



Michael McCurry with Hippo, used 458 Lott with 420 grain Safari Raptor and 450 Safari Solid



235 grain Extended Range Raptors shot very well in Sako .375 H&H Kodiak

There is no greater thrill than taking a fine trophy with ammunition you have carefully loaded yourself. I have seen far too many hunters at the range spend hours, burning pounds of powder and launching boxes of bullets downrange, all in the hopeful search of that one perfect load. My goal is to make the entire ammunition reloading process far easier than you ever thought possible. Critical steps, like properly adjusting the full-length sizing die, powder selection, checking for safe loads in your rifle and how much you need to load to test for accuracy is a part of what will be covered in this easy to follow process. As I share all learnings from my prior efforts, these simple steps will soon reward with groups you may not have thought possible from your favorite rifle.

ACCURATE, EASY HUNTING LOADS

BY KEN KEMPA
DIRECTOR OF BUSINESS DEVELOPMENT FOR CUTTING EDGE BULLETS

CUTTING EDGE BULLETS

Cartridge cases—the brass—has memory. It starts out undersized in most all dimensions, so it will chamber in a rifle, while securely holding the bullet. Once fired, it expands in every direction, and the case neck will be loose and unable to tightly hold a new bullet. A full-length die is basically a slightly undersize “chamber” which the fired brass is pushed into, allowing it to again securely hold a bullet and feed easily into your rifle.

To set up your full-length die correctly, you must begin with cases that have been fired with factory loads or equivalents in your rifle. Proper use of a full-length die does not mean that you should screw it down to touch the shell holder, nor that it needs to be set back several turns to keep from pushing the shoulder back too far; the answer lies somewhere in between. With the locking ring loose and backed up, screw the full-length die down (with the ram in the up position) until the die touches the shell holder; then back the die off about 1/2 of a turn. Lubricate a fired case (I like Redding Imperial Sizing Die Wax) and run it fully into the die.

Remove the case, wipe off the lubricant, and then check it for smooth chambering in your rifle. Chances are the die squeezed the case body, resulting in the shoulder moving slightly forward. Because of this, the action may not close easily on this case, or will do with some difficulty. If the case chambers easily, you need to back the die up about 1/4 turn, and then start over with a different fired case. You have to begin initially with the full-length die at a point, where the sized case takes some effort to chamber fully.

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Michael McCourry, group photo with buffalo, used .50 B&M with 450 grain Safari Raptor

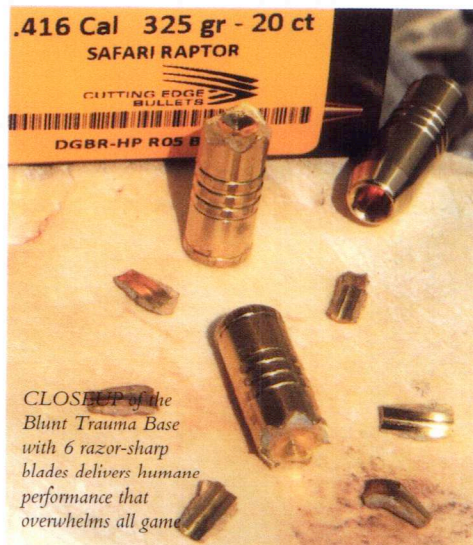
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When you have a case that is resistant to chambering, screw the full-length die in/down about “one clock hour” (a letter/number character on the die moves, for example, from the 4 o’clock to the 5 o’clock position). Relube that same case, resize it at the new deeper die position, wipe off and then function test again in your rifle. It should chamber somewhat easier this time. Continue screwing in the die, in small “clock” increments (or slightly less), until the action closes easily, required very light force using only your thumb to push the bolt down and fully closed. When you achieve this state, screw the die locking ring down to the top of the press and lock it to the die. If you close the action on the case and feel nothing at all, then you have gone too far down with the die, and you need to back up a position or two.

BULLET SELECTION

Two years ago a friend and I was got the opportunity to hunt dozens of species on an over half-million acre cattle station in Australia. I tried an unknown, new-to-me premium hunting bullet on this trip, an expanding monolithic, which performs like no other from Cutting Edge Bullets. The nose contained an

oversize hexagonal cavity which is engineered to fracture after 1.5 - 2” of penetration, sending six razor-sharp blades radiating out in a star pattern, while a blunt sharp-edged wadcutter base (Blunt Trauma Base™) continues on for straight line complete penetration. Oftentimes when dressing the game, the blades path could



CLOSEUP of the Blunt Trauma Base with 6 razor-sharp blades delivers humane performance that overwhelms all game

be seen in a star pattern on the far side of the rib cage, some blades even exited. The effect on all game taken was obvious, with most falling to broadside rib-to-rib shots, without even hitting the spine or a high shoulder shot. Our guide was duly impressed and said that his job normally starts after the hunter fires, as he then has to go track and retrieve the boar from the swamp, but with the bullets we were shooting, he just stood and watched the game fall.

For this article I chose to test Cutting Edge Bullets’ 130 grain brass ESP Raptors™ and the new 150 grain Copper Raptors™ in a Steyr .30-06. In my Sako shorter barreled (21.3”) Kodiak in .375 H&H I used the 235 grain ER (Extended Range) Raptor™, the new expanding brass 275 grain Safari Raptors™ and 300 grain Safari Solids™. The solids are unique in that they have a 13 degree angle on the nose, and a 67% of caliber-sized meplat (the flat end of the nose). Extensive testing in the lab, and repeated confirmation in the field, has proven this configuration to provide devastating, deep, straight-line penetration through thick skin, dense muscle or heavy bone. For the Cutting Edge Safari Line, pairing a solid with the slightly lighter expanding Raptor™ works

out great. Develop your loads with the heavier solid, and use the same charge for the lighter Raptor™. While the expanding version will be slightly faster, it and the heavier solid will shoot to nearly the same point of aim, making things simpler for the hunter in the field. Note that in the H&H, tested loads ran 70-80 fps faster in a 24" barreled rifle, no game animal would ever notice the difference.

DETERMINING LOADED CARTRIDGE LENGTH

As we are working up loads for a hunting rifle, they need to easily load into the magazine; single shots do not have this limitation. Measure the maximum possible cartridge length for your magazine with a caliper, let's say it comes to 3.400". You need to have around .030" clearance between the tip of the bullet and the front inside of the magazine for smooth feeding, so your loaded round length is limited to 3.370".

The best method to determine if that is a safe maximum length in your rifle is to use a tool like the Hornady L-N-L O.A.L. Gauge, and one of their modified cases in your cartridge. The tool is basically a sliding rod inside of a tube, with a thumb screw to lock the inner rod in place. A modified case is first screwed onto the end. To use, you simply drop a chosen bullet into the case neck, and adjust the sliding rod down so the bullet is very deep in the case. With the bolt out of the rifle, the assembly is fully inserted into the chamber until the case shoulder contacts the shoulder of the chamber. Loosen the thumbscrew, and moderately push

rod and bullet forward against the rifling. As you now tighten the thumbscrew, the overall cartridge length required for that bullet to just touch the rifling has been captured.

When the assembly is removed, the bullet may remain in the barrel. Push it out to the rear with a cleaning rod inserted from the muzzle. Place that same bullet back into the case, measure the overall length, and then adjust your seating die accordingly; to have either the suggested gap of .025" from the start of the rifling, or a length to properly feed from your magazine, whichever results in a shorter, loaded cartridge length.

There is a great product I always use on my rifle brass, a neck chamfering tool for use with VLD (Very Low Drag) bullets. It cuts a much gentler angle on the case mouth, which helps prevent scraping any bullets as you seat them.

POWDERS

You will most often find the greatest accuracy variances in a rifle, with a given bullet, will be noted between different powders, not by varying the charge of a certain powder by a grain or two. I regularly test a minimum of six powders with any given bullet. If I really



Always try at least 4 to 6 powders to find most the accurate combination with your chosen bullet

“I regularly test a minimum of six powders”

want that bullet to shoot, I may try a dozen or more different propellants. Rarely am I disappointed; usually I am rewarded with exceptional accuracy.

To select the powders you will test, I would first start with recommended powders from the bullet manufacturer's loading manual.

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Hornady's L-N-L O.A.L. Gauge helps to determine length to touch rifling with a given bullet

.30-06 in Steyr ProHunter, 23.6" barrel						
Bullet	OAL	Powder Type	Charge-grains	Velocity-fps	Ft. Lbs.	AVE. 3-shot group size @ 100 yds
130-gr Cutting Edge ESP Raptor	3.280"	IMR 3031	51.2	3,230	3,012	0.75
		IMR 4895	52.3	3,225	3,003	0.62
		H4895	52.5	3,172	2,905	0.72
		Win 748	53.5	3,137	2,841	0.86
150-gr Cutting Edge Copper Raptor	3.365"	AA 2520	53.3	3,055	3,109	0.88
		RL 17	56.9	3,054	3,107	0.99
		IMR 4895	52.2	3,043	3,085	0.57
		IMR 3031	49.4	3,024	3,047	1.00
		N530	49.8	3,021	3,041	0.75
		H414	57.8	3,016	3,030	0.71
		IMR 4320	52.3	3,008	3,014	0.91
.375 H&H in Sako Kodiak, 21.25" barrel						
235-gr Cutting Edge ER Raptor	3.596"	AA 2520	72.0	2,862	4,275	0.81
		N530	67.5	2,769	4,002	0.77
		RL 15	74.7	2,761	3,979	0.88
		IMR 3031	66.4	2,758	3,970	0.90
		H322	58.0	2,516	3,304	1.10
275-gr Cutting Edge Safari Raptor	3.610"	BigGame	76.2	2,695	4,436	0.89
		RL 15	71.0	2,612	4,167	1.10
		N550	76.5	2,586	4,085	0.74
		IMR 4064	69.1	2,558	3,997	0.93
300-gr Cutting Edge Safari Solid	3.610"	BigGame	73.9	2,533	4,275	0.92
		N550	76.5	2,499	4,161	0.79
		RL 15	70.4	2,495	4,148	1.20
		IMR 4064	68.8	2,492	4,138	1.00
All .30-06 loads use CCI 200 LR primers; .375 used CCI 250 LR Magnum. Both used Hornady brass.						
<i>Begin by reducing all loads by 4 grains. Only for modern rifles in good condition.</i>						

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The price of several cans of powders- that you currently may not have- is very small in comparison to the hunt you will be going on, the cost to get there, your rifle, your scope, or even the clothing you will wear. If you do not try alternates, you will never know what your rifle may be capable of. I have many stock hunting rifles, which regularly shoot into less than one-half inch with a particular bullet and powder combination, yet may only do two, three or four times that with other powders.

CHARGE WEIGHTS

We are striving to find an accurate, full-power hunting load, not just a load that is accurate at the sacrifice of velocity. So if you are working with a .308 class of cartridge, calling for a top load using 46 grains of 'ABC' powder, you might load rounds with 44, 45 and finally 46 grains. With an '06 type of cartridge, and

the maximum charge calling for 55 grains of 'LMN', our test loads will be assembled with 53, 54 and 55 grains. If shooting a magnum I prefer to start 3 grains below the top load. So if powder 'XYZ' shows a top charge of 78 grains, we will load 75, 76, 77 and 78 grains. We want to progressively check published load data as being safe in our rifle.

I have not yet said you will actually fire the maximum charge, just that in the development phase, you will be loading up to the maximum charge. The next steps will let you know how to proceed.

INITIAL LOADINGS

You should only need to go to the range twice to find the best hunting load, unless you want to get real fussy. Our first goal is to check our loads for safety. For this we do not need to burn

up pounds of powder and boxes of bullets. Load up only one round each, sequentially with each powder. For example, shooting a .30-06 with 150-grain bullets, you might load one round at 52, 53 and 54 grains of powder 'EFG'. You would load one round each at 55, 56 and 57 grains with a slower powder 'HIJ'. And finally, with the still slower powder 'KLM', you load 57, 58 and 59 grains. We are just loading to ensure that maximum published loads are safe in our rifle.

If you have decided to try four powders- and load in one-grain increments, starting two grains below the maximum- you will only be loading three rounds with each powder. Loading three incrementally increasing rounds, results in only twelve total rounds in your rifle, if testing four different powders. Needing to load so few rounds is the reason I often select

“It is the bullet which must do the work”

six or more powders a time. Once at the range, the few extra minutes spent loading, could reward you with the load you have always been in search of.

FIRST RANGE TRIP- CHECKING FOR SAFETY

As we are working within the range of published loads, I will not get into detailed pressure checks like measuring case heads/belts, or trying to “read” primers for signs of excessive pressure. All we need to do is check for the functional safety of these loads in our rifle. Be it a bolt, single shot, lever, pump or semiautomatic, the cases must eject and the action function in a normal fashion. Another obvious sign that you need to stop shooting a load in a rifle would be burnishing or scraping of the case head, due to excessive pressure extruding the brass against the bolt face.

These things being said, fire the loaded rounds from the lightest charge to the heaviest, one powder type at a time, while watching for any warning signs. If you have a chronograph, it would be great to also record the speeds. Later, when testing for accuracy, it would be nice to know for powder ‘EFG’, which gives only 35 fps less velocity, is shooting groups half the size of powder ‘HIJ’. If the second (or first) round within a powder type shows any of the above cautionary signs, stop right there and do not shoot any higher charge loads for that powder. You will need to scale back the loads of that powder for this rifle. Just because a book lists maximum load does not mean you should just dump the top charge in the case and bang away,

without regard to obvious warning signs.

LOADING FOR ACCURACY- SECOND RANGE SESSION

We want to develop accurate and fast hunting loads. So far we have only fired nine, twelve or maybe up to eighteen rounds of ammunition, if you went as high as trying six different powders. You will most often find the greatest accuracy differences with a given bullet will be noted between different powders, not by varying a given powder-type by a grain or two. That is the reason for trying as many powders as you can. Load only the charge you found to be the maximum safe amount for that powder in your rifle.

With this in mind, if you only started with three or four powders, then I recommend that you load up all of them to check for accuracy. If you tested six or more for safety, then you might want to pick the top three or four for velocity, based upon the published data or your chronographed results. Later, if none of these powders give you the accuracy you desire, you can always give the others a try.

As most game will not give you a chance to fire over three rounds, I see little need in firing more than three rounds per target, to test for hunting accuracy. The lowest number of rounds to be fired to determine hunting accuracy is two, three-shot groups with each powder. I also like to start with a clean barrel for each powder, just to be fair. This also allows for barrel cooling time between powders. One fouling shot, plus two 3-shot groups, means that seven rounds is

the number I will normally load, to check one specific charge of a certain powder type for accuracy.

Loading in one grain increments, beginning two grains below and progressing up to the maximum listed charge, requires a total of only eighteen rounds to check for safety in your rifle, if trying six different powders. After you have fired the first test rounds for safety, go back home and load seven rounds with each of the different powder type’s maximum charge. This results in having to load only 42 more rounds, to check accuracy of full power hunting loads, using those six different powders. Normally, if I am certain of the bullet weight I want to use I will just start with 100 bullets, using the last 40 to reload with my final safe and accuracy-proven load.

THE END RESULTS

You can make the process a lot more complicated than this, but I do not recommend it. I have since used this process with calibers from the .204 Ruger, up to the .50 BMG, and been able to obtain under one-inch groups with most all rifles. The attached data sheet shows the excellent results I obtained shooting two recent additions to my rifle battery. Just last month a huntress with recoil limitations, took the brass 130 grain ESP Raptor™ with slightly reduced loads in her .30-06 to Africa, harvesting a half dozen plains game. Of interest is that only one bullet was recovered— all others gave complete penetration. Larger caliber Safari Raptors™ accounted for the heavy game taken by my friend in the other photos, again with the Blunt Trauma Base™ most always exiting the game. Yes it is nice to have deluxe rifles and the latest optics, but never forget— it is the bullet which must do the work of producing a quick and humane harvest. Above all else, this should be the goal of every ethical hunter, from Alaska to Alabama, or Africa to Australia. ★

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