the river bottom, forming a tight cluster to the east and off the property. Slowly, the cluster began to loosen. After about 30 minutes, one-by-one, elk began to break away from the group and head back to the alfalfa

group and head back to the alfalfa field. To my astonishment, the first eight animals were all bulls! Later, Fred would confirm the bulls are more physically diminished than the females after the rut and are more motivated to eat and build their strength for the

GUNWERKS CLYMR DETAILS



The result is an impossibly light platform, but the carbon-fiber stock and wrap on the barrel retain the stiffness and heat dissipation typically shaved off of steel and wood or fiberglass to make an "ultralight" rifle. Additionally, Gunwerks can laser etch a turret to match a specific shooter's preferred load and bullet. Not simply light for lightness sake, Gunwerks prides itself on accuracy with an advertising slogan of, "1,000 yards out of the box." The rifle has a price tag to back up the claim, with a scope-included package nearing the \$10,000 mark (MSRP). For this hunt, I used the 143-grain Hornady ELD-X, but hand-zeroed the Leupold scope. Though it may be capable out to 1,000 yards, the Southern Colorado weather was leaning in hard with crosswinds, some up to 30 knots. I zeroed at 200 and recorded adjustments to known distances out to 500 yards. In these conditions, if the elk was beyond that range, he was safe. For more info, visit gunwerks.com. -Len Waldron



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GUNWERKIN' BULLS

winter to come—and these bulls were hungry. Though cut close to the ground and harvested recently, the nutrient-rich and still green alfalfa scrub was too much to pass up.

This time, there were no mistakes in range adjustments, and I was ready. A beautiful 6 x 5 bull stepped into the open at 239 yards, and I dropped him cleanly with the 143-grain ELD-X round. At that range, the Hornady 6.5 PRC bullet hit the elk at more than 2,500 feet per second with 2,000 foot-pounds of energy. It was a quick and ethical end for a magnificent specimen I would savor, nose-to-tail, for food over the winter, and as it turned out, more than a dozen family meals during the COVID-19 quarantine.

In a bizarre epilogue to this story, Sean McGee, with Hornady Manufacturing, decided to take my place the next night, sleeping in the blind. At 2:30 a.m., he texted Eichler that an elk was attacking the blind. Though encircled at its base by barbed wire, a bull elk had jumped over it to feed below the blind and became entangled in the diagonal wires securing the blind to the ground. The animal



panicked and began slamming his antlers into the base and uprights of the polymer Muddy blind. The thrashing went on for some time, and McGee rode out the chaos as the blind pitched and rolled. The elk finally settled down and extricated himself from the wires. The following night, from the same blind, he harvested a mature bull with two freshly broken front brow tines. The same elk? It's impossible to say, but the evidence would indicate so.

CALCULATING THE SHOT

Hornady Manufacturing's 4DOF (four degrees of freedom) ballistic calculator is different from other systems as it measures a projectile's drag coefficient, not the ballistic coefficient. Hornady chose this approach because the ballistic coefficient, the common measure of the efficiency with which a projectile moves through space, changes as velocity changes. Conversely, a projectile's drag curve doesn't change. Hornady's 4DOF calculations combine the projectile's drag coefficient with the exact physical model of their projectiles. The 4DOF system also accounts for the vertical shift a projectile experiences when it encounters a crosswind (known as aerodynamic jump).

The 4DOF system uses windage, elevation and range, as well as the angle of attack (the

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projectile's dynamic movement around its center of mass in relation to its line of flight), in its ballistic calculations. The result is a consistent and accurate prediction of a projectile's path given an accurately measured muzzle velocity. By including the angle of attack, modeling of accurate projectile flight paths increases due to the modeling of drag curves specific to each projectile shape. 4DOF accounts for the effects of trajectory, the projectile's mass properties, aerodynamic properties, responses of the projectile, and movement of spindrift, gyroscopic stability and aerodynamic jump

What is a "Degree of Freedom?" Much less four? A degree of freedom is a term, when applied to physics, that refers to the actions or responses of objects that are independent of each other. In the case of a fired projectile, those actions and responses are windage, elevation, range, and in the case of the 4DOF calculations, the angle of attack.

But what does 4DOF miss? The answer is weather and altitude, commonly referred to as "environmentals." Fear not, however, as Kestrel Ballistics now includes the 4DOF calculator in its Model 5700 weather meter. While 4DOF can tell you where the projectile will fly, the



calculations will not be complete unless critical factors such as altitude, barometric pressure and humidity are included. The Model 5700 allows a shooter to carry one small device, take a weather reading and include that real-time, on-the-spot data to give the most accurate ballistic data possible. It can also communicate to the Hornady 400F app via a Bluetooth connection with your smartphone.

After establishing a zero on my hunt, I used the Kestrel 5700 to collect environmental data and the 400F to confirm scope adjustments out to 400 yards. How does all this tech work in real life, and is it worth taking on a hunt? When I inadvertently moved the scope 2.5MOA by hastily grabbing the turrets, I missed. I made no such mistake the second time, and with the appropriate range adjustment calculated by the 4DOF on the Kestrel, I dropped the elk where he stood. —Len Waldron

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BIG THINGS COME IN SMALL PACKAGES





ven if you aren't into history, you can't escape its awe as a gun owner. For instance, how many companies do you deal with that were around 100 years ago?

When you pick up the Springfield Model 2020 Waypoint, your first impression might be, "Cool, they made a bolt-action now." But, if you scratch your head a little more, you'll remember that Springfield already had a bolt action, and a pretty important one too—the M1903. If you do a little more digging through that brain, you'll realize that this was also the last major bolt action that Springfield designed!

It wasn't exactly a lightbulb moment when I first laid hands on the rifle at the Athlon



Outdoors Rendezvous in late 2020. In fact, it wasn't until several months later that I realized the historic significance of the new rifle. However, once I did, I reached out for a sample because I just had to spend more time with it at home. While the Waypoint might not be Springfield's first bolt action, it is the company's first one built specifically for hunting. It's hard to picture it, but back before the first World War, that M1903 was essentially an "assault rifle" (cue thunder and lightning, so very frightening). Well, "combat rifle" would be the more accurate term, but nonetheless they built it to be dragged into a trench, not up into a tree stand. Springfield's new rifle is built for those looking to explore deep woods



or tall mountains without bringing more weight than they need with them. Through the use of more modern materials and modern manufacturing processes, many of the 32 variants of this model have been shaved down to nearly 6.5 pounds.

WAYPOINT DETAILS

Just as in rifles past, Springfield drew "inspiration" from existing designs and both adopted and enhanced many common features. The 32 varieties of this rifle are split between familiar stainless steel barrels or the increasingly more common carbon-fiber variety. Springfield departs from the norm in the way they build these carbon-fiber barrels, which



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ON POINT





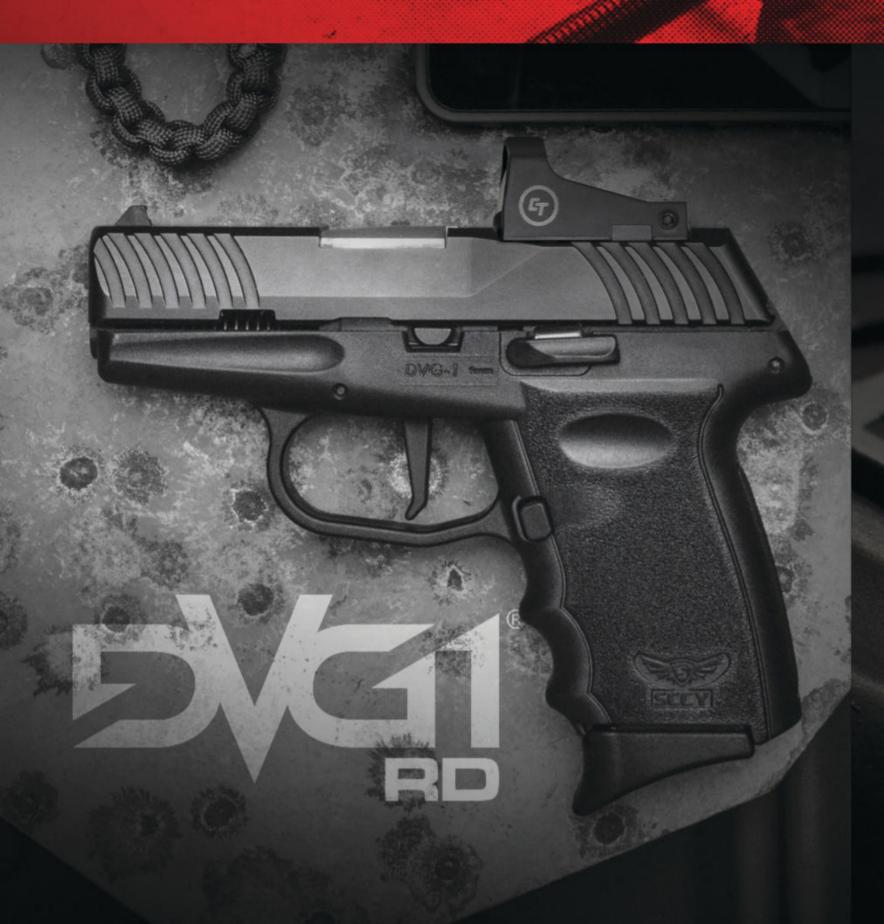
is the defining characteristic of the Waypoint. A typical carbon-fiber barrel is a relatively simple gun part. You start with a pencil-thin barrel and then wrap it with layer upon layer of carbon fiber material, sort of like a roll of paper towels. The Model 2020 is built with the same materials, however altogether differently. That same stainless steel barrel is found at the core, except in this case it is fluted. Why fluted? Well because more than 95 percent of the carbon-fiber material is not going to contact it, so might as well let it breathe. Instead of slopping material directly on the barrel, the barrel is slid into a tube of carbon fiber and then torqued into place by a nut both fore and aft. This allows the barrel to float within the exterior carbon-fiber shroud, leaving room for cooling and harmonics while stiffening the final product without adding excessive weight.

While the barrel is the most critical component to accuracy, it doesn't make a quality rifle by itself. To put rounds into the same exact chamber position each and every time it also takes a precision-built action.

The Waypoint receiver is built from solid bar

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ON POINT

stock with exacting tolerances to include EDM cut railways. This ensures a slick bolt throw with minimal cocking effort and butter-smooth cycling that locks up the exact same way each time you slam a round home. While the refined railways take the edge off of manipulations, they are just the roadway for the nitride-treated bolt that utilized dual camming lugs to balance and reduce cocking effort. After reading all of this, you might wonder if the Waypoint is blueprinted to better align all mating surfaces. The answer is no, because the parts were built right the first time. Blueprinting is the process of shoring up parts after production. While it is an alluring industry term, it's really just telling the end-user, "Hey they weren't perfect when we built them, but we fixed it before we sent the gun to you."

A quality cannon without a quality carriage hardly makes any sense; that is why every Waypoint is complete with a hand-laid, 100-percent carbon-fiber stock. Carbon fiber is a far cry from hardwood or polymer, as it is stronger than both and in many cases even lighter than the flimsiest of synthetic materials. Once molded, the stock is pillar bedded to ensure the most secure attachment possible and then completed with five QD sling points and three reinforced M-LOK slots for bipods or other forward accessories.

All Waypoints come with a one-piece Picatinny rail, and my sample was no different. This rail follows the standard Remington short-action screw pattern, so if you want to change it out for whatever reason there is already a vast aftermarket. Before hitting the range I mounted a Riton 3-24x variable power X7 Conquer across this rail using a Contessa base. I chose this optic for testing because being able to dial down to 3x is important for a gun that might be used to take game as close as 25 yards, yet at the same time having a 6.5

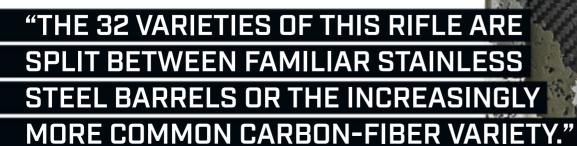
Having a detachable magazine means faster loading and unloading when driving to distant hunting areas, climbing into treestands and crossing fences.



SPECIFICATIONS

SPRINGFIELD 2020 WAYPOINT

CALIBER:	6.5mm Creedmoor	
BARREL:	22 inches	
OA LENGTH:	43.5 inches	
WEIGHT:	6.75 pounds (empty)	
STOCK:	Carbon fiber	
SIGHTS:	None	
ACTION:	Bolt	
FINISH:	Matte green Cerakote	
CAPACITY:	5+1	
MSRP:	\$2,275	



The 2020 is built

just as rigid as it

is lightweight.

with a carbon-

fiber stock, ensuring that it is

















b ON POINT



Creedmoor means that 600-yard shots are beyond realistic, even for semi-experienced hunters. At the same time, 24x is strong enough to count points at typical engagement distances in case you are hunting in one of "those counties."

TO THE PROVING GROUNDS

I was lucky enough to get two different Berger factory-loaded rounds for my range day. I wound up with the 156-grain Elite hunter round that boasts a hammer of a 6.5mm bullet for the Creedmoor case. However, through patented engineering, this slug will stabilize in a standard eight-twist barrel. The other round was the 140-grain Hybrid Match load. This bullet has a well-earned reputation for being extremely accurate, and being that it is built with an ogive that isn't dependent on seating depth for accuracy, it makes it a great candidate for a factory load. The goal was to put these side by side to see how well the rifle shot both for target use and, of course, hunting. This was important for me because between the Decelerator recoil pad, lightweight profile and radial muzzle brake, the gun is just too nice to sit in the safe between hunting seasons.

MAIN PHOTO: The Springfield 2020 Waypoint features a one-piece Picatinny rail, making it ready right out of the box to mount the high-quality optic of your choosing.

INSET: A crisp, single-stage trigger limits shooter error, making it easier to produce dime-sized groups. The included radial muzzle brake reduces recoil and allows you to spot impacts.



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Range day was a cold one for sure—32 degrees with a brisk 8 mph full-value wind, to be exact. In a way, it worked out well because I received the full "Waypoint experience," as I had to layer up in what I normally wear hunting. The crosswind also gave me a good opportunity to demonstrate how well the 6.5mm bullets resisted drift. As the Waypoint boasts a .75-MOA guarantee at 100 yards, it was going to present a challenge—or so I thought. Springfield's rifle not only met the guarantee in the wind, but exceeded it as my tightest three-shot group nearly hit the .25-MOA mark at 0.291 inches. This was done with the 140-Grain Berger Match ammo, however the Berger 156-grain hunting ammo wasn't too far behind at 0.486 inches, still far below the 0.750-inch requirement to stay inside of the .75-MOA guarantee. After the first shot, I quickly recognized the TriggerTech trigger that was nestled away below the receiver. Later, a measurement via a Lyman digital trigger gauge would reveal that it was dialed just about all the way down for a crisp break at just 2 pounds, 10 ounces. Overall accuracy

was determined by shooting the industry standard of five five-shot groups from a rested 100-yard position. Naturally, things open up slightly when you have to keep five shots together as opposed to three, but the results were still beyond impressive for a hunting rifle.

Shooting the rifle in different hunting positions was an absolute joy, as the little weight that comprises the Waypoint

balanced very well. Recoil was a joke, and spotting hits at high magnification was exceptionally easy. The overall function was also flawless as feeding and ejecting commenced without even a hint of resistance. That's pretty cool stuff, especially since they accomplished this through the use of a common Magpul AICS magazine.



My time with the Waypoint came just a few weeks outside of any local regular firearms



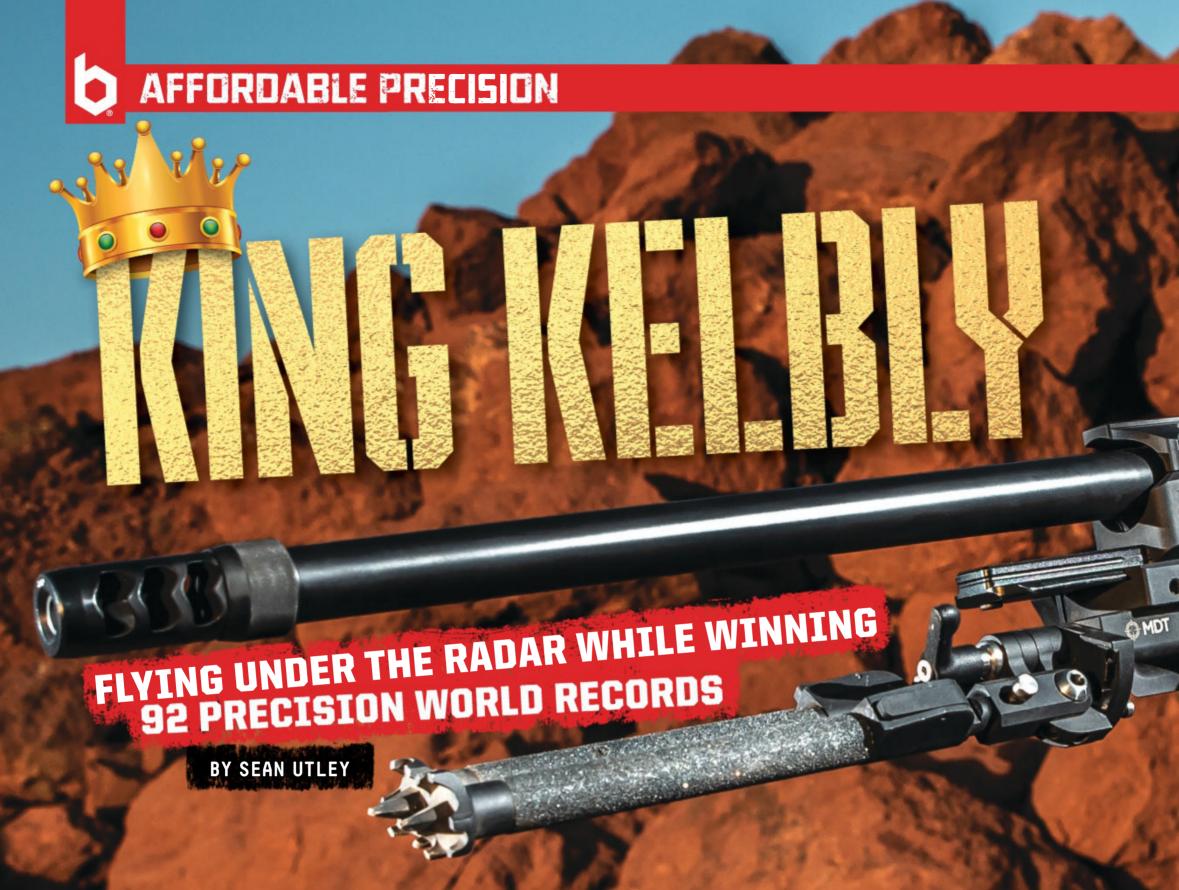
hunting season, so I wasn't able to drop an animal with it in time for this article. However, I was quite satisfied that I got the extended range time with it that I deeply sought after my introduction to the new platform back in Idaho. I thoroughly enjoyed the Model 2020 as a product, but also for its historic significance. I mean, the last time Springfield developed a bolt-action rifle, WWI was on the horizon. Let's hope this isn't another shining example of history repeating itself. For more information, visit springfield-armory.com.

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ow much should a good precision rifle cost? This inquiry comes around more frequently than a bad case of the farts on Taco Tuesday. It's also a

question that brings angst as I attempt to reply. Why? Because I don't actually know how much a good precision rifle should cost. Seriously. I don't know how much material costs. I have no idea about a particular company's manufacturing costs—how much time it takes to effectively turn out a rifle while paying their bills, their

employees and then turning a profit so that they can continue to operate.

The better question is what are your expectations from a good precision rifle? And, we must get closer to matching the term "good" to actual end-user performance and ability. Somewhere in the back of my mind I can still hear the fading echoes of minute-of-angle being that acceptable limit, while my heart knows that's not good at all. Can I just say that's an antiquated standard? It's a standard that I could never live with in my stable of bolt action pew sticks.

KELBLY WHO?

Throughout my firearms related progression and maturation I have become familiar with many different brand names. Kelbly's is/was not one of them, I'm sorry to say. And if you are honest, regardless of where you lie in the precision shooting spectrum, you're probably in the same boat. If I wanted to further drive home this point, I could easily name three other action brands, and you'd have heard of them or considered them, and Kelbly's wouldn't be one of them, even if

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you're relatively new to precision rifles. This leads to my rhetorical questions. Why? How? How does a company with over four decades of doing this and 92 precision shooting world records fall into a popularity abyss?

Ignorance is bliss, until it makes you miss. In this case, I've missed out on referring people to a solid brand and company for many years. It's a company where the people live for precision shooting and producing quality products, regardless of how the popularity pendulum swings from year to year. If

you want the history of Kelbly's, go to their website under the "About" page and you'll get the brief break down. The shortest version is it's a family-owned company here in the United States that has continued to operate, improve and innovate, while maintaining their passion for precision shooting. That trickles down to you and me in the way of refined and functional products. The saddest part may be that 30 percent of Kelbly's business goes to the overseas civilian market. Think, Europe, the UK and South Africa. Say what you want, but

over there, their shooters won't accept mediocre products because shooting isn't the overabundant luxury that it is here in the U.S., and they are willing to pay for quality stuff that will allow them to make the most of every outing.

My first meeting with lan Kelbly was at Shot Show 2019. I met him at the KRG booth while having discussions with them. I'd heard the name before and recalled my one interaction with a Kelbly's rifle from 2016. I distinctly remember how well the rifle shot and thinking "Why don't I know about these guys?"

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KING KELBLY



After a two-day Guardian Long Range match during COVID-ridden 2020, I was lucky enough to have dinner with Ian Kelbly. This guy is smart, and he is a true pleasure to be around. Obviously, we discussed any and everything precision shooting. And here I asked many questions in an effort to build my knowledge off the trigger. Intimately knowing the inner workings of the rifle is my ultimate goal. That takes time and repetition with the right people. Ian is one of those types.

"We don't have a cool name and we're not a gimmicky company," Kelby said. "We don't beta test on our customers. We don't come to market unless the product can hit the floor running. The last thing you want is for a customer to have to send the product back or send them parts for a "fix." This type of professionalism woo's me every time.

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"The tolerances of our headspace hasn't changed since our start. All of our actions have a tolerance of .001. We've had pre-fit barrels since the '90s." When I hear this, coupled with their time in the game, that gives me confidence in their product, even before pressing the trigger on one.

platform that is more race oriented but easily fills multiple roles.

BOTTOM: The Area 419 muzzle brake concludes the business end of the rifle and features rearward-facing ports for good recoil reduction.

NYX IT

An MOA-capable rifle is still more than enough on a vast majority of days, but it's the times when I'm functioning at an elevated level as a shooter, seemingly on ballistic LSD—when for some reason I can do no wrong, driving tacks and taking names, and the wind and I unite as a single working force—that I need my rifle to be better than MOA. These are rare moments when I morph and transform into

of nowhere, and at a moment's notice dematerialize into the ballistic

voids. Yes, it's more moment-to-moment and less day-to-day, but during these brief dances in the precision ballroom, the rifle must be way better than I, for I may never experience this specific performance again. I'm willing to pay for the rifle to never be my excuse for these occasions passing me by. The NYX Elite is one of those rifles. And at \$4,000, from what I've known, seen, shot and owned during my time as a paid professional in the firearms space, it's priced appropriately and affordably.

Actions are the primary building block of precision rifle DNA and Kelby's has perfected the action. The Black Bear Tactical action is a beast, no pun intended. It's stout and bullet proof. Oops. I did it again.

While many, if not most, actions are round, the Black Bear Tactical Action is square and has a flat bottom. It's wide, too. The flat bottom, according the Kelbly's, came about from Ralph Stolle back in 1972.

"The square action is easier to inlet for bedding and has no torque on the action screws," lan told me. It resists twisting, a.k.a.





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rotational torque, that round actions don't. This additional stiffness gives that additional consistency that is hard to measure in some instances but is more easily witnessed in a rifle that outperforms your expectations on many levels. Again, this is worth paying for.

There's always a risk of regurgitating webpage specs at this point, but I won't. You can visit their page to get all the specs on the NYX Elite. Space is short and I want to convey other key features on the NYX Elite that elevate it as a precision rifle, like the Bix N Andy trigger. It's on another planet and I can't verbalize how it feels. The trigger hangs in a bracket with screws—no pins to drive out when you need to remove it.

The bolt is fluted, and the bolt face is flat. I expect bolt faces to be flat, but there is more to it than that. The flat bolt face makes it easier for smiths to chamber for it and allows for better feeding from the magazine. It's available in left- and right-hand versions.

Because of tight and repeatable tolerances, the bolt can be replaced for other chambering options including .222, .208 and .532 for magnum cases.

The recoil lug is beefier than normal, with a .300-inch spec as opposed the to the typical .250-inch of other lugs. Again, how much difference does it make? All the difference when you burn it down at the range on a consistent basis.

GOING FOR 1 MILE

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The NYX Elite did not receive my typical approach to evaluating. It wasn't nearly as structured, basically because I needed to see how and if it would work where I needed it to.

Out of the gate the NYX showed considerable agreement when spitting forth Hornady 108-grain ELD-M's. I put about seven strong factory options down the tube, but the red-tipped pills from Hornady printed 0.4 inches in the first group, then 0.36 inches on a different day. With this, I grabbed the NYX on a last-minute whim to head to the Max Ordinate Academy in California with friend and fellow precision enthusiast Kendl Wong.

I was there to snap images for her article (see page 26) but knew I'd find time to jump on the rifle. Specifically, I wanted to get a feel for the NYX Elite from the belly and positional/barricade positions. With the XLR Envy chassis as its housing, it feels like a proper rifle. The XLR doesn't feel too racy, although that's where it resides in its genetic make up.





SPECIFICATIONS

KELBLY'S NYX ELITE

		A SAN BALLE
CALIBER:	6mm Creedmoor	
BARREL:	26-inch Krieger	
OA LENGTH:	48 inches	
WEIGHT:	19 pounds	
ACTION:	Kelbly Black Bear w/ integral 20-MOA rail and recoil lug	
STOCK/CHASSIS:	XLR Envy w/thumb rest and barricade stop and weight kit	
TRIGGER:	Bix N Andy TacSport Pro single stage	
SIGHTS:	N/A	
GRIP:	Ergo Tactical Deluxe	
MAGAZINE:	AICS compatible	
CAPACITY:	10+1	

TOP: The NYX is a good-looking rifle when maxed out with the Nightforce ATACR on the top rail.

ABOVE: The XLR Envy is highly adjustable and gives the NYX user more capabilities and comfort. The bagrider is a must-have accessory.

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HING KELBLY



VELOCITY ACCURACY

Hornady 108 ELD-M

2,940

0.36

Bullet weight measured in grains, velocity in feet per second (fps) by chronograph and accuracy in inches for best five-shot group at 100 yards.

It's solid and free of any rattles and shakes. It also lacks an abundance of little screws that need periodic maintenance.

Although initially tempted, I didn't add any of the included weights to the Envy, and according the specs the NYX Elite is still a hefty 19 pounds. With the addition of an Area 419 brake and the tender recoil

of the 6mm Creedmoor, the rifle needed no extra weight. Anything else would have been an unnecessary flex.

The PR1 course saw us through many drills throughout several days, and the NYX performed without issue. But it really shined on the third day when we dropped down on the line for the 1-mile target. The NYX shot the mile consistently

and easily, even with wrong-handed righty's on the gun when some of the attendees ran wrong-handed when the Magneto Speed target hit indicator confirmed an impact with

One of the borrower's impacted within eight rounds, which was quite good considering the shifting winds and significant mirage. It was all but impossible to see misses. The second borrower hit on shot number three. After a successful stent on the spotting scope, I then jumped down on the gun and hit on the first

out of ammo. I heard no gripes about it being that crimson flash.

> THE COST OF PRECISION So this brings us back to the original question: How much should a good precision rifle cost? Well, it looks like a great rifle starts at \$3,900. Keep in mind once you buy, and assuming you're not like the myriad of overly-influenced gun gear junkies who changes out guns and accessories like they are sweaty socks, the only change out barrels depending on how many rounds you send down the pipe. And

> round of this string using the same hold as the shooter before me. At 1,760 yards, the NYX

Elite was hardly breaking a sweat. I've said it

before and I'll say it again: Hornady has got

and I've never been disappointed by its

performance in my high-end rifles.

their game together on their factory offerings,

action and chassis will last you a lifetime. You'll I'd encourage you to send as many as your lifespan allows. Barrels are like tires on your car; wear them out, then replace. In short, the NYX Elite is a long-term investment with many years of enjoyment as the dividend.

There are lots of brands out there, but (and at the risk of sounding old) there are some names that are trusted, tried and true. Kelbly's is one of those. They also take care of their customers—the way it should be. So, tell a friend. Get on the web and chop through Kelbly's website. Click on the NYX Elite and buy with confidence. It's what a great precision rifle is. For more information, visit kelbly.com.



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HIGH-VELOCITY ART

favorite big-box store and pick one that looks shiny. If you want to make a first-shot kill on a tangerine at 700 meters (true story), come talk to us.

RAW MATERIAL

The beating heart of a modern precision rifle is the receiver, and we build those from scratch. Each receiver starts life as a 5.3-pound cylinder of 17-4 PH stainless steel. This particular steel is a martensitic precipitation hardened stainless steel that contains around 15 percent chromium, 4 percent nickel and 4 percent copper.

Not unlike a piece of artist's marble, the trick is to meticulously remove everything that isn't a rifle receiver. Each receiver requires about 10 hours to craft. At the end of the adventure, the receiver is as perfect as man can make it. Everything is true, square and smooth in every possible dimension.

We cut our recoil lugs out of the same stainless stock using an EDM wire machine. We then polish them to perfection with a precision grinder. This is what interfaces the receiver to the chassis and it has to be flawless.

EDM stands for Electrical
Discharge Machining. In essence,
a fine piece of wire is electrified as it
passes through a dielectric fluid and
cuts steel like butter. This tiny gauge
wire is precisely manipulated by a
computer-controlled mechanism to cut
complex shapes out of steel stock.

Our receivers begin life as digital models carefully crafted in Solidworks, the shop CAD suite. Tweaking the design in its digital form is a skill that can be learned in a classroom. Translating that design into steel, however, takes passion, dedication and practice—lots and lots of practice.

Our barrels begin as heavy blanks from several sources. The blanks come bored and rifled in either a bull or tapered contour. Different calibers obviously require different blanks. Those like .234 Ackley, 6mm Creedmoor, 6.5 Creedmoor, .308 Winchester and

.300 Winchester Magnum barrels all begin life

as long, heavy steel rods.

These blanks become barrels after they are precisely chucked into a massive lathe and had their chambers cut. Each step in the process requires the utmost patience and precision. The angry end is threaded to accept a muzzle brake or sound suppressor.

We cut our own scope mounts out of 4140 pre-hardened steel using the EDM wire machines. The details of the mounts are scope-dependent and part of the custom building process. We cut the blanks ourselves, mill out the slots and then finish them in Cerakote.

CLASSY CHASSIS

As an integral part of the process we help customers determine the type of stock that will best compliment their rifles, something that optimally suits their personality and application. If the mission is to provide sniper overwatch for your SWAT team, you need a certain type of hardware. If you are going to use your rifle to bag a record bull elk from an adjacent terrain feature, that application demands something different.

XLR builds professional grade chassis, buttstocks, scope rings and rails. We settled on the superb XLR Envy chassis to transport this custom rifle build. The Envy is the product of years of cooperation with some of the finest trigger pullers on the planet. The Envy

"NOT UNLIKE A PIECE OF ARTIST'S MARBLE,
THE TRICK IS TO METICULOUSLY REMOVE
EVERYTHING THAT ISN'T A RIFLE RECEIVER."



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HIGH VELOCITY ART

includes an Arca-Swiss-style dovetail mount to interface the chassis with a camera tripod. There is a 5.5-inch Picatinny rail located on the bottom of the M-LOK-compatible handguard and five QD sling sockets. The various mechanical attributes of the stock adjust to fit your particular anatomy as well as your favorite pair of broken-in boxers. There is also a handy built-in spirit level just below the tang to keep everything true.

The Envy chassis is cut from a solid block of 6061-T6 aluminum and features a multipoint radial cut inlet that cradles the receiver stress-free for optimal stability and accuracy. The integral detachable magazine system accommodates AICS-style five- or 10-round magazines. The magazine well is tapered for rapid magazine changes and sports an angled, serrated face as a barricade stop. The XLR Envy accepts your receiver without any extraneous gunsmithing.

STAND OUT GLASS

The Sightmark Pinnacle offers perfect glass and professional features at a reasonable price. A scope of this sort is a dichotomous paradigm—part precision instrument and comparable part rugged tool. It is designed to tolerate hard use in the field under brutal recoil while delivering surgical-grade precision shot after shot.

Big CNC lathes cut the chambers and thread the ends of the barrel blanks. Gigantic CNC mills conjure rifle receivers out of big chunks of stainless steel.

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The Sightmark Pinnacle 5-30x50TMD is designed for F-class competition and Law Enforcement applications out to 1,000 yards and beyond. This first-focal-plane optic includes zero-stop elevation dials that allow you to easily set a stopping point at the chosen sight-in distance. The 34mm tube maximizes the internal adjustment range and offers improved rigidity compared to smaller scopes. The Pinnacle 5-30x50TMD is the finest scope for the money I have yet encountered.

Sightmark glass offers

rugged construction and world-class extreme

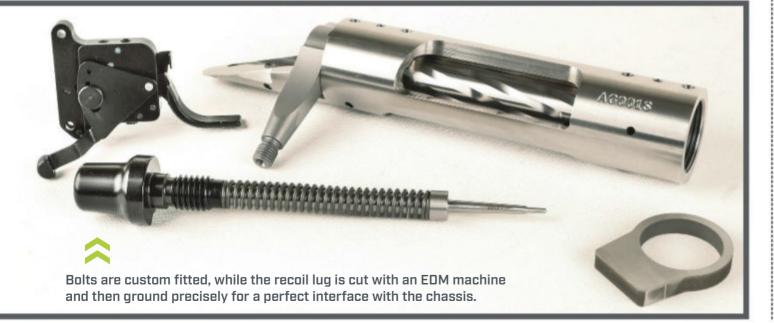
long-range performance

at a reasonable price.

CROWNING THE CREATION

The angry end demands something special. We build our own muzzle brakes that substantially decrease the rifle's recoil impulse. If you want to do it up right, however, we can custom build you a sound suppressor to compliment your particular rifle. Our heavy stainless steel baffles employ turbine stators to disrupt and slow the efflux gases from your rifle's muzzle.

We alternate our baffles right-hand and lefthand to ensure that muzzle blast doesn't either spin the can off or lock it down too tightly to remove. A sound suppressor on a high-velocity



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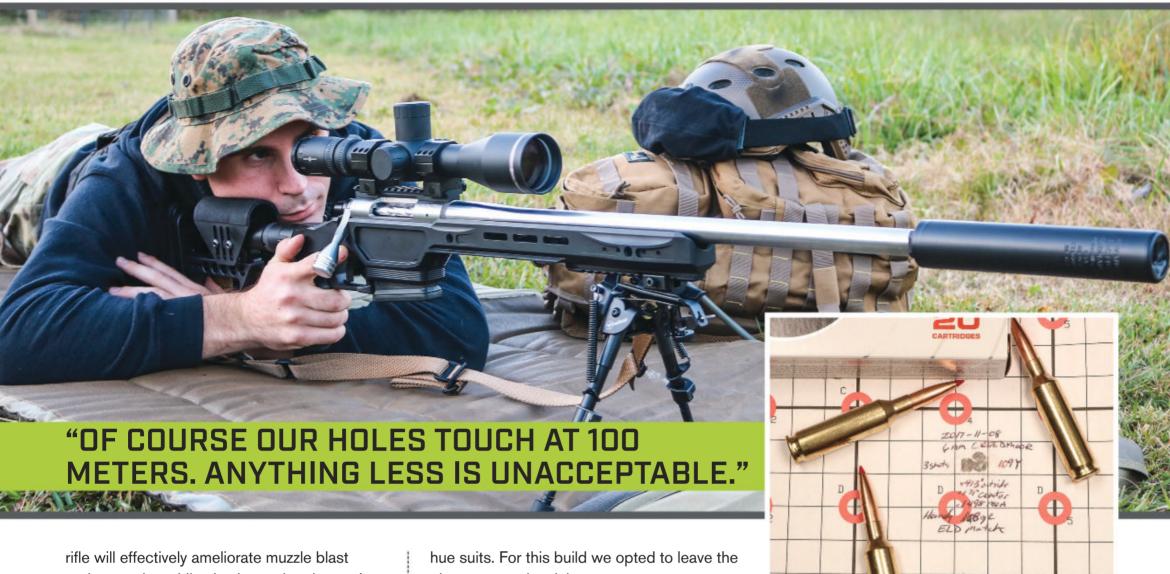


THE KORTH NXR

The new Korth NXR model brings a six-shot .44 Magnum to the legendary roster of Korth revolvers. The NXR is available with a 4" or 6" hammer-forged precision barrel and an integrated Picatinny rail on the frame. The barrel housing has been ventilated for faster cooling while the entire revolver has a DLC finish for a beautiful, yet durable look.



HIGH-VELOCITY ART



and gun noise while also improving the gun's harmonics and handling. It also substantially mitigates recoil and masks muzzle flash.

The trigger module is another branch in the decision tree. Lots of folks make them, and we have used them all. Matching the right trigger to your new custom rifle is part of the art. The rifle we built for this project sports a Timney Featherweight Deluxe trigger.

Lastly, pick a color. Most anything is on the table, so you can have your rifle in whatever

piece a natural stainless.

IT'S ALIVE

Of course our holes touch at 100 meters. Anything less is unacceptable. Once we have printed a few close-range cloverleaves we can move out a bit farther.

The application and particulars of the build will determine the performance. Hunting guns might throw heavy bullets accurately out to

modest ranges. Tactical rifles will demand gnat's-butt precision at 100 meters while still retaining breathtaking performance at many times that. Precision target guns can be crafted to kill fruit of various flavors out to a kilometer or more.

Each rifle is a journey. Each creation has its own spirit. The end result is a gun that is custom fit to a shooter's personality. I've



watched these men handcraft custom rifles for a long time, and it is still a breathtaking thing to behold.

Some artists use marble. Others wield oils. These guys conjure art from steel.

MEAT ON THE TABLE

I'm just a gun nerd who likes to type. Dale and my other two partners, Brian and Durward, actually build the guns. Dale is the guy who built the reloader when he was 12.

Dale recently built himself a .300 Win. Mag. rifle for an elk hunt in New Mexico. He conjured the gun from scratch and zeroed it out behind the shop. His first bull elk was bugling broadside at 465 yards about 200 feet below him across a wide snow-covered valley. Dale dropped the old gentleman with a single shot to the heart. The big bull fell backwards without taking a step.

Later, a companion hunter wounded a bull and couldn't get back on the animal for a follow-up shot. The injured elk crossed a river and began climbing a hillside, rapidly increasing the range. Dale dropped prone behind his rifle while the guide called out distance using a laser rangefinder and spotting scope.

The bull elk stopped and paused at 860 yards. Dale laid his crosshairs on the animal's shoulder, dialed in his scope and sent one. The elk dropped in his tracks.

Two elk. Two rounds. Two perfect shots—one at 465, the other at 860. Both animals dead where they stood. That's what happens when you take an exceptional marksman and build him an exceptional rifle.

FEEDING THE BEAST

This particular creation is chambered for 6mm Creedmoor. It is essentially a 6.5 Creedmoor case necked down to accept a .243-inch bullet. Hornady developed the 6.5 Creedmoor in 2007 using the .307 Winchester as a foundation. The 6mm Creedmoor offers superb long-range performance along with mild recoil. Both the 6mm Creedmoor and 6.5 Creedmoor

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occupy roughly the same space as a .308 Winchester, so they will run in a standard, short-action Remington chassis as well as a properly configured semi-automatic AR-10.

Hornady is a foundational name in modern ballistics, and the company was an early adopter of the radical 6mm Creedmoor round. Their Heat Shield bullet tip resists the effects of aerodynamic heating, and their unparalleled experience in the field of precision bullet design and manufacture offers consistent performance. Whether the mission is hunting, tactical precision for LE or military applications, or fruit shooting at a kilometer or more, Hornady makes the stuff to get the job done.



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SMALL GAME PRECISION

he hunter didn't have far to go. He took a seat on his back porch steps in the predawn blackness.

A cup of steamy coffee sat on the top step beside him to his right and a new .22 rifle to his left.

As the moments ticked by, one, followed by two, and then three green walnuts met their demise as hungry bushytails' staccato gnawing rained shards of walnut husks and shells through the overhead leaves in the nearby woods that began mere feet from the back steps. Moonless, pitch blackness finally surrendered. Cup empty, the hunter hefted the rifle and slid the bolt closed, chambering a round. A quick glance back over

his shoulder, he smiled at the two fogged spots on the back door's lower glass. Two Labrador retrievers sat like stone except for their tails sweeping arcs across the floor, yearning to join in.

MORNING HUNT

The tool that transformed a mere walk in the woods that morning to a hunt was Christensen Arms' Ranger .22. A lover of fine .22 rifles, I've owned Anschutz and CZ rifles that I've enjoyed. Even better, such American-made classics as Winchester's Model 52s, or Remington's Model 37 Rangemaster, and later models, provided iconic style.



trees, I didn't have to go very far before I felt the first spider web. Switching from a casual over-the-shoulder carry, I placed the butt of the rifle on my right hip. The muzzle, pointed up at a 45-degree angle, plowed through spider webs as I ghosted along. It's funny what runs through one's mind on an early-morning trek. Wiping the sticky webs from my face, I'm sure my expression went from grimace to a grin in an instant when the line from a song, "I don't like spiders or snakes," came to mind.

Stopping beneath a tree that I suspected held a bushytail I had

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heard gnawing the nut earlier, I played more of the Jim Stafford hit song in my head while my eyes scanned from branch to fork to trunk and back for something that was out of place. I finally found a round shape that was out of place among the straight lines of branches and tree trunks. He was sitting in a fork, frozen. I flipped up the scope lens covers on the Bushnell Engage scope I had mounted on the Ranger .22. Planting the crosshairs on the squirrel's throat, I applied more and more pressure on the trigger until the sear broke. The rifle "coughed," when the Remington subsonic round left the business end of the SilencerCo Sparrow suppressor mounted on the Ranger. The report of the rifle was guieter than the sound of the "thunk" when bullet met squirrel Number 1 of the morning.

Meandering a few hundred yards over the next 90 minutes, I managed to find and dispatch a couple more bushytails. Moments later, darkening skies started unloading their wet burden. I moved to lower the scope covers and realized that the rear one was missing. I started my back-track, alternately scanning the trees and ground along my back trail.

RANGER DETAILS

Over the past couple of weeks I've gone over the new Christensen Ranger rimfire inch by inch, inside and out, to learn its potential. It's a lightweight rig, thanks in no small part to a heavy-profile carbon-fiber "tensioned" barrel. A benefit of the hand lapping the barrel got at the factory was evident when

I cleaned it during break-in. It required a small number of patches soaked in Hoppes to come clean.

In addition to lapping, the barrel's chamber is cut with a Bentz Match profile. The Bentz chamber is designed to be tighter than a standard .22 LR chamber, but is not as tight as a true match chamber. Specifically, a Sporting chamber measures 0.7751 in length, while a Bentz measures 0.6900 of an inch, and a true Match chamber measures 0.6876. The Chamber mouth cut by a Sporting reamer measures 0.2307, a Bentz is 0.2270 and a Match is slightly tighter at 0.2267. A Sporting chamber's throat measures 0.2270, the Bentz is tighter at 0.2255, while a Match chamber is tighter

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RANGER RIMFIRE

yet at 0.2248. A Bentz chamber also has a 1.5-degree taper at the throat.

I'll be the first to admit that I didn't have the previous chamber dimensions memorized and got the data courtesy of the forum on rimfirecentral.com. What I do know is that a Bentz chamber is a compromise between a Sporting and Match chamber. The Bentz chamber is also referred to as a semi-auto match chamber, since a true Match chamber in a semi will create some extraction issues.

One thing to keep in mind is that not all .22 ammo will fit in a Bentz chamber. CCI Quick Shok, CCI Stinger and CCI LR Shotshell are all too long to chamber... properly. These actually have longer cases, which will be deformed in a Bentz chamber. On some rifles, you may also be able get an out-of-battery discharge if you slam the bolt closed hard enough.

Another premium for the Ranger's barrel is a muzzle threaded 1/2 x 28. I took advantage of the feature and attached a SilencerCo Sparrow .22 suppressor.

Moving to the action, this rifle trims weight

with an aluminum receiver. The bolt has dual ejectors and dual opposing locking lugs. An integral 0-MOA optic rail gives a secure footing to your favorite scope. The bolt handle is threaded. To light the fire, a Trigger Tech Rem 700-style fire control unit is utilized. When

removing the barreled action from the stock, instructions are printed on the trigger unit that it can be adjusted between 2.5 and 5 pounds of pull. Try as I might, however, I was never able to adjust and drop trigger pull weight below 3.5 pounds. Ruger 10/22 magazines are compatible with the Ranger, and a factory Ruger magazine was included. The action wears a black anodized finish.

TAKING STOCK

Mounted beneath is bottom metal with a paddle-type magazine release, and mags drop free with a simple press forward. The rest of the carbon-fiber composite stock offers a lot. At the aft, a rubber recoil pad doesn't really mitigate nearly non-existent recoil, but it does help keep the butt planted in the shoulder pocket without slipping.

SPECIFICATIONS

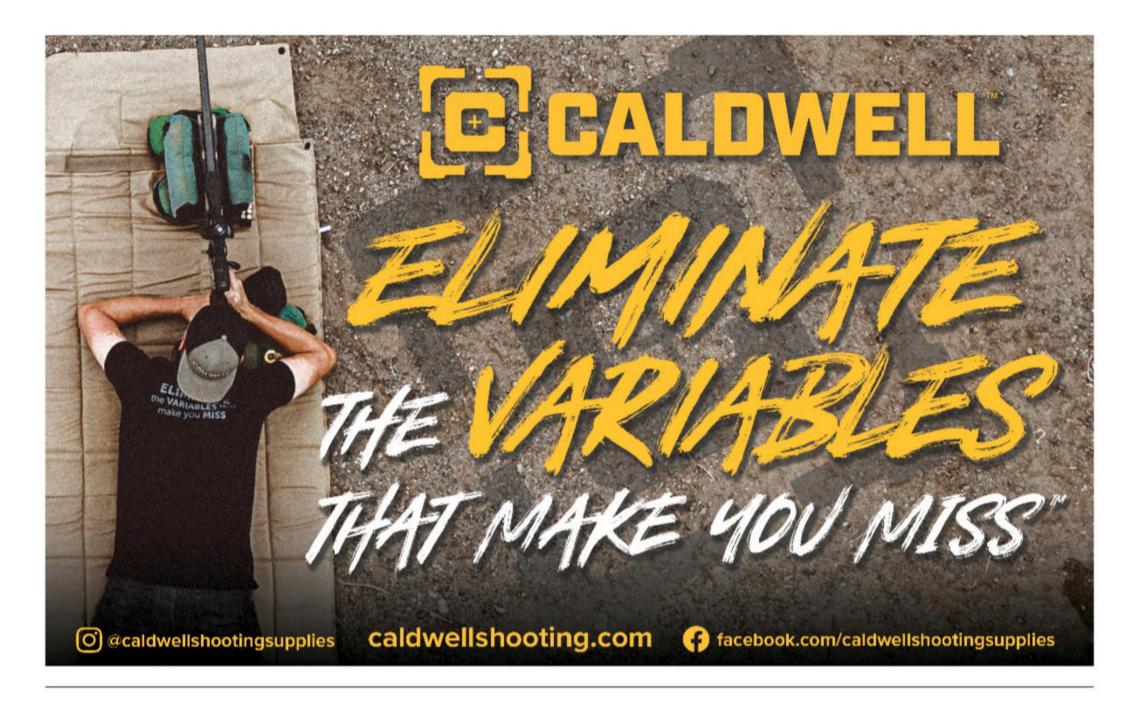
CHRISTENSEN ARMS RANGER

CALIBER:	.22 LR
BARREL:	18 inches
OA LENGTH:	38.25 inches
WEIGHT:	5.1 pounds
STOCK:	Carbon-fiber composite
SIGHTS:	None
ACTION:	Bolt
FINISH:	Matte black
CAPACITY:	10+1
MSRP:	\$799

The stock feels good in the hands; the reason being is that it has a palm swell, which not only correctly positions a large hand to reach the trigger at an optimal place, it gives a bit of leverage to improve trigger press. It's versatile, too. It mounts on the shoulder well, and rides a rest and bags precisely by virtue of a flat forend. Once you're set on the front rest, your off hand can utilize the palm hook to further steady the rifle.



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This rig is made to withstand the elements, and it looks pretty cool. It's offered in black with gray webbing, and the other option is the tan stock with black webbing, like the one tested for this review.

TRIGGER TIME

All of the accuracy features found in this rifle help build toward the factory's sub-MOA guarantee, which is that it will put three rounds inside a 0.524-inch circle at 50 yards. Company representative Dave Melton further qualified their accuracy guarantee that premium match ammo—either 40-grain Eley Tenex or SK Rifle Match Lead Round Nose—provided their guaranteed accuracy.

All that being said, I didn't have any of the high-dollar match ammo on hand for testing. I had seven different loads of standard and subsonic ammo with which I punched paper and bagged a few bushytails.

Testing wasn't as flawless as I expected from a rifle with a \$799 price tag, but a quick trip back to the factory in Utah fixed the issues. It was back in my hands a week later. While I was attending Athlon's editorial Rendezvous, I happened on some Lapua Center-X target

PERFORMANCE

CHRISTENSEN ARMS RANGER

LOAD	VELOCITY	ACCURACY	
Aguilla SuperExtra 40	1,017	1.284	
CCI Stinger 32	1,621	0.731	
Federal Lightning 40	1,200	0.924	
Lapua Center-X 40	1,053	0.371	
Remington Target 40	1,108	0.838	
Remington Subsonic HP 40	1,025	0.688	
Winchester Tin HP 26	1,604	0.764	

Bullet weight measured in grains, velocity in feet per second (fps) by chronograph and accuracy in inches for best five-shot group at 50 yards.

ammo and brought home a couple boxes. Once I got back on the range and ran some of the Lapua ammo through this rifle, it not only met but exceeded Christensen Arms' accuracy expectation. The smallest five-shot group measured 0.371 inches, with the next group going 0.376. That's not bad for a 50-yard group, and certainly small enough to dot a squirrel's eye.



The scope cover I lost on that first early morning foray for squirrels stayed that way, but I did find a quality firearm in the Christensen Arms Ranger .22. If you are looking for a quality, lightweight rifle for small game hunting capable of target-grade accuracy, look no further. For more information, visit christensenarms.com.

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BALLISTIC 08•09 2021

tale of two savages





Ballisticmag.com

BALLISTIC 08•09 2021 to 109



The Savage Ultralight is built for steady offhand shooting, not necessarily benchrest-grade accuracy you would look for in a target rifle. Still, the gun is plenty accurate to get the job done in the field or in the woods.

SPECIFICATIONS

SAVAGE 110 ULTRALITE

110

CALIBER:	28 Nosler
BARREL:	24 inches
OA LENGTH:	44.5 inches
WEIGHT:	6 pounds (empty)
STOCK:	Black gray synthetic
SIGHTS:	None
ACTION:	Bolt
FINISH:	Matte black
CAPACITY:	3+1
MSRP:	\$1,499

HUNTING RIFLE

Let's begin by addressing and understanding the theme behind all hunting rifles, and that is to save weight at all costs. Now, most new gun buyers are under the impression that the overshadowing criterion for a big-game rifle is accuracy—that's not true. To humanely dispatch most big game, you only need a rifle that is capable of hitting within a 9-inch vital zone at 100 yards. To achieve this level of "accuracy," you barely need rifling! Most hunting rifles are far more accurate than this by accident, so they trade a bit of it off to enhance other important features, namely weight. Hunting rifles are shot in the field, where there aren't any shooting benches and more likely than not no real opportunity to successfully deploy a bipod.

With that being said, these guns need to be easy to shoulder and fire in what might be a completely unsupported position. The Ultralite achieves this by using a thin stainless steel barrel that is reinforced with carbon-fiber wrapping, making it light, yet rigid. Weight is further reduced by using shorter barrels, as even a magnum offering, like our 28 Nosler test rifle, only employs a 24-inch barrel. Finishing off this most critical rifle component is a stainless steel cap that protects the 5/8x24 threading to add a sound or flash suppressor or a muzzle brake. This brings us to the other trade-off, recoil. Light guns have less opposing mass, which means far more kick gets transferred to the shooter. For this reason, we topped our test rifle off with a Kahntrol Solutions Brake using the CWES (crush washer elimination system) to make things a little easier on our shoulders.

The barrel isn't the only place where one can save weight; there is also the stock and action. The stock on the Ultralite is pretty straight forward—just everyday lightweight synthetic material. There's no need to reinvent the wheel on that one as it is far lighter than traditional wood or even modern alloys. The action is very unique on the Ultralite, as every last ounce is saved through the spiral fluting on the bolt and the lightening cuts on the receiver. These small details add up to big weight savings; your back will thank you. Everything is fed from a detachable magazine that is flush fit and has a reduced capacity to help it meet DEC regulations for nearly any hunting season, although its slightly smaller



Groups like this will put meat on the table all day long. Unfortunately, they don't display the accuracy needed in order to win a match.





Heavy target guns like the Savage Elite are built to be fired from a supported position. While they're hard to shoot offhand, they are capable of producing outstanding accuracy for those interested in competing at a high level.

BOTTOM RIGHT: The additional weight of target rifles soaks up recoil and helps the guns produce consistently tiny groups, as seen here shot by the Savage 110 Elite Precision.

SPECIFICATIONS

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SAVAGE 110 ELITE PRECISION

CALIBER:	6.5 Creedmoor
BARREL:	26 inches
OA LENGTH:	44 inches
WEIGHT:	12.6 pounds (empty)
STOCK:	Aluminum chassis
SIGHTS:	None
ACTION:	Bolt
FINISH:	Matte black
CAPACITY:	10+1
MSRP:	\$1,999

160-grain Long Range Pro ammunition, which touts a Sierra Tipped MatchKing bullet. Accuracy was fantastic for a hunting rifle, with our average 100-yard groups hovering right around 1.5 inches—not bad for the first round we grabbed off the shelf. That's tight enough to put a confident shot on an elk out to 600 yards, and the 28 Nosler will certainly have the energy to drop it in its tracks. For a 6-pound rifle, the accuracy wasn't the only impressive thing. Unfortunately, the recoil was, too. After installing the Kahntrol Solutions brake it was far more effortless to send another box and a half downrange. However, without it...ouch. The last downside of an elongated range session with a hunting rifle is barrel temperature instability. The thinner, lighter barrels tend to heat up rapidly, changing point of impact as your round count enters the teens. When hunting, this is never a realistic worry, because most hunters will testify that you are lucky to get one shot off, and should you miss, that animal is not going to stand around waiting for a follow-up attempt on its life. Paper, on the other hand, has a death wish—it'll just sit there all day long and absorb an ever-rising string of impacts.

TARGET RIFLE

So, if a lightweight rifle gets hot too fast and recoils a little too much, the answer is to simply swing the other way by adding some mass. The Savage Elite Precision is the epitome of this concept and tips the scale at more than twice the weight of the Ultralite, even in its lightest chamberings. All of this weight makes the gun far more comfortable to shoot and even more accurate, as much of it comes in







the form of extra barrel length and girth. For comparison, I put the Ultralite up against the 6.5 Creedmoor Elite Precision to see how they fared against one another in accuracy and shootability. Although chambered in a much smaller cartridge, this Elite runs a barrel that is actually two inches longer than the 28 Nosler Ultralite and it is significantly heavier as it is 100 percent stainless steel. Together these qualities reduce barrel harmonics and make punching one-hole, sub-MOA groups just plain normal, as was the case with our 140-grain ELD MATCH Hornady ammunition.

Aside from a longer, heavier barrel, the Elite is held together by an MDT ACC Aluminum Chassis Stock that creates a glove-like cradle and gives the shooter the ultimate in comfort and adjustability. The sturdy aluminum material far outweighs the

TOTAL KAHNTROL

There is something to be said about "small batch" anything in this world, especially shooting equipment. My first exposure to Kahntrol Solutions came in the form of a suggestion from a buddy. After calling the number on the website and getting Mr. Kahn himself, we shared a laugh when we found out that I would be filming just 30 minutes from his home.

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tweighs the a barn...from t

With that, he met us at
the range and gave us a
thorough product overview
of his entire line and a little
backstory on how he got
started and maintains a
strong foothold in the brake
game. I was impressed when
I tried his clamp-on brake on

my .308 Win., but was blown away when he let us shoot his .300 Win. Mag. with the stock folded up. With the Crush Washer Elimination System, we were able to install and time our brake right on the range in just a matter of seconds. These brakes take the pain out of shooting and make 6-pound hunting rifles kick like 12-pound target rifles. For more info, visit kahntrol.com

lightweight synthetics used in guns like the Ultralite and, therefore, reduces recoil by giving the gun more mass. The MDT stock accepts larger AICS-pattern magazines that hold more rounds than the traditional flush-fit magazines that are customary on hunting rifles. This adds a little more weight to the package and not only allows, but encourages, longer strings of fire. The same holds for the receiver that is entirely unrelieved because in this case, you want all the weight you can get. Combined with a stock muzzle brake, recoil is all but eliminated, but this comes at a cost—and that cost is dear if you are going to need to shoot this rifle offhand. At just over 12.5 pounds (before adding an optic), you are dead in the water if you are trying to hit anything offhand other than the broadside of a barn...from the inside.

Shooting the Elite Precision off of a bipod or a course obstacle is an absolute dream. The nitrided bolt provides inherent lubricity to ensure smoother cycling when you are on the clock and the enlarged, ambidextrous magazine releases speed up reloads. This feature could be a thorn in your side on a rifle that you plan on tromping through the woods with because a branch or a piece of kit could inadvertently send your feed-box to the forest floor. These guns are built with higher capacity magazines and provisions for fast reloads because they are more comfortable in the long haul, and don't heat up as fast, causing that impact shift that comes with guns from the other side of the rifle realm.

WHICH ONE?

Before choosing your first rifle ask yourself exactly what it is that you want to do with it. Shooters who buy a rifle like the Ultralite expecting a quarter minute of angle accuracy will feel like they've been cheated because the value in this rifle comes in its ease of shooting unsupported and the comfort of carrying it over a long run of rough terrain. Those who are considering the Elite Precision under the premise that all of that extra accuracy will make it easier to shoot in the standing position are going to realize exactly how heavy a 12-plus pound rifle is and what that means to your wobble area. At the end of the day, do some deep consideration of what the ultimate goal is for your shooting career and remember to comfort yourself in the fact that gun safes can hold more than one rifle. For more information, visit savagearms.com.





More than just another striker-fired pistol, the P-10 is decidedly CZ, from the way it feels to the way it shoots. Industryleading features, legendary build quality and superior shootability make the P-10 stand out from the crowd. The world is full of followers 🔪 – take your own path.

Experience CZ.

CZ P-10

@CZUSAFIREARMS







MATCH-READY AR





as that horse has been beaten to death. However, if you are looking for something worthy of that title, but that will also bag that trophy elk or buck, then perhaps your search is over.

MEET THE BEAST

The PWS MK218 MOD 1-M is truly a rifle all in its own class. This is due to the legendary three-position, long-stroke gas piston that is used in all of PWS' weapons currently being offered, save for their PCC line. Think AK-47 reliability that has been adapted to work in an AR.

At a suggested MSRP of just over \$2K, it's an affordable option for a "Match" grade chambered .308 modern sporting rifle. PWS packed the MK218 full of great features, while not adding a bunch of fluff to inflate costs. They kept it simple, thus









PISTON-ORIVEN PRECISION

SPECIFICATIONS

PWS MK218 MOD 1-M

CALIBER:	.308 Win.
BARREL:	18 inches
OA LENGTH	36.75 to 40.25 inches
WEIGHT:	6 pounds, 15 ounces (empty)
STOCK:	Bravo Company USA
SIGHTS:	Troy 45-degree offset
ACTION:	Gas piston semi-auto
FINISH:	Black
CAPACITY:	20+1
MSRP:	\$2,199

As built, the ultra-accurate Primary Weapons Systems MK218 MOD 1-M in the right hands is a 1K-plus-yard rifle all day long. allowing for a lower MSRP, while letting the individual owner to customize the MK218 to their own liking. Let's face it, everyone has their own favorite brand of trigger, muzzle device, grip, stock, etc.

One argument against gas piston rifles is that they are heavier than their direct impingement cousins. That is an old argument, and really no longer a valid point with today's technology. In its factory configuration, the MK218 MOD 1-M is 9.02 pounds for an 18-inch-barreled rifle chambered in .308 Match. Now if we compare it to its direct impingement relatives, one will find the differences between the two ever so minute, or even the DI rifle being heavier and more expensive. For instance, the Daniel Defense DD5v4 (\$2,933) is 8.6 pounds with an 18-inch barrel, Knights Armament KAC SR-25 E2 CC M-LOK (\$5190) is 8.4 pounds (16-inch variant), and the Larue Tactical's OBR (\$3370) is 9.5 pounds (18-inch variant). Another comparison worthy

of mention is that all of the above-mentioned rifles are substantially more expensive than the PWS MK218 MOD 1-M. This leaves more money left over for upgraded triggers, glass and bullets, so it's a win-win.

FIREBREATHER

PWS knew that the end user might want to customize these rifles to their own liking, but that didn't stop them from offering top-shelf quality components to make this a great MSR. The upper and lower receivers are forged from T6-7075 aluminum before being anodized in black. Having forged receivers is a bonus, as forged is the stronger choice. Next they added an 18-inch stainless steel, button-rifled barrel with a 1-in-8-inch twist. PWS decided to upgrade the MK218 with their .308 "Match" chambering, to squeeze more accuracy out of this tried and true powerhouse of a round. Then they capped it off with PWS' own legendary PRC30 compensator on the end. For those that don't know, it's the same compen-



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COMPACT



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PISTON-DRIVEN PRECISION



make it one of the softer shooting MSR .308's out there.

Next, PWS added a 15.1-inch free-floated, M-LOK-compatible handguard. It offers a continuous rail on top, with three rows of M-LOK slots on either side, and one row on the bottom. Supplied from the factory was a Radian Raptor ambidextrous charging handle, as well as PWS' own custom ratchet lock castle nut design, with built in QD socket. It's actually a great design; no more staking the castle nut, no more loosing of the castle nut if you don't. That's a positive innovation to help make the AR a more user-friendly modern sporting rifle. The supplied stock and grip from PWS are standard Bravo Company USA furniture.

CUSTOM TOUCHES

The stock trigger in the MK218 MOD 1-M isn't bad at all. It's a single-stage trigger and will more than get the job done. However, if one wants to squeeze as much accuracy out usually called for. For single-stage triggers, triggers for a very fair price. However, for this long-distance negotiator, a two-stage trigger was preferred.

After surfing the Geissele Automatics website for quite some time, the mental vapor lock began to set in. There were lots of

of a rifle, a trigger upgrade from the factory is Rise Armament makes some exceptionally nice great choices, but the new Super Dynamic Enhanced (SD-E) 2-Stage trigger seemed like the better choice for this application. It seemed like the perfect pair when mated to the MK218. Our Wheeler trigger pull scale put the SD-E at a total combined pull weight of just a hair under 4 pounds. As I pulled through the second stage of the SD-E, I could feel it snap like an icicle. It's hard to describe, but be assured that the SD-E will put a smile on your face. The flat trigger bow really is a welcome change from the "norm."

It seems evident that this rifle was designed to be a highly effective long-distance communications provider. As soon as we got our hands on the MK218, instantly that old AT&T commercial jingle from the '80s came to mind, "Reach Out, Reach Out & Touch Someone;" well, something anyway. We knew that exceptional quality glass was needed, but without breaking the piggy bank wide open. And nobody wants to show up at the range with a nice high-end rifle that's wearing a cheap, dime-store scope.

For this test, we selected a Primary Arms Platinum Series 6-30x56 FFP with the ACSS HUD DMR reticle. To keep it safe and secure. we mounted it in a Bobro Engineering 34mm Dual Lever Precision Mount. I've seen another scope take a beating in this same mount and come out the other end laughing. Yes, admittedly this scope is probably a little overkill, but so far, it's a great scope, especially at \$899. It's made in Japan, and carries Primary Arms legendary lifetime warranty. One of the most attractive features, though, is the ACSS reticle. If you head over to PA's website, your brain might freeze up while trying to decide on which reticle for which scope. There are many different variants of the ACSS reticle. Simply put, the Advanced Combined Sighting System





The author found the ACSS HUD DMR reticle very easy to use. What's not to love about zeroresettable turrets, NV compatible, easy to toggle between magnification ranges with gloves, and a lifetime warranty?



ADDITIONAL FEATURES:
EASY IN / EASY OUT PUSH PINS AND MODULAR DISASSEMBLY
ACCEPTS TRIJICON RMRCC TO MICRO OPTICS
LOW PROFILE SLIDE STOP LEVER
5.2" BARREL
3 DOT WHITE SIGHTS
ANGLED REAR SIGHT EDGE FOR EMERGENCY ONE-HAND OPERATION
ERGONOMICALLY REDESIGNED BEAVERTAIL





PISTON-ORIVEN PRECISION

(ACSS) makes shooting at any distance that much easier.

RANGE REPORT

Range time was a hoot. We took the PWS MK218 MOD 1-M to a 1,000-yard range not too far from us. We shot from a tabletop and an Accu-Tac Bi-Pod, and were banging away at steel out to 700 yards. The Accu-Tac bipod is solid as a rock, and ringing steel was made much easier. The MK-218 cycled like a champ for us, no problems to report. That's not too shabby for simply using Prvi Partizan M80 FMJBT 145-grain rounds. All in all, performance was very impressive for a brand-new rifle.

PWS didn't leave much out in order to keep the price point affordable. However, if a company starts adding all of the bells and whistles, then the price tag ends up going into sticker shock territory. Sling swivel sockets being built into either side of the handguard would be nice. Not having a forward assist isn't a deal breaker, either, as it's not really needed unless you are crawling around in nasty crud and want to press check it. Even then, a press



A shooter delivering precision shots from the prone position with the PWS MK218 MOD 1-M. With the outstanding features included in this top-quality rifle, doing so isn't as much of a chore as you might think.

check can be made by simply using the indent on the side of the bolt carrier and pushing forward as Eugene Stoner originally designed. However, I've had its little brother chambered in .223 Wylde (MK116) through some nasty crud over the last couple of years and only clean it every few range trips. The PWS long-stroke gas piston is unarguably reliable, and keeps the chamber much cleaner and cooler than its direct-impingement cousins. On the plus side, we know that we can fire a case or so of ammunition through it before even remotely needing to wipe the piston down. One can simply run a Bore Snake

PRODUCT WARNING AND RECALL NOTICE BROWNING® 9mm Luger 115 grain FMJ

Browning Ammunition is recalling the following lots of 9mm Luger 115 grain Full Metal Jacket pistol ammunition.

Symbol: B191800092. Lot Numbers: SC13LD20, SD10LD20

Note: If ammunition was purchased before March 25, 2021, it is NOT subject to the recall.

Browning Ammunition has determined the above lots of 9mm Luger 115 FMJ ammunition may contain propellant that does not properly ignite and burn when the cartridge is fired. Ammunition containing propellant that does not properly ignite and burn may result in a bullet remaining in the barrel (i.e., a bullet-in-bore obstruction). Firing a subsequent bullet into the bore obstruction could cause firearm damage, rendering the firearm inoperable and subjecting the shooter and bystanders to a risk of serious personal injury.

DO NOT USE BROWNING® 9mm Luger 115 FMJ SYMBOL B191800092 THAT HAS LOT NUMBER SC13LD20 or SD10LD20. The ammunition Lot Number is stamped on the 50-round carton as indicated here:

To determine if your ammunition is subject to this notice, review the Symbol and Lot Number. If it is Symbol B191800092 and Lot Number SC13LD20 or SD10LD20, **immediately discontinue use** and contact Browning Ammunition toll-free at 844-653-8358 for free



UPS pick-up of the recalled ammunition. Upon receipt of your recalled ammunition, Browning Ammunition will ship replacement ammunition directly to you or issue you a reimbursement check.

This notice applies only to Symbol B191800092 with Lot Number SC13LD20 or SD10LD20. Other Symbols or Lot Numbers are not subject to this recall.

If you have any questions concerning this 9mm Luger 115 FMJ pistol ammunition recall please call toll-free 844-653-8358, write to Browning Ammunition (600 Powder Mill Road, East Alton, IL 62024 Attn: 9mm Luger Recall), or visit our website at www.browningammo.com.

We apologize for this inconvenience.

BROWNING AMMUNITION June 21, 2021



though it after a range session, and feel more than confident. Personally, we like to clean our weapons after every range session but we're morbidly curious to see just how far we can push the PWS, and it hasn't failed us yet.

BOTTOM LINE

When fully equipped with the Primary Arms Platinum 6-30x56 ACSS scope, Bobro

Engineering Mount, Troy 45-degree sights and Geissele SD-E trigger, the PWS MK218 MOD 1-M came in at a whopping 12.49 pounds. Keep in mind that about 3 pounds of that is scope and mount. We're not talking about the .22 LR that granddad gave you as a kid here, we're talking about a serious weapon capable of conveying a message at a really long distance. "Some of us" carried

PERFORMANCE

PWS MK218 MOD 1-M

LOAD	VELOCITY	ACCURACY
Black Hills Gold 168 Hornady ELD-M	2,531	0.90
Federal Gold Medal 185 Berger Juggernaut OTM	2,553	1.50
Federal XM80 149 FMJ	2,761	1.80
Hornady 168 A-MAX Match	2,534	0.80
HSM Trophy Gold 210 Berger HPBT	2,381	1.00
Prvi Partizan M80 149 FMJ	2,835	2.00
Sig Sauer Elite Performance 150 FMJ	2,765	1.70
Wilson Combat .308 168 Barnes TTSX	2,469	1.40



Bullet weight measured in grains, velocity in feet per second (fps) by chronograph and accuracy in inches for best five-shot group at 100 yards. the M60 or even the M47 Dragon Anti-Tank Missile System for a living in our past lives, so everything is relative. As we get older, though, we can just pick up the PWS MK218 MOD 1-M and order take-out dinner.

All in all, the MK218 MOD 1-M from Primary Weapons Systems has been a smooth shooting rifle that has proven reliably accurate thus far. At a street price of just over \$2K, it's a very reasonable price tag, especially considering that some of its competitors can easily go for well north of \$3K.

The accuracy potential is definitely there, provided that the shooter does his or her part. With Prvi Partizan M80 Ball pushing 2,835 feet per second, and Hornady 168-grain A-MAX Match netting 0.80 inches at 100 yards, it doesn't leave much to argue about. Whether you want to hunt and need a long-distance modern sporting rifle, or you simply want to challenge yourself into becoming a better shooter at longer distances, the MK218 MOD 1-M from Primary Weapons Systems is a serious rifle for serious shooters. Buy this one with confidence. Check it out for yourself at primaryweapons.com.



BROWNING'S NEW HAWG WILL KEEP YOUR X-BOLT MAX LR ON TARGET... WAY DOWNRANGE

has gone a step further with the development and inclusion of their new Hawg muzzle brake. If you run any magnum-sized calibers in your boom stick, you know it can take a toll on your body. This can even be the case with long sessions in something like 6.5 Creedmoor. Serious shooters look for ways to mitigate this punishment and, in turn, enhance their accuracy. It is no secret that magnum calibers pack a wallop, and an afternoon ringing steel behind a magnum rifle can be taxing.

COOL COMBO

In response, Browning has developed one of the most effective muzzle brakes in the industry. The new Recoil Hawg reduces felt recoil and muzzle rise. In fact, it is proven to reduce recoil up to 76 percent (depending on the caliber). This reduction makes

the punchy .300 RUM have felt recoil similar to that of a 6.5 Creedmoor. Specially designed directional porting blows gasses up and to the sides to minimize dust signature. Muzzle jump is also limited to keep shooters looking downrange at their target. The brake has a multi-port design with top and side ports to direct gas and reduce muzzle rise. With rugged, all-steel construction, the brake will survive even the harshest of environments.

Another area where this rifle shines is its stock. Browning has developed a versatile stock that rivals an aftermarket chassis. As always, correct rifle fit is paramount to achieve consistent, repeatable accuracy. The more the stock can be customized to the shooter, the better it will be. The composite Max stock has easy-to-install 0.25- and 0.5-inch spacers to customize length of pull. Another nice feature is an

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The X-Bolt Max LR is the perfect bridge between the target shooting and hunting worlds.

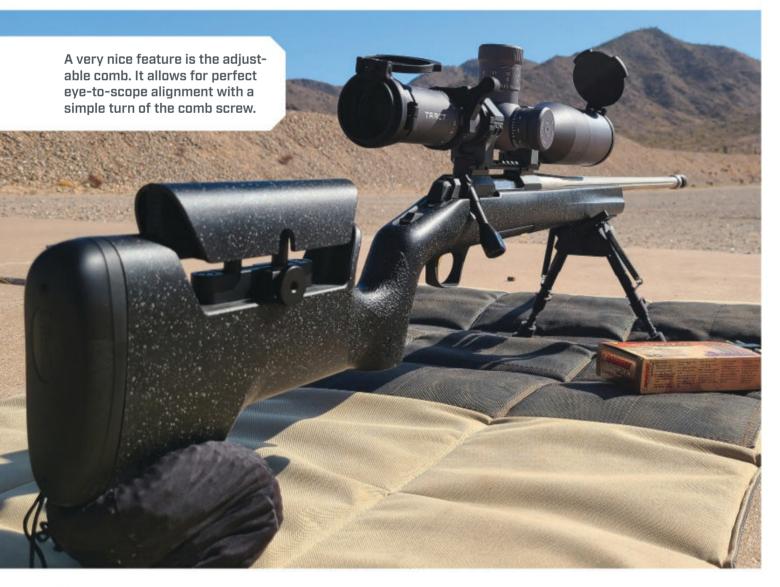
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adjustable comb. Once a necessary aftermar-ket add-on, Browning has built it into the stock. It allows for perfect eye-to-scope alignment with a simple turn of the comb screw. The system makes setting comb height for multiple users and for prone or bench positions extremely simple. Height markings make it easy to record settings for quick adjustments. For left-handers, the adjustment knob can be swapped to the left side of the stock.

Browning even looked at the smallest detail like the finger-to-trigger reach. It is optimized with a comfortable vertical pistol grip. A thumb rest eases the transition to the tang-mounted safety button. A stippled checkering and fleck in the composite material provide comfortable and highly textured gripping surface. Another area Browning focused on was bolt manipulation speed. Serious shooters know they have to be ready for a second shot very quickly. An extended bolt handle makes operating the bolt faster and easier. It has a short, 60-degree bolt throw, which speeds cycling and clears large target turrets on optics. The rifle has a threelug bolt, which self-centers on the chambered round. Equally as important is the trigger. The

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*Gun shown with accessories not incl

4

6

RECOIL EATER



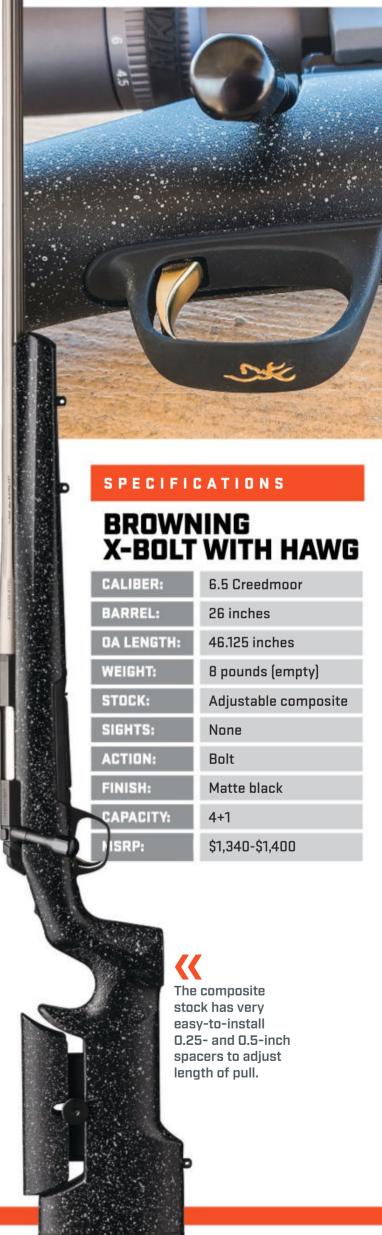
X-Bolt comes with an adjustable Feather Trigger. It is a three-lever design that comes preset from the factory at approximately 3.5 to 4 pounds—light enough to break clean but not so much that it is dangerous in the field.

DIGGING DEEPER

Browning continued their long-range accuracy theme by designing a scope-mounting system that locks your optics in place. The X-Lock Scope Mounting System uses four screws to secure each scope base to the receiver and provides more secure attachment for larger optics. The action is solid as well by being bedded at the recoil lug and rear screw to ensure the barrel is correctly floated. Speaking of barrels, their high-performance 26-inch stainless steel barrel is fluted to reduce weight, add rigidity and improve barrel cooling for more consistent accuracy from shot to shot. Browning rifle barrels are button rifled and triple checked at the factory for interior finish and straightness, and are air gauged for uniformity. The rifle come with a removable, thread-on muzzle

brake that reduces felt recoil and uses suppressor-ready 5/8- 24 TPI threads. A thread protector is included if you opt not to use the muzzle brake or add a suppressor. The 1-in-7.5-inch twist is slightly faster than most other guns in the caliber. I attribute this to Browning's foresight, which allows the gun to run longer and with heavier bullets.

The folks over at Browning were kind enough to send a rifle out for me to test drive, and I immediately got ready for the range. The only two things I had to do were to add a bipod and an optic. Glass for this adventure would be the TORIC 4.5-30x56 34mm from Tract Optics. I was excited about getting this scope into the mix because everything I had read about it suggested it would shine. The scope features an MRAD "Christmas tree"-style reticle for serious accuracy and precision. Their proprietary Ultra High Definition (UHD) optical system proved to give me excellent clarity and light transmission. The large eye box design of the quick-focus eyepiece provides 3.6 to 3.8 inches of eye relief. The glass-etched MRAD ELR reticle



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can be illuminated with 11 different intensity settings. These two features combine to provide solid performance in low-light conditions at longer distances. Even with all of these features, the fact that it is engineered here in the U.S. and built in Japan by the world's leading optical manufacturers make this a great option.

RANGE WORK

Once on the range, I set up and in short order began to appreciate the fit and finish of the rifle. I was able to set the cheek riser to the perfect height with little effort and time. More importantly, it never shifted during the testing. The length of pull fit me well so I did not need to add the spacers that Browning had provided. A few test cycles and there was no slop in the bolt; everything was tight, and I did not need to tinker with anything. Groups were shot off a bench with a rear sandbag for stability. For those hardcore precision shooters, the temperature was 82 degrees with a 5 mile per hour zero-value wind. I laser bore sighted the gun to save





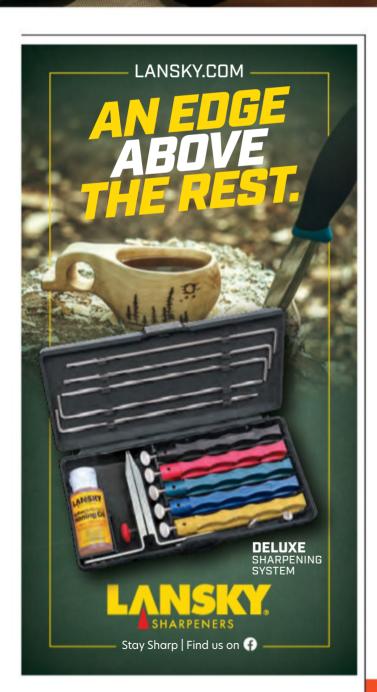
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ammo, then made my final adjustments. From there, we were off to the races. Before the optic and bipod, the gun comes in at just over 8 pounds so it was not going to be bouncing around the bench. It was a good balance of weight to soak up recoil, yet not so hefty that I would cross it off a hunt list.

The rifle was as smooth shooting as advertised, and made for a great day on the range during testing and evaluation.

There are some fine details worth noting about this gun. First is that it has two swivel studs on the foregrip. This is the tell-tale sign that serious shooters and hunters designed this gun—one point to attach a bipod and a second point to attach a sling. Nothing is worse than having to choose one over the other. The action on the gun is silky smooth. It has polished raceways, and the 60-degree bolt throw makes the gun very fast to run. It has an easy-to-index tang safety that locks the bolt closed when engaged, yet there is an override so shooters can unload the chamber with the safety engaged. Then there is the trigger, which I feel is one of the best factory triggers available today. It is user adjustable, and gold-plated to boot A little bling never hurt anyone. It is housed in an alloy triggerguard engraved with the Browning Buck Mark logo. Forward of that, the detachable magazine seats comfortably in a composite floorplate framework. One final

item is the cheek riser. Browning has included witness numbers and a scale at the rear of the adjustable comb. Once you have the height set to your needs, take note of the number. That way, when you need to drop the comb to clean the barrel or remove the bolt, just replace it at your reference number and it is back to the correct position.

THE UPSHOT

The rifle performed very well and is one I would certainly take on a trophy hunt. While the gun is long at 46.5 inches, it is still easy to carry. The gun printed exceptional groups at 100 yards and easily rang steel out to 700 yards, which is where I ran out of range. I ran it in several modified shooting positions, and each time it settled in nicely while producing good shots.

This combo of the X-Bolt Max LR, Hawg brake and Toric optic made for some very enjoyable shooting. Even though it was not in a magnum caliber, I could absolutely tell the brake was working. I was able to send follow-up shots quickly as the muzzle barley moved. If you are looking for a rifle that checks several boxes, you should take a hard look at the X-Bolt Max LR. For more information, visit browning.com.

PRODUCT WARNING AND RECALL NOTICE WINCHESTER® 9mm Luger 115 grain

Olin Winchester, LLC is recalling the following lots of 9mm Luger 115 grain Full Metal Jacket and 115 grain Jacketed Hollow Point pistol ammunition.

Symbols: Q4172, RED9, USA9JHP, USA9MMVP, USA9W, WW9B

Lot Numbers:

SCO3LD44, SCO3LD45, SCO3LD46, SCO3LD47, SC13LD1, SC13LD6, SC13LD18, SC13LD44, SC13LD45, SC13LD46, SC13LD47, SC52LD44, SC52LD45, SC52LD46, SC52LD47, SC62LD44, SC62LD45, SC62LD46, SC62LD47, SC62LD44, SC72LD45, SC72LD46, SC72LD47, SC92LD44, SC92LD45, SC92LD46, SC92LD47, SD10LD1, SD10LD3, SD10LD6, SC10LD12, SD10LD18, SD10LD46, SD10LD47, SD50LD1, SD50LD3, SD50LD6, SD50LD11, SD50LD12, SD50LD18, SD50LD46, SD50LD47, SD60LD1, SD60LD3, SD60LD6, SD60LD11, SD60LD12, SD60LD11, SD70LD3, SD70LD6, SD70LD11, SD70LD12, SD70LD12, SD80LD18

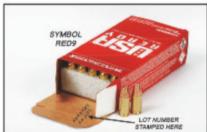
The Symbol designations and locations of the Lot Numbers are depicted in the photographs below.

<u>NOTE</u>: If ammunition of the above Symbols was purchased before March 25, 2021, it is NOT subject to the recall.

Winchester has determined the above lots of 9mm Luger 115 FMJ and JHP ammunition may contain propellant that does not properly ignite and burn when the cartridge is fired. Ammunition containing propellant that does not properly ignite and burn may result in a bullet remaining in the barrel (i.e., a bullet-in-bore obstruction). Firing a subsequent bullet into the bore obstruction could cause firearm damage, rendering the firearm inoperable and subjecting the shooter and bystanders to a risk of serious personal injury.

DO NOT USE WINCHESTER® 9MM LUGER 115 FMJ / JHP OF THE ABOVE SYMBOLS THAT HAS ANY OF THE ABOVE LOT NUMBERS. The ammunition Lot Number is stamped on the cartons of the Symbols involved as indicated here:















To determine if your ammunition is subject to this notice, review the Symbol and Lot Number. If it is any of the above Symbols and Lot Numbers, **immediately discontinue use** and contact Winchester toll-free at 844-653-8358 for free UPS pick-up of the recalled ammunition. Upon receipt of your recalled ammunition, Winchester will ship replacement ammunition directly to you or issue you a reimbursement check.

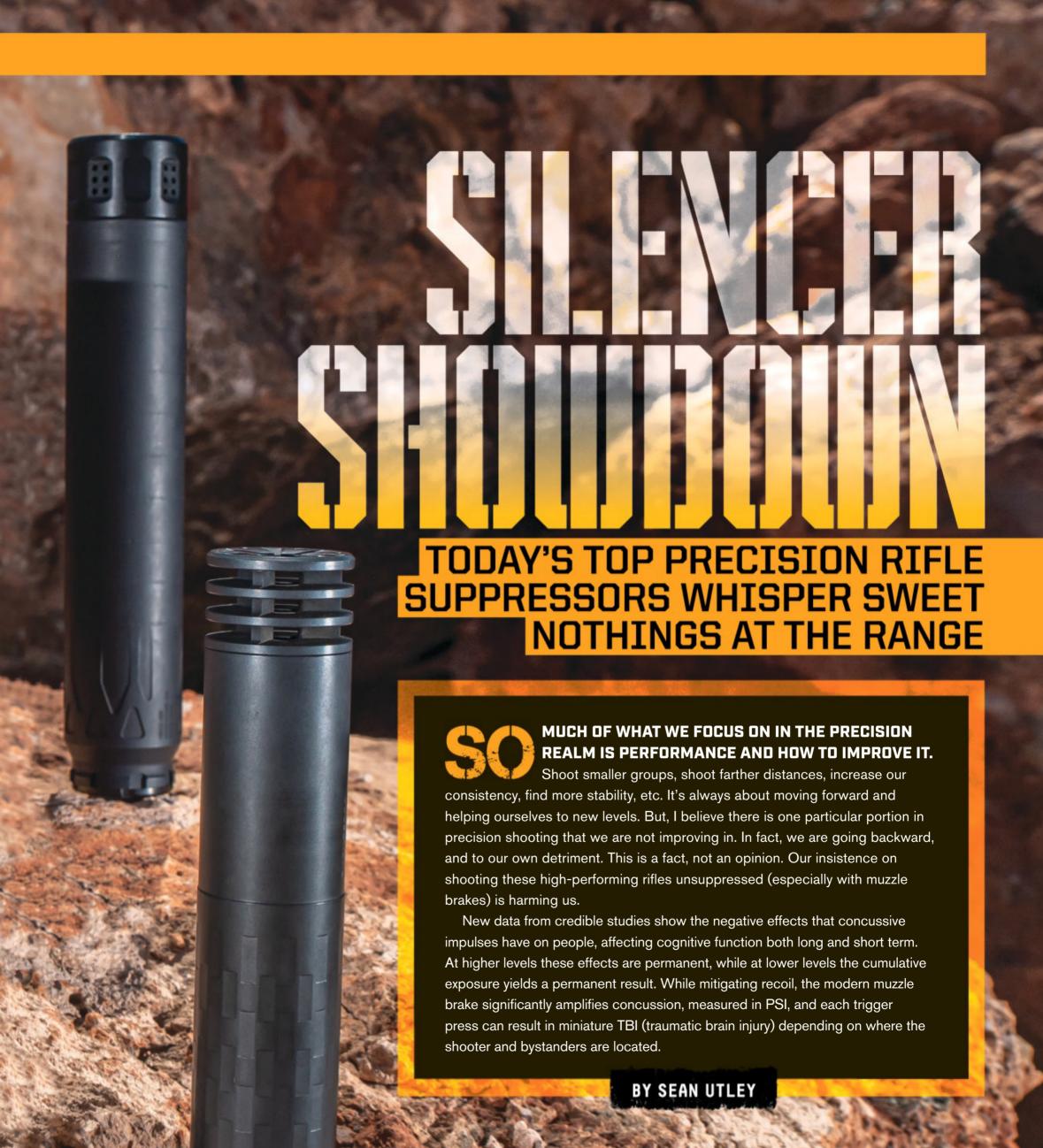
This notice applies only to the above 9mm Luger 115 FMJ and JHP Symbols with the above Lot Numbers. Other Symbols or Lot Numbers are not subject to this recall.

If you have any questions concerning this 9mm Luger 115 FMJ / JHP pistol ammunition recall please call toll-free 844-653-8358, write to Winchester (600 Powder Mill Road, East Alton, IL 62024 Attn: 9mm Luger Recall), or visit our website at www.winchester.com.

We apologize for this inconvenience.

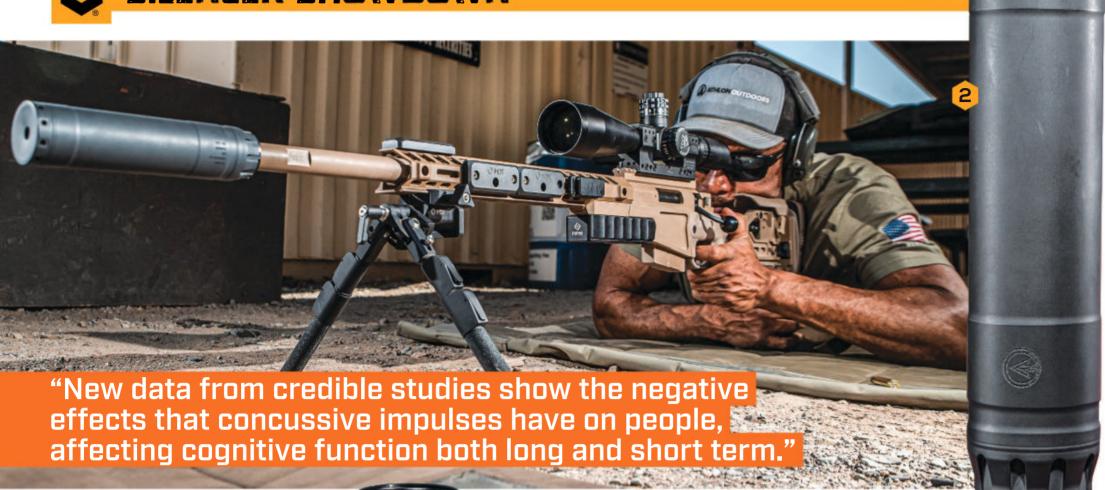
WINCHESTER June 21, 2021





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SILENCER SHOWDOWN



While this might not seem alarming at first, it shouldn't be taken lightly. Many shooters express their development of headaches during range sessions, and specifically many precision rifle shooters mention headaches after the first day of a two-day match. And while it's easy to downplay this with statements about the shooters' age or time in the sport, it's important to remember that precision rifle has a huge and growing number of youth shooters who are exposed to these loud, concussive rifles. In short, the damage is starting earlier, and often their hearing protection efforts are suboptimal at best.

THE CASE FOR CANS

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While we can double up on hearing protection—which you should have two levels of, by the way—these efforts can fall short because the blast waves travel through our bodies and impact the fluid in our bodies, head and bones within our ears. These waves are amplified more or less by our surroundings. For instance, if you shoot while laying on a concrete pad with a metal awning, you are basically in an amplifier. It would be better to be on grass or dirt with nothing above you.

The better answer is to ditch the loud brakes and bare muzzles and install a suppressor. Most of us realize that a good suppressor reduces the report of a gunshot, but it also mitigates concussion as well. While there isn't room to go down the rabbit hole of decibel reduction, just keep in mind that a suppressor listed as hearing safe (noise level < 140 dB), doesn't mean you can shoot all day without hearing protection. That standard is for one impulse once a day at or below that level. Anything more and you are hurting yourself.

Suppressors have come a long way, and in my experience have different behavioral characteristics. For precision shooting we want a suppressor that improves our rifle system as a whole, with no negative impact on precision/accuracy and minimal POI shift, while providing solid noise/concussion mitigation. I would now add minimal rifle movement to the list of favorable characteristics.

As precision shooters, it's important for us to see our impacts, misses and even trace when possible. A can that exerts less movement to the rifle increases the likelihood of this and

brings overall shooter rifle performance closer to that of a rifle with a muzzle brake. More suppressors are coming to market with this as a focus, while the more traditional suppressors focus on overall noise mitigation. The following suppressors were chosen based on my knowledge and experience with their performance and or their design characteristics and intended use. These represent some of the better precision-focused suppressors. Of course, it's not a complete list, but these are easily top contenders.

L DEAD AIR NOMAD L

The Nomad was released as a general purpose, all-rifle suppressor. What made it interesting was the E-brake that Dead Air added in an effort to help cut down recoil. I've shot many different versions of the Nomad and it has always improved shooting characteristics, even if it was never meant to in this manner.

Groups always improve or stay extremely tight, and recoil isn't a major issue. There is movement of the rifle while shooting, but it's predictable and not overwhelming in any way. It makes every rifle you put it on easier to shoot. [deadairsilencers.com]

2. KGM TECHNOLOGIES R30

In last year's issue we included KGM Tech's R65, a suppressor designed specifically for muzzle rise/movement mitigation. It features ports at the front of the can where gas is exhausted in several directions and the ports



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SILENCER SHOWDOWN

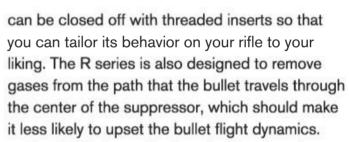












The R30 is larger in diameter than the others, but it is short and lightweight. In fact, when carrying the suppressor in the supplied Kanuck hard case, you'd be hard pressed to tell if the suppressor was actually in it.

(kgm-tech.com)

3. CGS GEN 2 HYPERION

The original CGS Group Hyperion is an amazing suppressor with incredible noise reduction It typically has minimal to no impact on POI. It's quiet and has a soft push when shooting. This version is the Gen 2 with a redesign. It's an impressive can.

The Gen 1 proved to be impressive in our Ballistic's Best comparison from a couple of years ago, where it got top honors. The new Gen 2 Hyperion is narrower than Gen 1 and is now monolithic (3D printed) instead of pressed and welded together.

[cgsgroup.com]

4. SILENCERCO OMEGA 300

The Omega is nothing new. First released back in 2015, it really hasn't changed much. Back then,

the addition of their Anchor brake provided improved recoil response. Were they ahead of the game? It is also a rather small suppressor in this crowd. That said, it has been a solid performer for many and is a popular choice for precision shooters. [silencerco.com]

5. THUNDER BEAST ARMS ULTRA 9 GEN II

If there was ever a suppressor brand synonymous with precision rifles, it's Thunder Beast Arms, and the Ultra line has been a mainstay and standard for many years. The Ultra series is lightweight, quiet and exhibits minimal POI shift and improved groups. The Gen 2 brings us an updated Ultra that is even lighter and quieter than the first generation.

Thunder Beast takes things a step further by testing sound levels like other companies do not, and in a world of lower and lower decibel ratings, they can back up their findings with metering capabilities that lend more accuracy. The Ultra line isn't designed to decrease movement as far as we know, but it still exhibits great characteristics in this category.

[thunderbeastarms.com]

6. ELITE IRON ASSET

Elite Iron is a suppressor born out of hard use and the need for reliability. They also have deep roots in precision long-range shooting. The Asset is their newest offering meant to fulfill a government-specific contract. It's technically not even on their website yet. The product name is there, along with scant information. It's a modular design and is intriguing to say the least.

The Asset has two main parts and can be run in a short configuration or long with a removable brake in either configuration. Looking at the Asset and considering why it's being produced, you understand that other "users," in this case the military, may be realizing that other properties are more desirable beyond ultra quietness, depending on the scenario of use. [eliteiron.com]

7. AREA 419 MAVERICK

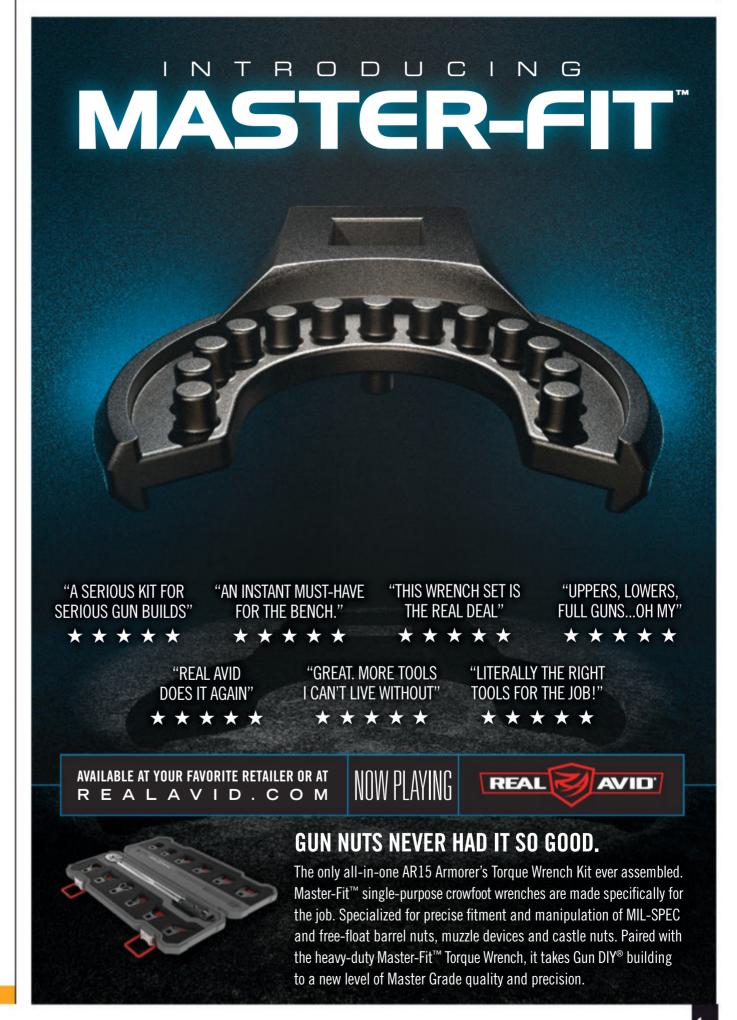
The Maverick is a different beast altogether. It's a product that many don't know how to classify, but the ATF says it is a suppressor—which is what it is. Dubbed a "recoil suppression

device" by its creators, it represents the most technological advancement of the group, if that's a thing, and without a doubt has the most complex and modular design.

The Maverick has a serialized "core" piece that you can add to or subtract from. What you can add are modules available in stage 1 or stage 2 configurations. Think of them as additional baffles that add to the noise reduc-

tion. You can also add the brake to further enhance the recoil-reduction properties, which is what the Maverick is designed for. You can run the Maverick in different configurations, whichever is best for your shooting needs, with the focus being controlling movement of the rifle. While we are on this topic, I was excited to watch the Area 419 videos and find that they were addressing the issue as

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SILENCER SHOWDOWN

movement or muzzle control. Recoil is a general term used for the overall reaction but might not be the best descriptor. Hence, why I used the term "movement" early in this piece.

(area419.com)

THE TEST RESULTS

A significant amount of work went into this test. Unfortunately, I have to cut to the chase on the results. Keep in mind this is a hard look at what I feel are the most prominent cans with a precision-shooting weighting. There are many great suppressors out there, but in this category the cream rises to the top quickly.

The hard data was broken down by Anthony Palazzetti with Reactor USA. He is their chief technology officer. He put together a thorough report that compared the rifle/ suppressor behavioral data in graph and wave form. You can see that data at ballisticmag.com.

In the end, my internal data collector did not lie to me. If you want reduction in rifle movement where it would be easier to see your impacts

or misses but still get effective suppression of some sort, you'll want to look toward suppressors like the Elite Iron Asset, the KGM Technologies R30 and the Area 419 Maverick.

My guess that the Elite Iron Asset had the least amount of movement, called "energy" in the data sheet, was correct. I was surprised to see that the KGM Tech R30 had less than the Area 419 because it didn't feel as such. They both produce their "movement effects" differently. To further differentiate these products we'd need more time, ammo and preferably shooters, to get a broader data set.

These suppressors bring performance closer to that of a muzzle brake, where minimal forces are induced on the rifle. The effects are quite noticeable when you shoot them side by side with more traditional suppressors. They are considerably louder in these configurations, but concussive effects





are effectively neutralized.

If the utmost noise reduction is your goal, the more traditional suppressors like the Thunder Beast, CGS Group Hyperion, Dead Air Nomad and SilencerCo might be more your speed, but even this is a cloudy picture because the Thunder

Beast performs close to the "recoil focused" suppressors while still being very quiet. The CGS is very quiet with no point of impact shift on the Accuracy International, but it had more

PERFORMANCE

PRECISION RIFLE SUPPRESSORS

SUPPRESSOR	POI SHIFT	ACCURACY
Bare muzzle	0.0	0.533
Area 419 Maverick	2.2 left, 1.7 down	0.720
CGS Hyperion	none	0.446
Dead Air Nomad L	0.2 down, 0.54 left	0.710
Elite Iron Asset	0.25 down, 0.7 left	0.670
KGM	0.2 down, 1.2 left	0.630
SilencerCo Omega 300	1.6 down, 2.1 left	0.442
TBAC Ultra 9	0.6 left	0.439

POI shift and accuracy measured in inches. Groups were shot at 100 yards with Accuracy International AIAX using Federal Premium FGGM 168-grain ammo.

movement. The Nomad is super quiet but feels like there is more movement compared to others, although that might not be the case. Even the old school Omega did a fairly decent job, but with POI shift that was significant. Keep in mind the recoil-focused suppressors can all be configured into traditional suppressors where maximum noise mitigation is the goal. That means different performance in sound and movement.

We should note that the Hornady 168grain ELDM proved not ideal for the Falkor. While initial unsuppressed groups were sub-MOA, they only got worse with every suppressor except the Thunder Beast, where groups were better and POI didn't shift. This drives home the point that every gun/ammo combo will be different. That said, the Falkor rifle shot the Federal Gold Medal match just fine with sub-half-MOA groups. The Accuracy International and FGMM was used for final group and POI shift due to consistency in ammo/rifle performance.

While you might want to focus on group sizes, you shouldn't. No suppressor increased group size from what I could tell. Any increased group size was due to me as the shooter, not the suppressor attached.

Keep in mind we are splitting hairs because we have to at this level. With all the different offerings out there, we must try to weed our way through them. Any of these would make a solid precision rifle suppressor, but you'll have to decide which characteristics are ideal for your personal precision shooting needs.

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BUYER'S GUIDE

oday there exists an ocean of parts and accessories, and the rifle has gone from custom to custom-ish if not "personalized," mainly because custom work has mostly gone by the wayside as individuals often order barreled actions, then slap them into a chassis.

With so much emphasis on barrels and actions—and rightfully so—it's coming to light that the chassis might be an afterthought for many when, in fact, as I interact with a larger variety of complete rifles, I'm more and more convinced that the chassis (or stock) is equally important. Why? Consider this: The barreled action doesn't need anything else in the rifle build to complete its duties. If you secure the action into some sort of mount or sled, which many ammo manufacturers do, you can fire it and shoot tiny groups without any real human interaction. But in order for us to interact intimately with it, we need a device such as a chassis/stock. If this component isn't just so, it can have a detrimental effect on outcomes for the shooter. Therefore, we must think of the chassis/stock as an interface. It's where the shooter and the components congregate to hopefully allow great things to happen. Here, we are focusing on chassis, so from here on out that's all we'll address.

NUTS AND BOLTS

This interface must be ideal or possess the ability to become ideal for the operator.

With all of the different shapes and sizes of shooters, in order to be accepted and widely used a chassis must be highly adjustable. Beyond that, it must be of quality construction, concentric and stiff. A good chassis must be able to accommodate a barreled action and accompanying barrel profile, and maintain a level of repeatability when the action is removed and replaced. And, the action screws must stay tight.

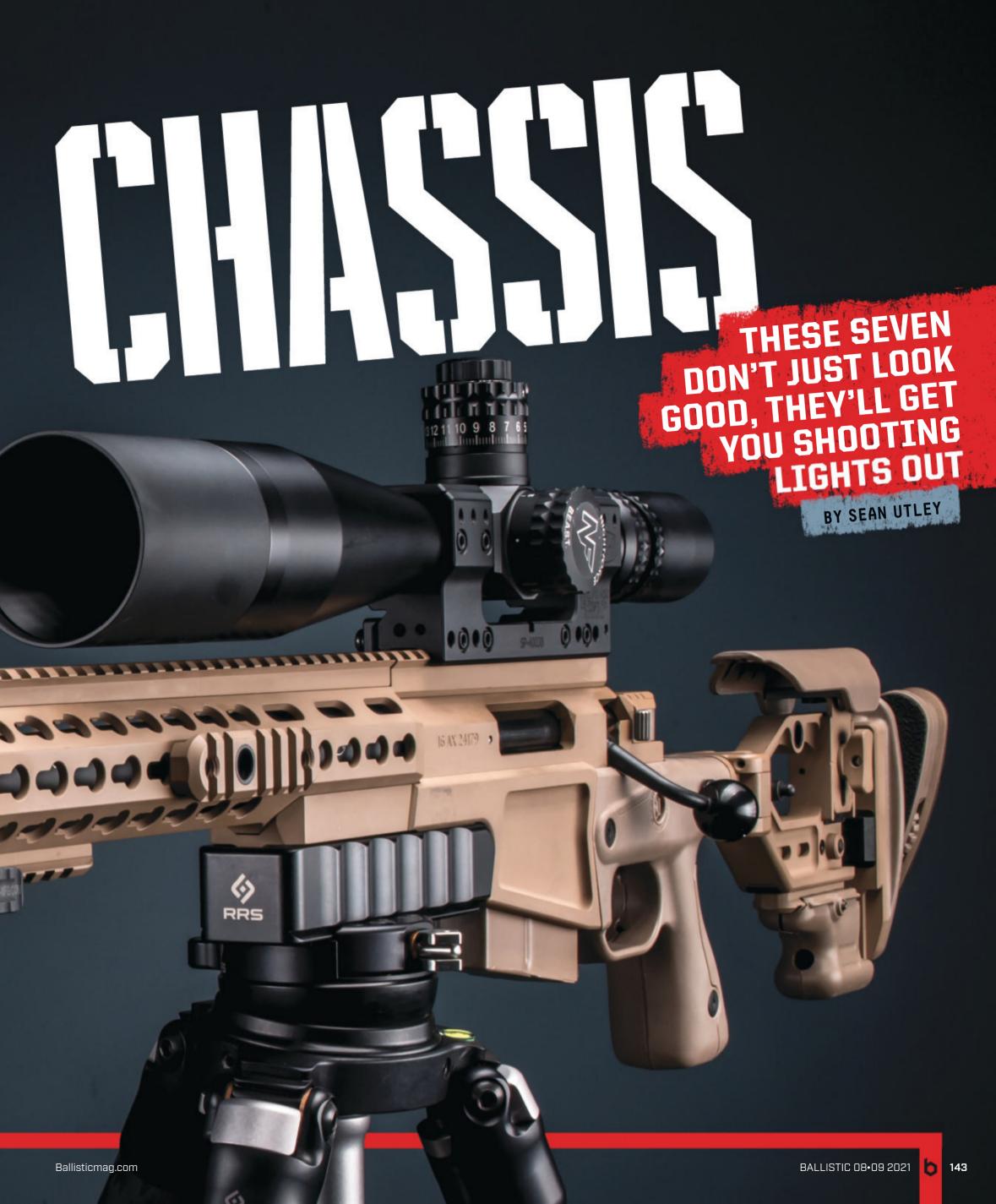
On the operational end, the chassis must have a good balance or have the ability to reach an appropriate balance through the use of weights. The forend must be well laid out and accommodating of necessary accessories such as weights and NV rails, Pic rails, etc. It must also be stable when placed on a bag or barricade, and be able to effectively and easily "settle" into place. Let's not forget it has to accept comfortable grips for the shooter and hopefully allow for adjustability for the shooting hand and finger. All this, and it should look good, as the chassis typically carries the brunt of the operator's external expression of his

or her personality and style. Yes, the chassis has been burdened with an extraordinary responsibility.

I partnered with fellow shooter Tom McKenna. Tom helped me evaluate rifles in last year's issue of Ballistics Best (Dec. 2020/ Jan. 2021). We looked at some of the more popular chassis available to try to draw some conclusions on what they offer and what we like about them. We considered many things, including how the chassis will likely be used by the end user, as well as how it was designed and marketed.

While we drew our own conclusions, keep in mind all of these chassis are excellent in their own right and category. Ultimately, how one stacks up against another will come down to the end user. The chassis, and which one is best, is a personal thing. We did our best to generalize in this comparison.





CLASSIEST CHASSIS

1. MASTERPIECE ARMS MATRIX

Masterpiece Arms owned the chassis space several years ago. The BA line was widely accepted, and many still think it is the best chassis around. Two years ago they released their Matrix line and with it came more modularity/adjustability.

The Matrix has six grip options, three thumb rests and four trigger support options. The forend has M-LOK attachments and is 2 inches longer than the BA/Comp chassis. It accepts barricade stops, night vision and a weight kit.

The Matrix has an interesting look that you either love or hate, with a thumbhole and more traditional looking buttstock. I like the feature, while my fellow reviewer did not. Yes, the Matrix is packed with stuff.

What we like about it: NV capable, almost toolless adjustability but with lots of range, mag release size, weight kit, built in Arca Swiss rail, protected mag well, thumb rest options and ambidextrous capability.

What we're not crazy about: Several small screws and detents that can loosen or get lost can be a problem. Although there are many grip choices, it was hard to find an ideal one. We also didn't care for the overall aesthetic appeal of the large rear end, and the length of pull that starts at a long 13.5 inches. It's hard to describe exactly but the MPA, for as good as it is, just feels "dated" compared to other chassis on the market. (masterpiecearms.com)



What we're not crazy about: The mag release paddle is small, screws can loosen and get lost, it's not ambi, it has a small thumb rest and it's a non-folder. The ACC is a great chassis, but the maintenance required for the "little parts" is probably the biggest ding against it. All in all, it's an amazing chassis on the racy side of things. [mdttac.com]

ACC it feels good from the start.

What We Like About it: Long flat forend, excellent balance, built-in Arca rail, buttock adjustable for height and cant, shorter LOP, protective mag well, AR grip compatibility, good general ergonomics, aesthetic appeal.

The ACC feels like it was meant for competition work with outstanding balance. It is easy to get comfortable behind and might require the least amount of setup time.



THE FASTEST-GROWING TRIGGER BRAND

RA-535
Advanced-Performance Trigger

(for a number

of reasons)

1

PERFORMANCE

"More hits on the first shot in 3-Gun than with the factory trigger."

"No more trigger freeze when I fire 4 or more rounds on a single target."

"The feel of the trigger resetting after a shot is a really great feature."

"No creep, I mean zero creep."

EASY MAINTANENCE

"A really simple trigger cassette. I just blow it out every few thousand rounds and put grease back on the friction surfaces."

"Easy to access maintenance points."

DURABILITY

"Well designed and solidly built."

"MPX rifles are hard on hammers. After about 2,000 rounds your hammers are holding up well."

EASY

INSTALLATION

"Very quick and simple install."

"It installed just as easily as your videos said it would."

"Just bought and installed two RISE triggers. I was blown away."

ACCURACY

"Reduced my 100 yard groups by 25%."

"No take up, great reset. Extremely accurate, much more than I am."

"The trigger breaks right where I like it (not too light, just hard enough to keep me honest)."

"A high quality, precision part that will make me a much better shoot."

6

MORE TRIGGER FOR THE MONEY

"I've amazed several trigger snobs with the candy cane break and lightning fast reset. They're crushed when I tell them the cost."

"By far the best triggers and at an amazing price. I have 4 of them!"

"Hands-down the best triggers on the market at the best price."

"My only problem is deciding how many more I need!"







CLASSIEST CHASSIS







PRODUCT SAFETY WARNING & RECALL NOTICE FOLLOW UP WALTHER PPS M2

Walther Arms, Inc. discovered a potential safety issue with certain PPS M2 pistols shipped before September 21, 2018. Walther voluntarily initiated a recall in November 2018 to protect the safety of its customers because under certain conditions it is possible that some of these pistols may fire when dropped. The only PPS M2 pistols affected by this recall are those in the following serial number ranges:

AN3020 - AN9999 AR0000 - AR9999

A00000 - A09999 AS0000 - AS9999

AP0000 - AP9999 AT0000 - AT9999

AQ0000 - AQ9999 AU0000 - AU7502

Please do not load, fire or use your Walther PPS M2 pistol and contact us immediately to arrange to have your pistol upgraded free of charge

Contact us at www.WaltherArms.com/Recall and complete the online form. Alternatively, you can contact us by email at ppsrecall@WaltherArms.

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3. XLR ENVY PRO JV KIT

Another widely used chassis is the XLR Envy. Offered in "packages," it starts out as a chassis only but can be expanded to include weights, a night-vision mount and more. Weight can be added inside the forend like the ACC and MPA chassis. The Envy pro JV comes with a nose extension that allows the user to run their bipod further out front.

What we like about it: Solid feel, LOP starts at 12 inches and can be shorter as well as much longer, built in Arca Swiss, ambidextrous, mag release size, buttstock adjustability, folder option.

What we're not crazy about: Tools are needed to adjust cheek height, the included Hogue takes getting used to, AR tube style and aesthetics are questionable.

The XLR Envy has a super solid feel. Even though it's a competition-style chassis, it feels robust and is free of rattles and questionable screws to come loose. It seems like it might be the least maintenance intensive of the race chassis and could pull double duty as an "all-around" type of chassis. [xlrindustries.com]

4. KRG WHISKEY 3

While the KRG Whiskey 3 appears as if it would fit more closely into a "tactical" type of use, it's a good-looking chassis and unique in ways. It is highly adjustable and has the ability to accept lots of accessories such as NV rails, spigot mounts, an Arca rail and an enclosed forend.

What we like about it: Toolless adjustable buttstock, great adjustability with height and cant, few screws to loosen or lose, solid feel, folder option.

What we're not crazy about: LOP started at 13.3 inches, weight kit is not available, lack of M-Lok compatibility (upgradable with enclosed forend), Arca not built in, lots of parts to add/upgrade, not ambi.

The Whiskey 3 is a pretty specific chassis for a specific type of shooter in that you have to set it up right, and it takes some work. I found it to be the least comfortable of the chassis, but that doesn't detract from its capabilities. It has its following, though, and will be right for fans of the KRG. [kineticresearchgroup.com]

5 CADEX

Cadex products are known for being high-end. They make some battle-capable chassis, and the Field Competition falls in this category, minus features that would otherwise run up the cost. The Field Competition is sturdy, but is a two-piece design where the forend bolts to the main lower portion of the chassis. The forend mitigates mirage, features M-Lok attachment, and an ARCA rail can be attached.

The skeletonized stock needs no tools for adjustment, but once you loosen the bolts,

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LOP and cheek height are affected so you must be careful during setup.

What we like about it: Few screws, M-Lok compatibility, stock adjustability, AR-style grips, solid, comfortable, folding stock.

What we're not crazy about: Adjustability can be challenging, length of pull at 13 inches, Arca Swiss separate part, no thumbshelf, mag well area angled and not able to be loaded.

The Cadex is more of a general use/tactical chassis that could do occasional competition work, and it has undeniable good looks along with functionality. [cadexdefence.com]

6. ACCURACY INTERNATIONAL AX

This is another tactical chassis that might be the standard by which all others are measured. Tough, functional, solid, and adjustable without the use of tools, the AI AX just does work. That said, it is not ideal for competition, but can work in that space if necessary.



What we like about it: Highly adjustable without tools, including cant and height of butt pad. While the Al is not new, it does this better than any other chassis. It's bombproof, mag well is cut away on one side, it folds and is night-vision capable.

What we're not crazy about: Key slot proprietary, no Arca without adaptation, mag well area is not protected, odd angle in front of mag well, no thumb shelf, length of pull starts at 13.25 inches, no left-handed for Rem 700 footprint.

The AI makes comfort look easy and although it is tactically based, it expertly executes adjustability and adaptability.

[accuracyinternational.com]

7. MAGPUL PRO 700

I'll go on record and say the Magpul Pro 700 has to be the most overlooked and underrated chassis on the market. Why is it overlooked? Probably because of its aesthetics. While there is nothing wrong with its looks, it's not exciting by any stretch of the imagination. Magpul may have done a better job with their hunter stock in the appearance category.

But form follows function, and the Magpul is nothing short of amazing in function, with mounds of adjustability, good balance, ability to accept accessories and expandability (supported by Magpul), and a great price point.

What we like about it: Rugged design with no parts to jiggle loose, adjustability in stock, ambi, folder or fixed modularity, NV capable, adjustable vertical grip distance, different vertical grip angles.

What we're not crazy about: Boring aesthetics, magazine not protected, minimum



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CLASSIEST CHASSIS



length of pull is too long, thumbshelf is small and nonadjustable.

While it's not perfect, I personally believe the Pro 700 is the best "all-around" chassis with the ability to morph into nearly every roll and maintain durability and capability. [magpul.com]

THE LAST ROUND

It's clearly impossible to say which chassis is the absolute best without clearly defined measurement parameters. Even with that, we'd have to assume that every shooter's body, technique and end use were the same, and that's clearly not the case. No, the decision of which chassis is best is truly a deeply personal one and will continue to be. Even if we agreed

that a particular model was subpar, there would be a significant number of people using it to the contrary.

If we both had to crown a winner, it would be the XLR Envy. It seemed to have all the features we deemed necessary in one package. Adjustability is plentiful but it still needs tools.

Expandability is there as well. It's ambidextrous, comfortable, and even though it's on the racy side, it's very solid in construction and we believe it could be used in an all-around or even tactical role. Aesthetically it leaves a bit to be desired, but the other factors more than make up for that.

FOR MORE INFORMATION



ACCURACY INTERNATIONAL accuracyinternational.com

CADEX cadexdefence.com **KINETIC RESEARCH GROUP** kineticresearchgroup.com

MAGPUL magpul.com

MASTERPIECE ARMS masterpiecearms.com

MDT mdttac.com

XLR INDUSTRIES Xlrindustries.com

BRINGING THE HEATSEEKER

Cost will always be a consideration if not a limitation for many who want to wade into the satisfying and sometimes murky waters of precision-everything. Actions, barrels, optics, bipods, ammo, training, matches, reloading components—it all adds up quickly and even at bargain prices, the sum total can cause sticker shock. While we feature a ton of higher priced products

we are sensitive to this, and so is Sharps Bros.

You may know them for their AR lowers that broke the status quo by featuring unique magwell designs with skulls, warriors and other unique bits. Soon you may know them for their bolt action products if this keeps up.

allows you to upgrade your factory (if not custom) rifle from its DEM stock configuration. In other words

it's a chassis,

Their Heatseeker chassis

but affordable to get you into something more personalized and adjustable.

The Heat Seeker is available for Remington 700, Ruger American and Howa 1500 actions. The main body portion (receiver, magwell, trigger area) is machined from 6061-T6 aluminum and weighs 1 pound 3 ounces. It also includes a separate handguard that weighs 10 ounces and is 14 inches in length.

M-Lok style attachments on the handguard means you can add knick-knacks that you deem necessary for your shooting

> and bipod or perhaps an ARCA rail. The M-Lok

endeavors, say, weights

slots are on top, bottom and sides. Each side also features two QD points.

The use of standard AR-style grip means the sky is the limit on options. They have a Brazilian Cherry wooden grip and handguard panel set that is rather nice looking and a departure from the mundane. The back end is AR-15 buffer tube-style so the options are also plentiful there. Just snatch a stock off of something you have laying around.

For what it is, the Heatseeker is rather slick looking with a modern flare. Be aware of barrel profiles though because the handguard has dimensional limitations.

If you want to go from a box mag feed to a mag-fed rifle, this is a quick and easy fix and it won't break the bank with a MSRP of \$459.95. For more, visit sharpsbros.com. -Sean Utley





Red Dot Ergonomics



Performance Duty Grip Texture



Red Dot Ready



SuperTerrain Serrations



Modularity



Performance Duty Trigger



What does it mean to be ready? waltherarms.com

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GEAR GUIDE



C

ompetition is fierce amongst the manufacturers within the precision shooting circle. Never before has the consumer been front and center to so much

development and so many product releases. The floodgates of new options and accessories have been opened whether it's chassis, bipods and, of course, optics. Here are some optics worth a look.

1. LEUPOLD

Leupold released the Mk5 HD roughly three years ago. And in an effort to bring an advantage to the shooter, they released a new reticle, the CCH. It's a Christmas tree-type reticle featuring .25 Mil markers instead of the more common .20. It also featured moving target hold, but was pretty busy and received mixed reviews. Now they have the PR2.

The PR2 reticle is a clean reticle, still featuring the .25 Mil subtensions. The PR2 has quite a bit of open space at the center of the reticle with the first marker being .25 mil left or right. Having the .25 markers removes one-fifth of the markers, adding to a cleaner field of view. A small center dot is easy to see and place over targets without

taking up too much real estate on them. It also features .1 Mil

markers between the 3 and 4

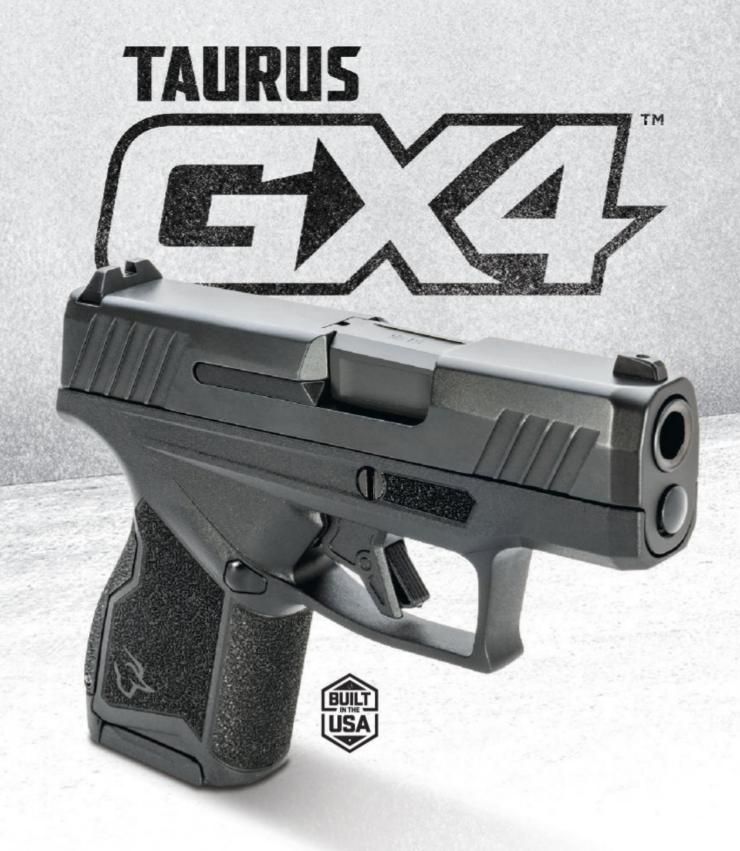
Mil markers for finer measuring.

The MK5HD is light compared to competitive products to the tune of 20 ounces or more in some cases. It features a Zero Lock, for inadvertent turret movement prevention and return to zero. Of course it has excellent HD glass, is crystal clear and features 30 Mil of travel in three revolutions. Its 5:1 zoom ratio is a nice range, and it also has a throw lever with smooth movement. It's also available in an MOA version.

The MARK 5HD 5-25X56 M5C3 FFP PR2-MIL is competitively priced, in our opinion. [MSRP: \$1,999; leupold.com]



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A LEVEL OF DISTINCTION ALL ITS OWN.

With the introduction of our first-ever micro-compact 9mm, the all-new **Taurus GX4**™ boldly outclasses anything else in its class—reaching unprecedented new heights in concealed carry firearm engineering, ergonomics and innovation. On the outside, there can be no doubt that every streamlined inch of this rugged striker-fired semi-auto was meticulously crafted for EDC readiness and reliability. While a game-altering combination of full-sized capacity, accuracy and power resides within its ultra-concealable one-inch-wide reinforced frame. The exceptionally affordable **Taurus GX4**™ is backed by our Limited Lifetime Warranty and industry leading customer service for added peace of mind when it matters the most.





GLASS UP



2. KAHLES

The Kahles K25i DLR (Dynamic Long Range) is another high-end, high-quality offering from the folks at Swarovski. The DLR is Kahles' move to create a riflescope optimized for "dynamic long range" competitions.

It features an extra wide field of view—8 percent wider than the non DLR. It also features 10 Mil (100 clicks) per revolution as opposed to 16 Mil on the K25i. Big, easy-to-see/read turret markings help, along with large parallax knob and throw lever that make adjustments easy.

The windage turret can be had on the left or right side of the optic, and it features an optional Twist Guard windage knob that prevents the knob from being turned inadvertently. Featuring a SKMR4 reticle, it is illuminated,

as well. The first-focal-plane scope features a 34mm tube, and zero stop is included.

(MSRP: \$3,549; kahles.at/us)

3. VORTEX

This summer, Vortex released the Venom 5-25x56 FFP with many features at an attractive price point. The Venom features a 34mm tube, giving the turrets more room to move, is a first-focal-plane scope and has Vortex's RevStop zero system. The parallax can be achieved down to 15 yards.

The glass etched reticle is available in the popular EBR-7C reticle that gives you the ability to hold accurately for wind and elevation when dialing isn't an option or desirable. The picture is bright and crisp, thanks to XD (extra-low dispersion) glass. The body is a single-piece tube made from a solid piece of aircraft grade aluminum.

The Venom appears to be a whole lot of optic for the money and is available in MRAD and MOA. (MSRP: \$699; vortexoptics.com)

"THE VENOM APPEARS TO BE A WHOLE LOT OF OPTIC FOR THE MONEY AND IS AVAILABLE IN MRAD AND MOA."



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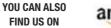
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GLASS UP



4. MAVEN

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You might or might not have heard of Maven. Maven was started in 2013 in Cody, Wyoming, and is a company that delivers its optics directly to consumers to keep costs down for the end user. Though they are young, their goal is to provide shooters with a quality optic that they can afford.

The RS.3 is a first-focal-plane, 50mm objective and 30mm tube optic. Magnification range is 5-30x. It's available in MRAD and MOA versions and features ED glass. Like other optic models of these times, it also features multi-coated lenses.

Fit and finish on the RS.3 is superb.

Markings are clear and distinct, and it's got some heft to it; whether that's good or bad is up to you. The magnification ring moves smoothly with just the right amount of tension on it. It also has side parallax. While it is no sign of how good or bad the tracking is, the turret feedback is excellent both in feel and auditory terms. You can make your adjustments and feel confident that you aren't blowing by your inputs.

The RS.3 has three reticle offerings, and you can even have the accent colors custom anodized, with your name engraved if you wish. The RS.3 is targeted for hunting more than

target shooting but it can still play the role. The RS.4 is their target model but wasn't available at the time. It also features a lifetime warranty. [MSRP: \$1,600; mavenbuilt.com]

5. LEICA

Leica is one of those names that we relate to quality, refinement and sophistication. Last year, they introduced their PRS 5-30x56i and it seems to have gone mostly unnoticed. The PRS 5-30x56i was designed specifically for the long-range crowd with 32 Mils of travel in its multi-turn elevation turret, which can be zeroed without tools. The zero stop feature in



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the Leica can be deactivated or activated at will and as necessary.

As you might imagine, the glass is up to snuff with excellent light transmission and clarity. It's built tough, too, with superb fit and finish throughout. Three different reticles are available with us nodding toward the L-PRB with its grid-style layout, featuring .2-Mil markings and a crosshair thickness of 4 cm. Interestingly, there is an open center dot, where most other optics have a solid one. It measures 1 cm and makes zeroing a very precise ordeal. The top portion of the field of view is completely unobstructed save for one Mil of hashes on the elevation stadia.

The Leica is built to last with all metal parts. [MSRP: \$2,699; leicacamerausa.com]

6. PRIMARY ARMS

Primary Arms PLx 6-30x56mm FFP is a first-focal-plane optic that utilizes HD Japanese glass (like many others) for enhanced clarity. It is intended for medium- to long-range use and also features a 34mm tube and 56mm objective.

Turret adjustments are .1 Mil and are zero returnable, but it has no zero stop. The illuminated reticle is NV compatible. The ACSS Apollo 6.5CM/.224V reticle is calibrated for 6.5 Creedmoor and .224 Valkyrie ammo and features a lifetime warranty. The center aiming point is a chevron instead of the dot that many other optics use.

If you're running a 6.5 Creedmoor (or .224 Valkyrie) the Primary Arms may be a good option for you. The instruction manual includes all the information on the reticle and optimized conditions for the ballistics to match up.

(MSRP: \$1,500; primaryarms.com) •



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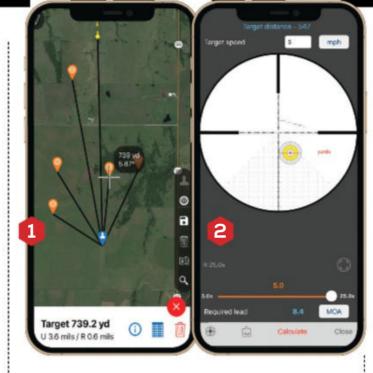


efore ballistic calculators were available to the masses, most of us went to the range and shot at known distances and recorded the adjustment on our scope we had dialed or held when we impacted the target. This was our data on previous engagements (DOPE). I remembered doing this in my first precision rifle class. We shot in 100-yard increments from 100 to 1,000 yards. More ammo was needed to gather this DOPE since you had to shoot at every distance you wanted data on.

Another thing to note is that this DOPE was gathered on a specific range with specific atmospherics. As environmental conditions change—like temperature, pressure and relative humidity—the flight of your bullet is also changed. For instance, if you gather your DOPE at Range A, which is at sea level, when it is 30 degrees, then use that same DOPE when you go to Range B at 8,000 feet elevation when it's 90 degrees, you will miss the targets high due to the change in environmental conditions. With advancements in cellular phones, apps are available that can crunch numbers and perform complicated math in milliseconds, acting as our own personal portable computer. After inputting your specific rifle sight height, twist, muzzle velocity (MV), zero range and your bullet specs, with a click of a button you can get your firing solutions for any range you want. You can manually input your environmental conditions, or you can get a weather meter that can input it automatically via Bluetooth.

1. GEOBALLISTICS

GeoBallistics, also known as BallisticARC, has a user-friendly interface that offers a free



version where you get one rifle profile. The Pro version unlocks the ability to make unlimited rifle profiles that can be saved to the cloud and accessed on other devices, which makes it easy when you change phones. The Pro version also unlocks the ability to save and export range cards. The app supports WeatherFlow and Kestrel meters, which allows for convenient Bluetooth transfer of your environmental conditions directly to the app.

You have an option of three different modes for your firing solution. In chart mode, you choose the max range and increments. You will be given your elevation, wind, velocity, energy of the bullet at the target and the time of flight (TOF). TOF is important when you are shooting movers and also beneficial in Extreme Long Range (ELR).

In competition mode, you can customize your own target card. This allows you to name, add angle and shot bearing to each individual target. You can save this as a range card, which is nice when you go to multiple range locations to shoot where the targets do not move. Since you added the azimuths, the

next time you go to the range and the wind speed and direction changes, your app will calculate your correct solutions for you without having to input all the directions of fire back in. Keeping the screen simple, it gives you your elevation solution and wind holds. Another feature in competition mode I find handy is the holdover data zero setting. This calculates your solutions if you had dialed for elevation and not on zero. I use this a lot when I have to hold for a stage. For example, I will dial for the first target, then hold for the rest. I will not have to do the math myself of the subsequent targets as the app will tell me what to hold.

Map mode utilizes google maps to give you solutions by GPS. After you set your shooting location, you drop target pins on the map. As you drop your target pins, the app will give you the distance and shot bearing. When you click on the target, your firing solutions will pop up, giving you the elevation and wind. I have used this feature before when I have forgotten my rangefinder. I have also used this in the opposite fashion. At the target location, I'll drop a pin, then I'll find a shooting spot. This is a method I use when I setup an ELR practice range. The developer has notified me of a new version update soon to be released.

(\$14.99; geoballistics.com)

2. STRELOK PRO

Another popular app is Strelok Pro. This app calculates your horizontal and vertical correction on the main screen. The first feature that stands out is that you can view your elevation and wind holds on a reticle and even change magnification on your virtual scope. Currently there are over 1,800 reticles supported in the app. Also notable is the

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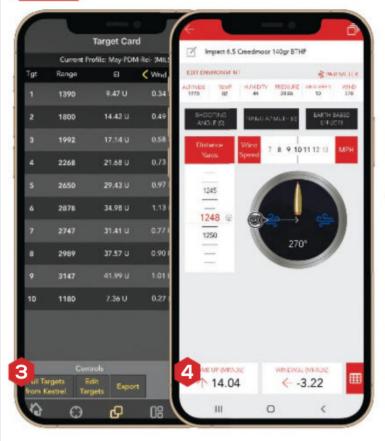


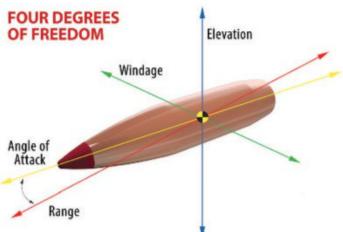
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HARDCORE SOFTWARE





"The additional degree of freedom that Hornady 4DOF app takes into account is the projectile's movement in relation to its line of flight..."

app's moving-target calculator. If additional data is needed, retained velocity and energy, TOF, spin drift, trajectory height, crosswind and Coriolis effect are available on a separate section. Target cards are easy to make, which also calculates wind 1 and wind 2 and can be exported. The third feature is the Converter section, which has many useful calculators like distance. It makes range estimation a whole lot easier. You input the target size, then the size in angular unit using your reticle, and it will calculate the target range. The angular unit conversion is also very useful. The app supports multiple Bluetooth devices.

(\$11.99; borisov.mobi/strelokpro)

3. KESTREL LINK BALLISTICS

Although not a stand-alone ballistic calculator, it is a companion app to Kestrel ballistic weather meters. You can build new gun profiles, update firmware and even view solutions remotely. Note that the Kestrel Link app does not calculate your solutions, you will need the Kestrel Meter, as it acts like the brains. The Link app recognizes which Kestrel Meter the user connects and unlocks different features for different models. The Kestrel Meter 5700 Ruger unlocks the Ruger-specific library with its prebuilt gun profiles; the meter with Hornady 4DOF matches the 4DOF solver. Kestrel Elite and the 5700X unlocks the target card, the Applied ballistics library in the Link app of over 1,000 projectiles, offering G1/G7,

Custom Drag Models (CDM) curves and Personal Drag Models (PDM) files to build profiles to load to your Kestrel Meter. When using the Kestrel Meter on a wind vane, you can receive updated shooting solutions on the firing line by remotely viewing your single target or the multiple-target card on your phone.

(Free; kestrelballistics.com)

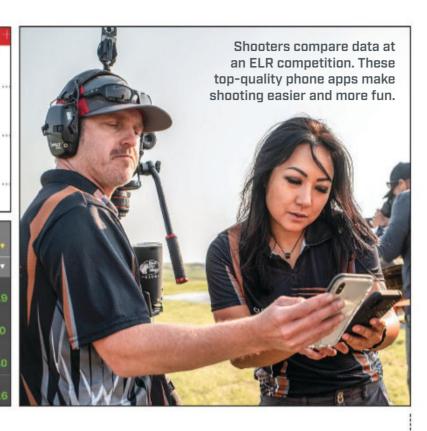
4. HORNADY 4DOF

Hornady 4DOF takes into account four degrees of freedom (DOF). In physics, a degree of freedom is a term to describe actions or responses that are independent of each other. Most ballistic calculators available to the public use three DOF—windage, elevation and range. The additional degree of freedom that Hornady 4DOF app takes into account is the projectile's movement in relation to its line of flight, which they call the angle of attack. The 4DOF app also moves away from using a ballistic coefficient (BC) to using a drag coefficient. When calculating BC using the Siacci method in G modeling, the standard projectile is a fictitious one. Using BC is a good approximation of trajectories, but mismatch in the actual drag of the projectile compared to the standard projectile can cause inaccuracies. When using drag coefficient, you can use the exact physical and aerodynamic properties of your projectile in calculations instead of comparing it to a "standard projectile."

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The quality of an individual barrel, its geometry, twist and muzzle device can be different and can slightly cause a drag shift. In 4DOF you can adjust the Axial Force Form Factor to line up your data for your individual gun if there

was a discrepancy that cannot be explained by common errors.

The performance of gunpowder changes with temperature. Some powders are more temperature sensitive than others. As the

powder's performance changes, the pressure and muzzle velocity will change as well. The 4ODF app has a powder library that incorporates a temperature sensitivity coefficient to the calculations, which can be turned on or off.

The chart works the same as GeoBallistics, but it also gives you gyroscopic stability and breaks down total elevation and total windage in additional sections so you can see individual pieces (e.g. aerodynamic jump, spin drift, wind drift). On the heads-up display, you can change the range by a slider bar or type it in. You can tap and move the direction of wind instead of inputting degrees. [Free; Hornady.com]

DOWNLOAD, LOCK & LOAD

With these advancements in ballistic calculators, our range time can be more effective and efficient. We can hit more targets and accurately shoot out to longer distances. I have personally used GeoBallistics and the Kestrel with Applied Ballistics to hit targets during competition past 2 miles. Hope to see you at the range!

PRODUCT WARNING AND RECALL NOTICE HERTER'S™ 9mm Luger 115 grain FMJ (manufactured by Winchester®)

Herter's is recalling the following lots of 9mm Luger 115 grain Full Metal Jacket pistol ammunition.

Symbol: HRT9A. Lot Numbers: SC13LD44, SC13LD45, SD10LD44, SD10LD45

Note: If ammunition was purchased before March 25, 2021, it is NOT subject to the recall.

Herter's has determined the above lots of 9mm Luger 115 FMJ ammunition may contain propellant that does not properly ignite and burn when the cartridge is fired. Ammunition containing propellant that does not properly ignite and burn may result in a bullet remaining in the barrel (i.e., a bullet-in-bore obstruction). Firing a subsequent bullet into the bore obstruction could cause firearm damage, rendering the firearm inoperable and subjecting the shooter and bystanders to a risk of serious personal injury.

DO NOT USE HERTER'S™ 9mm Luger 115 FMJ SYMBOL HRT9A THAT HAS LOT NUMBER SC13LD44, SC13LD45, SD10LD44 or SD10LD45. The ammunition Lot Number is stamped on the 50 round carton as indicated here:

To determine if your ammunition is subject to this notice, review the Symbol and Lot Number. If it is Symbol HRT9A and Lot Number SC13LD44, SC13LD45, SD10LD44 or SD10LD45,

immediately discontinue use and contact Winchester toll-free at 844-653-8358 for free UPS pick-up of the recalled ammunition. Upon receipt of your recalled ammunition, Winchester will ship replacement ammunition directly to you or issue you a reimbursement check.

This notice applies only to Symbol HRT9A with Lot Number SC13LD44, SC13LD45, SD10LD44 or SD10LD45. Other Symbols or Lot Numbers are not subject to this recall.

If you have any questions concerning this 9mm Luger 115 FMJ pistol ammunition recall please call toll-free 844-653-8358, write to Winchester (600 Powder Mill Road, East Alton, IL 62024 Attn: 9mm Luger Recall), or visit our website at www.winchester.com.

We apologize for this inconvenience.

HERTER'S June 21, 2021

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FEELIN' THE FUSION



A HIGH-TECH RIFLE DATA BOOK WORTH ITS WEIGHT IN GOLD



ow many times have you sworn to yourself that "on the next rifle," you're going to

keep a log book with all the information that you collect? If you're like me, then you've said it numerous times. Even if it's not a new rifle, you might suddenly realize the importance of keeping up with the round count on the barrel, ammo and load data, and accuracy info.

If you are more tech savvy, though, you have a better chance of collecting and keeping oodles of complex data with the Reactor Fusion module. This unit can replace the data log book for most precision shooters.

REACTOR TIME

The Fusion module is a small device featuring an accelerometer and GPS unit inside. Coupled with the Reactor app that you download, it gives the shooter a plethora of info and can be tailored to regurgitate what information you personally find valuable.

All you need to do is pair the Fusion module with your smart-phone. Just turn on the unit, open the app and the module unit pops up on the screen (multiples if you have more than one around), select yours and it's connected. The unit also stays connected even at distance so you don't have to reconnect over and over.

Once connected, you enter pertinent data on your rifle and ammo. You will need to enter in rifle specifics such as rifling twist, barrel length, action, optic type, etc. You can scan the barcode on your ammo (if using factory) and it auto-populates with brand, caliber, even price, and can even remind you to reorder after so many shots with that specific round.

The main page of the Fusion module lists your shot logs by month and overall total. Swiping through this section unveils "Rifle Usage," which lists the rifles in order of which one has the most shots on it. The "Ammo Usage" section does the same by brand/ type of ammo. It's a good, quick glance at your activity overall. From there you can select any of the shot logs to get detailed info by date, time of day and location if you desire.

While shooting, you can record a "set," which is your string of fire, during which the Reactor Fusion module displays atmospheric conditions and each shot, along with a display showing your time between shots. You can customize the info displayed with wind

-				
		Target Can	d R	ng Card
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2	1800	14.42 U	0.49 L	1.16 R
	1992	17.14 U	0.58 L	1.96 R
4	2268	21.68 U	0.73 L	1.57 R
5	2650	29.43 U	0.97 L	1.94 R
6	2878	34.98 U	1.13 L	2.14 R
	2747	31.41 U	0.77 R	0.98 R
8	2989	37.57 U	0.90 R	1.14 R
	3147	41.99 U	1.01 R	1.28 R

7.36 U

speed, standard deviation or even sun altitude. You can also activate the HUD, which pulls up info on your rifle's direction and cant, muzzle angle and so on. Additionally, you can store pictures of your groups for that particular set. You can even tailor the settings to be used for dry-fire practice. The Fusion Module has a built-in mic that can read differences in sound, and you can even figure out your trigger's lock time.

One of the most valuable features might be the accelerometer, which can collect fairly accurate recoil data. I used it for the testing of precision rifle suppressors for this issue. It displays a graph that shows deviation from initial incline just before and after each shot. It plots out each shot with a different color. As far as I can tell, it's very accurate information and can reveal a lot that is going on during the shooting process.

You can view your collected data from your phone or if you want more detailed (and easier to see data), you can log on to the Reactor Pro website and peruse your data there.

This capability is only the tip of the iceberg, and the Fusion module has the ability to do more such as sync up with a chronograph for real time velocity info, which could really help with load development. It could also work in tandem with ballistic apps and more.

The Reactor Fusion module mounts via M-LOK or Pic rail. It retails for \$299 for the regular version and \$399 for the accelerometer version. For more, visit reactorusa.com. —Sean Utley

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RUGER MAX-9 YOUR NEXT HANDGUN



The MAX-9[™] is Your Next Handgun[™] - slim, lightweight and compact for personal protection while still providing a capacity of up to 12+1 rounds of 9mm Luger ammunition.

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The M1A™ SOCOM 16 CQB puts the power of the .308 cartridge in a smaller, fast-handling configuration. John Garand's peerless battle rifle rides in an Archangel® composite chassis that features a collapsible stock and plenty of room for accessories. Upgraded with a tritium XS® front sight and a 16.25″ premium carbon steel 1:11″-twist barrel the SOCOM 16 CQB is a versatile and powerful iteration of our legendary M1A.