



Technical Newsletter From Your Ballistic Technicians

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Sierra 5th Edition Manuals and Software now Available!!



The wait is over. Sierra's new reloading manual is now in stock. This edition (one book contains rifle, handgun, and single shot pistol data) retains the popular three-ring binder format and has been modernized with new cartridge introductions, histories and reloading recommendations. New bullets, new cartridges and new powders make this manual a necessity in every reloader's library. This edition of the manual does not contain the Exterior Ballistic tables that can be found in previous versions or calculated using the INFINITY software. Renowned ballistic experts Ted Almgren and Bill McDonald have condensed the section dealing with exterior ballistics into one of the most comprehensive dissertations available on the subject today. Retail price for this manual is \$28.95.

Also new for 2003 is the INFINITY v 5.0 Exterior Ballistic Computer Program. This Windows based program is available on cd-rom for \$39.95 as a stand alone ballistic program or as the Sierra INFINITY v 5.0 Suite with all of the data from the 5th Edition manual for \$59.95.

Sierra Match Jacket Sales

As a reminder, Sierra now offers a limited number of Match Grade bullet jackets on a consumer direct basis. All Sierra Match jackets are made from special gilding metal copper alloy composed of 95% copper and 5% zinc. In order to match our different bullet requirements and meet stringent quality objectives, we buy nineteen different sizes of gilding metal and require three times more dimensional and quality control than is considered standard in the copper manufacturing industry.

Jackets are sold in even quantities of 1000 as priced here. Prices do not include shipping. Orders accepted in the U.S. only at this time.

Sierra Pricing for Match Grade Bullet Jackets

Stock #	Description	\$/1000
T6F	.22 cal, .705 Length Jacket Finished	\$45.77
T1505F	6mm, .810 Length Jacket Finished	\$58.25
T2200F	.30 cal. 1.155 Length Jacket Finished	\$83.50

We take your privacy seriously!!!

Just a brief note to all of you who receive the Sierra X-Ring Newsletter. Sierra Bullets does not rent, sell, or trade our mailing list to anyone. When you provide your name, address, phone number, or e-mail address to Sierra, this is where it stays. In addition, the Sierra Store section of our web site at www.sierrabullets.com is completely secure.



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What O.A.L. is Best?

by Duane Siercks

One of the prevailing questions fielded by the Sierra Tech's deals with seating depth or Cartridge Over All Length (O.A.L.) in relation to accuracy. A misconception that has a very strong following states that a bullet seated to touch the rifling or very close to touching will provide "best" accuracy. While this may hold true in a large percentage of firearms, it should not be considered an absolute. There are many firearms that will have throats long enough that touching the rifling will be impractical if not impossible. This can cause the O.A.L. to be so long that feeding cartridges from the magazine impossible, creating a single shot out of your trusty repeater. Also many firearms will prefer that the bullets have some "jump" to the rifling as well as in most hunting situations it is recommended to keep the bullet from touching the rifling. This helps to avoid a bullet being stuck in the rifling and being pulled from the case when trying to unload a loaded cartridge.

Finding the "sweet spot" with a bullet in your firearm can be achieved in a methodical fashion by establishing the maximum length possible for your firearm and bullet combination by establishing these three things:

1. Maximum O.A.L. with bullet touching the rifling - Determine at what length the bullet touches the rifling. We then know we will need to stay a little shorter than this length.

2. Magazine length - In order to allow the cartridges to feed from the magazine of our bolt-action or semi-auto the O.A.L. will need to be slightly shorter than the magazine box.

3. It is highly recommended that a bullet be seated so that it has at least one bullet diameter amount of the bearing surface in contact with the neck of the cartridge case. This helps to provide uniform tension as well as to hold the bullet concentric with the case and will help accuracy considerably.

Once these three things have been considered, we then can determine what would be the maximum O.A.L. for this bullet and firearm. Start working up loads with a powder that has been a good choice for the cartridge/bullet combo and seating the bullet to the determined max O.A.L., then look for the charge that gives the best potential for accuracy. When that charge is found, move the bullet back, making the O.A.L. shorter, by .005" to .010" and shooting again to see what difference this made in accuracy. It is not unheard of to end up with the bullet being set back by .030"-.050" depending on the bullet/cartridge and firearm combination and of course safe pressures. Having found the "sweet spot" for this combination go back and work with the powder some more to further tune the load. If a different powder is used, one would want to maintain your sweet spot O.A.L. and work up with the new powder.



Holiday Guns

by Carroll Pilant

Christmas is always a time when guns make great gifts. Usually several rounds get fired through it that day and cleaning (if it gets cleaned, other than wiped down), consists of a brush run through a time or 2 and maybe a couple of patches with solvent. Then it gets put up until the next session, when the process is repeated. Eventually, you get a build up of powder fouling and copper in the barrel, which of course you think is clean. Accuracy falls astray and you can't figure out why. When you call us about your accuracy falling off, the first thing we will most likely ask you is how you have been cleaning. That is when you find out that you haven't really been cleaning, only brushing the dirt under the carpet edge. Thorough cleaning will

help maintain your accuracy. Barrel break in will also make cleaning much easier and usually enhance accuracy and really should be done on every new rifle. Look at the way you are cleaning though. You may want to put a little more time and effort into cleaning, to keep your rifle shooting like it did when you first got it. If you are a proud owner of our new 5th Edition Reloading Manual, there is an excellent article by Kevin Thomas in back on cleaning rifles and handguns that you should read to keep your firearm in top shooting order. You may also find that you need to go back and re-clean some of your older firearms. This is just one of the many things the new manual has to offer. Good luck and have a good season shooting.



Richard Jones from Sarcoxie, MO with his trophy from a recent Africa trip. Richard used the Sierra .338 caliber 215 grain GameKing for all of his hunting on the trip.

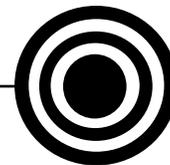


Steve Fountain from Stittsville, Ontario and his posse during a recent outing.

Why do bullets change direction?

by Robert Treece

On several occasions I have had the question posed, "heard that bullets can change direction upon impact - why?" It can be caused from several situations. Most likely, it will be from a ricochet after impact with bone or other mediums. Bone, as an example, is hard but has different shapes and some elasticity. This "force" can radically change the flight of a bullet and is unpredictable; as it could head off in any direction (yes, even back the way it came)! The rotational spin imparted on a projectile by twist in the barrel also comes into play but again, because of a shape change (mushroom or bend), subsequent travel is unpredictable. And not to forget the possible degradation of flight characteristics, caused by the projectile moving through brush or other obstructions, which could make the bullet hit at an angle upon first contact-this can cause a "deviation"; not unlike skipping rocks on water. These stresses can also cause a bullet to blow up or fragment. Maybe this will help hunters understand why unusual things can happen after we pull the trigger.



FUNDRAISER-hot, loud, friendly shots fired and a RECORD

This past May 4th, 2002; the Gateway-Unawep Fire Department held their semi-annual event, a dynamite shoot. The "target" is a regular pop can with the top opened and explosives inserted-no blasting cap is needed and then placed at various distances to be fired at; from 100 out to 830 yards, with center-fire rifles (any sight and only cartridges smaller than 50 bmg allowed).

Well, cinch down your hat; Mr. Dale Neese of Cheyenne, Wyoming made lots of noise-the most that had ever been accomplished by a single shooter. No one had ever hit more than one of the BIG DOG (longest distance-775 to 830 yards) targets before-first Dale tied by hitting one; then broke the tie with a bang on a second can and to finish off the vocal statement, hit a third target that day! Eleven shots were taken to accomplish this feat. The distances were confirmed with a Simmons laser range finder

and the angle from bench to target can be dramatized as to steepness by the GPS unit indication of an elevation difference of 600 feet!\

Get this, his rifle is an off-the-shelf Remington BDL, topped with a Leupold 6.5-20x40 in the .300 Ultra cartridge; hand loaded, using a Sierra 150 grain SPT ProHunter (#2130) Yes, our flat base and lead-tipped hunting bullet. Remember this is at 830 yards and not on level ground-GREAT SHOOTING!!! This record has been announced and published in the Wyoming Tribune-Eagle and a letter acknowledgment on the official letterhead from the sponsors of the shoot. Shooters from several states attend these Colorado activities-admission to watch is free; view information about the twice yearly event at www.acsol.net/~firedept.dynamite.html.

Mr. Neese says he only shoots Sierra bullets in his center-fire rifles; we at Sierra know why and are not surprised.



RPM of a Fired Bullet

by Robert Treece

Firearms have rifling twist in the barrel to impart stability to a projectile, keeping it pointed in the right direction without "wandering around", like a well thrown football.

RPM of a bullet is calculated from a very simple formula: velocity times 720 (a constant) divided by twist in the barrel.

Some examples to "chew" on: .22-250 Remington with a 1x12" twist can push 55 grain bullets to 3700 fps-figured thusly; 3700 times 720 divided by 12 equals 222,000 rpm.

You could use 40 grainers high-velocity in a AR 20" with 1x7 twist and they can reach 3600 fps-that turns over 370,000 rpm; think what a 24 or 26" barrel would do with the added velocity.

Should you care? Yes, this spin also effects how a bullet expands and should be considered when selecting a bullet for a specific usage-remember that there are usually several choices in a given diameter. If you don't know which one should be used, call us!