

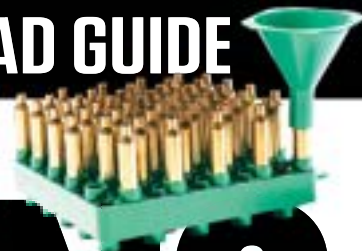
BONUS 30-PAGE HODGDON & ALLIANT LOAD GUIDE

TACTICAL LIFE **7**

THE COMPLETE BOOK OF 

RELOADING

2022



»» ROLL YOUR OWN
AMMO
2,600+ RECIPES

CAN'T-MISS
6MM & 6.5
CREEDMOOR

**QUASH THE
KABOOM!**

Critical Safety Tips

**PICKING THE
TOP BRASS**

Lapua, Starline, Hornady

CUSTOM
PRECISION
6.5 PRC BUILD



- ▶ HIGH-TECH GEAR & APPS
- ▶ MOOSE MASHING .338-06
- ▶ THE ROOKIE GUIDE TO RELOADING



RCBS
Rebel
Single
Stage
Press

INSIDE REPORTS

**REMINGTON
REBOOT**
**FEDERAL
TURNS 100**
**BERGER
BULLETS**



**TEMP-STABLE
POWDERS**
Extreme Field Test

**VERSATILE .30-06
KIMBER'S NEW
FEATHERWEIGHT**

MODERN FIREARMS™ #14
\$9.95 US \$10.95 CAN Display Unit December 27, 2021



14 >
0 74470 02163 6
ATHLON PUBLICATIONS

MODERN FIREARMS™ #14 • THE COMPLETE BOOK OF RELOADING © 2022 • ATHLON PUBLICATIONS

Printed in U.S.A.



EDITORIAL DIRECTOR Nino Bosaz
EDITOR-IN-CHIEF Jay Langston*
MANAGING EDITORS Linas Cernauskas, Mark Chesnut*
ART DIRECTOR James Walsh*
DIGITAL MANAGER Chad Adams
PREMEDIA Franco Nguyen
EDITORIAL ASSISTANT Richard Ortega
CIRCULATION CONSULTANT Scott Hill/ProCirc
COVER IMAGE Courtesy RCBS
EDITORIAL INQUIRIES editdesk@athlonoutdoors.com

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

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



SVP/GENERAL MANAGER Nick Seifert

ADVERTISING SALES
National Office

212-478-1910; sales@athlonoutdoors.com

Independent Account Representatives

NORTHEAST REGION Scott Buchmayr
 978-462-6335

SOUTHEAST & UPPER MIDWEST Amos Crowley
 216-378-9811

WESTERN REGION Scott J. Cherek
 307-635-8899

MIDWEST/CENTRAL SOUTH Dan Flavin
 248-515-8654

SPECIALTY/AT LARGE Mark Pack
 949-683-0083

DIRECT RESPONSE ADVERTISING Jim Coen
 212-478-1949

SALES & MARKETING
DEVELOPMENT CONSULTANT Carrie Roeder

DIGITAL SALES DEVELOPMENT
& MARKETING DIRECTOR Brock Norman

DIGITAL SALES DEVELOPMENT &
MARKETING DIRECTOR Niki Morrison

MARKETING COORDINATOR/
ADMINISTRATOR Maureen Pichner

ATHLON MEDIA GROUP

Corporate Officers

PRESIDENT, CEO Chuck Allen

CFO/TREASURER Mary Lee Vanderkooi

CORPORATE ADDRESSES **New York:**
 60 E. 42nd St., Suite 820,
 NY, NY 10165

Nashville:
 2451 Atrium Way, Suite 320
 Nashville, TN 37214

ONLINE STORE outdoorgroupstore.com

* Consultant

EDITOR'S NOTES



No need to start wearing tinfoil hats anytime soon.

There are no big conspiracies afoot in the firearms industry, but it is a great time to stock up on reloading supplies when opportunities present themselves.

It seems like everyone has forgotten the concept that we reload to save money...still, everything is so expensive when it comes to buying bullets, brass and primers. One thing's for sure, it's still cheaper to handload than buy factory fodder in most instances. If you're looking for the inside dope on the "shooting shortage shenanigans," check out my article on page 34.

Wondering where all the ammo went? We've ripped back the sheets to show you the naked truth about ammo manufacturing. Yours truly took back-to-back trips to Remington and Federal Cartridge to eyeball the fine folks hard at work around the clock to crank out ammo and components.

You won't want to miss Robert Jordan's trip to the Berger Bullets factory, either. With a reputation for accuracy, Berger is doing their part, too, to keep us all supplied.

Looking for some "Can't-miss Creedmoor" loads? Look no further than page 44 to find some of my faves for loading the 6.5 Creed and its hot cousin, the 6mm Creedmoor. If that's not enough, dive into some more Creed sweetness with a new Weatherby we ran through its paces, and whacked a wacky-looking whitetail to put the icing on the cake.

Need to feed some more 6.5 lust? Well, we've got a custom-built 6.5 PRC by none other than legendary rifle-smith Rich Modzelewski at Echo 3 Armory in sleepy little Chapel Hill, Tennessee—the home of General Nathan Bedford Forrest and Tennessee's famed Walking Horses.

From the Far North, famed TV host and book author Cork Graham shares his love for the moose-pounding .338-06, which starts on page 70.

At more than a century old, the .30-06 Springfield is still going strong. Check out all the loads worked up for a lightweight Kimber bolt gun on page 28.



Editor Jay Langston used a 6.5 Creedmoor handload to whack this unicorn last season.

In this issue, we've still got an expansive section of load data for some of the most popular cartridges these days, and we've thrown in a few of our old favorites, too.

Remember, all our Hodgdon and Alliant powders loading data is the maximum charge, so start your loads at least 10 percent lower by weight to begin seeking your favorite loads.

It's time to start thinking about how the weather affects your handloads. Loading in the garage during the summer heat and trying to hit the 10-ring on a bugling bull elk at 600 yards can be a challenge if you are not prepared. Take it from a pro like Kyle Lynch, and you'll pay attention to powder temperature sensitivity. Check it out on page 66.

Safety first, last and always! Veteran handloader Martin Topper shares some of his tips on safe loading practices starting on page 110.

And when you're done with this issue, check out *Tactical Life's* new free online video series at tactical-life.com/reloadingzoneseason2. We'd love to hear your feedback, so shout out when you can by emailing editdesk@athlonoutdoors.com.

—Jay Langston

THE COMPLETE BOOK OF RELOADING © is published annually by Athlon Sports Communications, Inc., 2451 Atrium Way, Suite 320, Nashville, TN 37214. Single copy price: \$9.95 in U.S.A., \$10.95 in Canada. Submissions of manuscripts, illustrations and/or photographs must be accompanied by a stamped, self-addressed envelope. The publisher assumes no responsibility for unsolicited material. Copyright © 2021 by Athlon Sports Communications, Inc. All rights reserved under International and Pan American Copyright Conventions. Reproduction in whole or in part without written permission of the publisher is strictly prohibited. Printed in the U.S.A.



TACTICAL LIFE **THE COMPLETE BOOK OF RELOADING 2022**

4 HANDLOADER'S STOCKPILE
New gear to get you fully loaded

10 BEST LONG-RANGE BULLETS
Look to Berger Bullets for all of your precision needs

16 ROOKIE RELOADING
A simple "getting started" guide for newbies

22 MEAT GETTER
Working up loads for Weatherby's new Vanguard High Country

28 FEATHERWEIGHT KIMBER
Chambered in the versatile .30-06, this rifle punches well above its weight class

34 AMMO FAMINE
A dive into what's really causing the painful shortages

38 TAKE CHARGE
Powder dispensing with RCBS' new Chargemasters

44 CAN'T-MISS CREEDMOOR
Fine-tuned reloads to hit the bulls-eye in 6mm and 6.5mm Creedmoor

50 REMINGTON REBORN
Here's to new beginnings and steady growth under Vista Outdoor

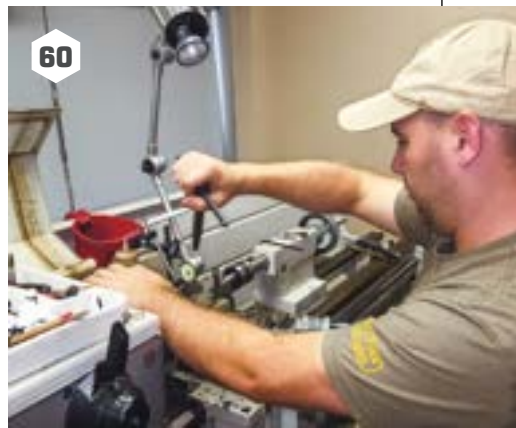
54 LIFE & TIMES OF FEDERAL
They hit the century mark in 2022 and show no signs of letting up

60 HELIX 6 6.5 PRC
Building and loading for an ultra-accurate 6.5 PRC rifle

66 THE HUNT FOR TEMP-STABLE POWDERS
Because extreme hot and cold temps affect accuracy and performance

70 AMERICAN HUNTING CARTRIDGE
How the .338-06 is the round for North American game

110 RESPECTING THE PROCESS
Steps to take to avoid costly and dangerous kabooms

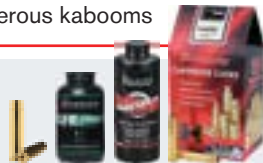


HANDLOADER'S 2022 RECIPE ROUNDUP

76 HODGDON POWDER LOAD DATA

94 ALLIANT POWDER LOAD DATA

106 BEST BRASS HORNADY, STARLINE & LAPUA





HELIX 6

6.5 PRC





Echo 3 Armory owner and gunsmith Rich Modzelewski centers up the Helix 6 barrel in his lathe to begin the rifle build process.

BUILDING AND LOADING FOR AN ULTRA-ACCURATE 6.5 PRC RIFLE

BY JAY LANGSTON



Some roads take a while to travel until you get to your destination. That's sorta the way things felt during a recent rifle build.

To get things started, I owned a Remington 700 rifle in .300 Winchester Short Magnum that was pretty underwhelming when I pulled the trigger. That wound up being the "organ donor," so to speak, after I dismembered it into its several pieces. In the words of *Six Million Dollar Man* co-star Richard Anderson, "Gentlemen, we can rebuild him. We have the technology... Better than he was before. Better. Stronger. Faster."

About the time I was ready to resurrect the inaccurate rifle, the 6.5 PRC cartridge arrived on the scene, and the pieces started coming together. Synthetic stock maker McMillan introduced their new, less expensive injection Mc3, (pronounced McCubed) molded rifle stock for the Remington 700 short action, so it joined the build party. About the same time, Helix 6 carbon-fiber rifle barrel company arrived on the scene and joined the party. Not content with Remington's bottom metal, I added Badger Ordnance's bottom metal to allow the use of AI-style box magazines. A Timney Calvin Elite trigger joined the party. All that was left to do was invite Manson Reamers to provide a 6.5 PRC reamer and chamber gauges. Then, my world got put on hold when my best friend and oldest son, Wilson, passed away tragically.

WHY 6.5 PRC?

I guess it all goes back 20 years to when an old shooting buddy, game warden and esteemed novel writer Gary Cook introduced me to the .264-caliber world. He didn't have to twist my arm to get me to chamber a rifle in .260 Remington with an 1:8 twist barrel so I could nail targets a half mile away, either. Several years later, another hunting compadre and



← Badger Ordnance bottom metal accepts AI-style magazines, and the McMillan “McCubed” stock completed the build.

turning and a case capacity to drive a 140-grain bullet more than 3,000 fps. The case profile also lends itself to good feeding from an internal box magazine in a bolt action.

When I got the project back on track, I had gunsmith and owner of Echo 3 Armory, Rich Modzelewski, chamber the Helix 6 barrel, tune the Remington action and put it back together so it would fit the Mc3 McMillan stock. Problem was that this carbon-wrapped barrel was a bit sensitive to having 0.75 inches trimmed off the chamber end of the barrel blank, which produced a weird, accuracy-robbing harmonic. A second Helix 6 barrel got chambered and threaded at full length, which cured the harmonics issue.

The new barrel differed from the first in that it printed nice, sub-MOA groups instead of dual sub-MOA groups with a 3-MOA gap between them. During the initial break-in, I swapped between Hornady’s 143-grain ELDX and 147-grain ELD Match loads. The 25-inch barrel averaged 3,033 for the 143s and 2,974 for the 147-grainers. Either load consistently kept five rounds under 1 inch at 100 yards, and gave me a baseline for working up handloads.

TO THE LOADING BENCH

My initial load sessions for 6.5 PRC centered around a couple of popular

Photo Credit: Jay Langston

SPECIFICATIONS

CUSTOM ECHO 3 ARMORY BUILD

CALIBER:	6.5 PRC (Manson Reamer)
ACTION:	Remington 700
BARREL:	Helix 6 Carbon-wrapped .264, 25 inches, 1:8 twist
STOCK:	McMillan Mc3
BOTTOM METAL:	Badger Ordnance DBM5 triggerguard
TRIGGER:	Timney Calvin Elite
CAPACITY:	10-round AI-style magazine

budding gun scribe, Kyle Lynch, started bending my ear about the 6.5 SAUM, and the “faster” component came into play for my long-range 6.5mm pursuits.

Ironically, the same day I took delivery of the aforementioned .300 WSM Remington 700 I also picked up a .260 Remington 700, which wouldn’t shoot

acceptably either. Kyle needed a donor action to send to George Gardner at GA Precision to build a 6.5 SAUM, so I donated the rifle’s action to his build.

The reasoning behind going with a 6.5 PRC is pretty simple. I wanted the option of factory ammo, simplified reloading without the need for neck



← Modzelewski squares the action threads in preparation for truing the Remington 700 action. (Above) The chamber end of the Helix 6 barrel blank.

powders, namely H1000 and Retumbo, which other shooters have had equal positive results from loading these two powders to drive mid-weight and heavy 6.5mm projectiles. Not only did I want to replicate some of these loads to find accurate, consistent loads for this particular rifle, I wanted to try a couple of less-touted powders to contribute something new to those following this new cartridge.

Working with Retumbo first, I selected Speer's new 140-grain Impact bullet. I used a Hornady Lock-N-Load O.A.L. bullet seating depth gauge to get a reading on this bullet's relation to this particular rifle's chamber. The O.A.L. gauge uses a modified case that is threaded in what is normally the primer pocket area. This modified case screws onto either a straight or curved O.A.L. gauge for chamber insertion.

"A SECOND HELIX 6 BARREL GOT CHAMBERED AND THREADED AT FULL LENGTH, WHICH CURED THE HARMONICS ISSUE."

The tool is hollow and has an internal rod that allows you to insert a bullet into the case neck, insert the tool into the chamber, and then slide the bullet forward in the modified case until the bullet's ogive comes into contact with the chamber throat. A set screw on the O.A.L. gauge locks the center rod into place, and the tool is extracted from the chamber. If the bullet is still in place in the gauge, a simple measurement with dial calipers tells you the overall length of a loaded round with a particular bullet in a specific chamber. One thing to keep in mind is that the mere process

of pushing a bullet into the chamber throat will oftentimes force the bullet 0.003 to 0.004 inches beyond first contact with the chamber throat. Keep that measurement in your head when calculating final bullet seating depth for initial loaded rounds.

There are a couple of good reasons why we've belabored the point about bullet seating depth. First is safety. If you load rounds with the bullet jammed into the lands it can and will create a pressure spike as the bullet is held in the case for a millisecond longer than if it has only the friction of



← Once everything came together, the Helix 6 barrel and superb gunsmithing job produced half-MOA groups with regularity.

leaving the case mouth to build pre-launch chamber pressure. Simply put, don't seat high-intensity cartridges with bullets touching the lands to save wear on equipment at best and destroyed equipment and injuries at worst. The second reason for knowing bullet seating depth for each bullet used in a particular cartridge is that you can fine tune seating depth to optimize accuracy.

FINE-TUNING A LOAD

Going through this exercise with the Speer Impact 6.5mm bullet revealed that the bullet seated to an overall length of 2.898 inches was in contact with the chamber throat. I dropped 59.0 grains of Retumbo in five Hornady cases primed with Winchester Large Rifle Magnum primers and seated bullets to an overall length of 2.878 inches. This gave me a bullet jump of approximately 0.030 inches. Firing the five rounds at 100 yards told me pretty quickly that this wasn't going to be a one-and-done pursuit. The five-shot group measured 1.898 inches, and velocities averaged 3,082 fps.

Next I moved to Nosler's new 130-grain RDX bullet. The OAL measurement exercise told me that this bullet measures 2.942 inches when it comes into contact with the chamber throat. I again backed off 0.020 for seating depth. A charge of 55.0 grains of Retumbo produced another group that was just shy of 2 MOA, so I loaded another five rounds with the same charge, but seated them for a 0.060 jump. Those five rounds down range didn't impress either. Velocities averaged 2,861 fps.

The next bullet up was Hornady's 135-grain A-Tip. I dropped 59.0 grains of Retumbo and seated bullets to be 0.050 off the lands, and got a slightly tighter five-shot group measuring 1.452 inches. This load averaged 3,067 fps.

PERFORMANCE

6.5 PRC LOADS

FACTORY LOADS

LOAD	VELOCITY	ACCURACY
HORNADY 143 ELDX	3,033	0.884
HORNADY 147 ELD MATCH	2,974	0.905

HANDLOADS

BULLET	POWDER	CHARGE	VELOCITY	C.O.A.L.	ACCURACY
SPEER 140 IMPACT	Retumbo	59.0	3,082	2.878	1.898
NOSLER 130 RDX	Retumbo	55.0	2,861	2.882	1.920
HORNADY 135 A-TIP	Retumbo	59.0	3,067	2.912	1.452
HORNADY 135 A-TIP	Vihtv. N565	59.0	3,081	2.912	0.528
BERGER 144 ELITE HUNTER	N565	60.8	3,130	2.961	1.383
BERGER 156 ELITE HUNTER	N570	62.4	3,148	2.992	0.676

Charge weight and bullet weight measured in grains, velocity in fps by chronograph and accuracy in inches for best five-shot groups at 100 yards.



“DRIVING THE 135-GRAIN A-TIP WITH 59.0 GRAINS OF N565 PUT THE FIRST FIVE ROUNDS INTO A 0.528-INCH GROUP.”

My search for sub-MOA loads continued when I swapped powders, opting for Vihtavuori N565. This slow-burning powder is suited for magnum rifle cartridges. Driving the 135-grain A-Tip with 59.0 grains of N565 put the first five rounds into a 0.528-inch group. This load averaged 3,081 fps.

One potential load found, I moved on to Berger's 144-grain Elite Hunter. This bullet's OAL measured 3.021 inches in length with chamber contact. I elected to seat bullets for a 0.060-inch jump. Tweaking powder charges between 56.0 and 60.8 grains of N565, I didn't find what I was looking for. The smallest group measured 1.383 inches, and the heaviest load averaged 3,130 fps and produced signs of high pressure.

Lastly, I swapped to an even slower Vihtavuori N570, and Berger's 156-grain Elite Hunter bullet. The first five rounds were seated to an overall length of 3.012 inches, which gave me approximately 0.020-inch jump. I dialed up 63.0 grains on the RCBS Matchmaster Powder Dispenser and a couple of minutes later I had five new rounds ready to go. The resulting group measured 0.676 inches, which put it into the running for a final load for this rifle. The 63.0-grain load averaged 3,160 fps, but produced ejector marks on the fired brass case heads, so I backed off a bit. The last load was 62.4 grains, which averaged 3,148 fps.

THE UPSHOT

Subsequent range days allowed me to further tweak these two best loads and gather velocity data. The accompanying chart provides more specifics and might help you track down a load that will work in your own 6.5 PRC. The positive results with the new McMillan stock, Helix 6 carbon-wrapped barrel, Timney trigger and Manson reamer might also point you in a new direction if you choose to build your own rifle, too. 🎯

➔ Modzelewski cleans metal chips off the Manson reamer to assure a top-quality, mirror-smooth chambering job.

