



Technical Newsletter From
Your Ballistic Technicians

Volume 5, No. 3

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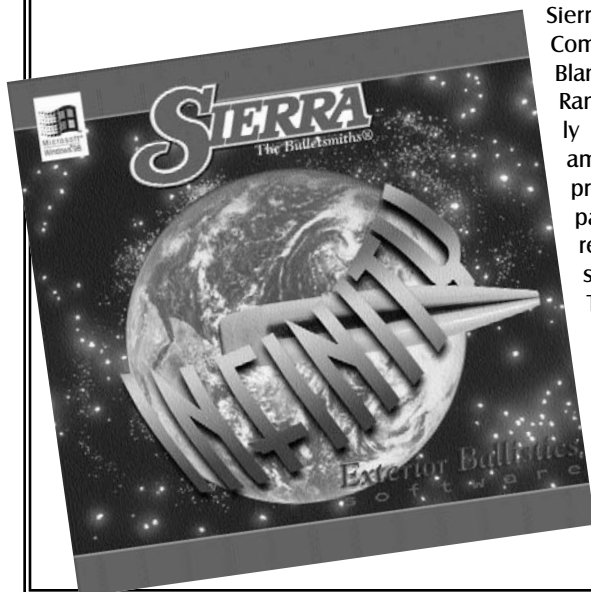
Riding the Rifle

by Dave Brown

The maximum cartridge length given on the introductory page of every cartridge in our manuals is based on a SAAMI specification that is given as a guide for the cartridge to function in all guns chambered for that cartridge. It is given with standard cylinders, magazines, feed mechanisms and chambers in mind. However, riflemen often think that a maximum cartridge length or a cartridge length we give for a particular bullet will place that bullet at or very near the rifling; but, that isn't usually our intention. This misunderstanding stems from riflemen hearing that the best accuracy comes from being close to the lands, which is often true. However, guns and bullets both vary considerably. Two guns of the same model can vary a great deal. Less known is the fact that two different lots of the same bullet can also vary in tip length, shank length (bearing surface), and slightly in radius near the bearing surface juncture. This does not show up in a comparator measurement when bullets are taken from the box and compared. They need to be placed in the gun using a Chamber-All or any of the usual methods of finding the rifling with a particular bullet. Then the cartridge can be put into a comparator. Only then will the difference appear without confusion. Bullets vary due to form die wear, and is unavoidable. Cartridge lengths stated in manuals are quite generic, and even then can be too

long for some chambers. If for that reason and no other it is important to find the lands with each lot of bullets used in a rifle to be certain it is not jamming the lands. The load data in manuals is based on the bullet having a jump to the rifling. Excess pressure can occur with the stated maximum charge if the bullet is at the rifling. Guns vary from one to another in their accuracy increase or decrease with the bullet at or near the rifling. Some guns increase their accuracy significantly, others do not. A handloader can determine this for a specific gun by shooting groups while working up loads with the bullet at the rifling. Then the bullet can be moved away from the rifling incrementally and the same propellant charge used as more groups are shot. Pressure will be somewhat diminished as the bullet is moved further from the rifling. Riding the rifling may be a moot point if the magazine is to be used and it inhibits the needed cartridge length. Seldom this side of varminting and situations of single loading for matches is the gain in accuracy necessary. If you are determined to ride the rifling each and every different lot of bullets you shoot within .040" of the lands will have to be checked in the gun and then on a comparator to decide if a new seater punch setting is required.

Sierra INFINITY Exterior Ballistic Software Program



Sierra Bullets announces the introduction of Sierra Infinity Exterior Ballistic Computer Software. Infinity offers multiple trajectory charts and graphics, Point Blank Range, allows for you to Calculate Zero, Uphill/Downhill shooting, Maximum Range, and more. Easy to use Win95/Win98/WinNT format makes Infinity extremely user friendly. Bullet library includes major bullet manufacturers as well as ammunition companies and allows for addition of new and custom bullets. This program is available in CD-Rom format only. System requirements are: PC compatible 80486 or higher, Win95, Win98, or WinNT 4.0 with SP3, 8mb ram (16mb recommended), CD-Rom drive (must support long filenames), pointing device, sound card, speakers or headset, VGA color video, 5mb free hard drive space. The stock number for Sierra Infinity Exterior Ballistic program is 0300 and is only \$39.95 + S&H

Sierra Infinity is also available coupled with Sierra's 4th Edition Rifle & Handgun Manual on Cd-rom. The stock number for this all encompassing combined interior and exterior ballistic program is 0301 and is priced \$59.95 + S&H.

While both programs will be available in January 1999, orders are being accepted now. Call 800-223-8799 or e-mail to sierra@sierrabullets.com to place your order.



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Sierra "Moly-Coated" Bullets

Sierra has teamed with the National Highpower Rifle Champion David Tubb to offer moly-coated bullets. David Tubb's company, M.C.I., Inc, is utilizing the NECO© moly coating process to coat Sierra Bullets with molybdenum disulfide.

Sierra has researched scores of moly-coatings and has chosen the NECO© process for its reduction of metal fouling in the barrel and the ease of barrel cleaning.

Sierra is now offering the following bullets with the Tubb/NECO© moly-coating:

#1400M .22 caliber, 52 gr. HPBT MatchKing
#1440M .22 caliber, 40 gr. BlitzKing
#1455M. .22 caliber, 55 gr. BlitzKing
#9377M. .22 caliber, 77 gr. HPBT MatchKing
#1502M 6mm, 55 gr. BlitzKing
#1570M 6mm, 107 gr. HPBT MatchKing
#1725M 6.5mm, 120 gr. HPBT MatchKing
#1742M 6.5mm 142 gr. HPBT MatchKing
#2200M. 30 caliber, 168 gr. HPBT MatchKing
#2275M. 30 caliber, 175 gr. HPBT MatchKing

#1410M .22 caliber, 53 gr. HP MatchKing
#1450M. .22 caliber, 50 gr. BlitzKing
#1380M. .22 caliber, 69 gr. HPBT MatchKing
#9390M. .22 caliber, 80 gr. HPBT MatchKing
#1507M 6mm, 70 gr. BlitzKing
#1715M 6.5mm, 107 gr. HPBT MatchKing
#1740M 6.5mm, 140 gr. HPBT MatchKing
#2155M. 30 caliber, 155 gr. HPBT Palma© MatchKing
#2210M. 30 caliber, 190 gr. HPBT MatchKing

All Sierra moly-coated bullets are packaged 500 bullets per box and will be available in 1999.

Pressure: Hot or Not

by Paul Box

I think all reloaders have been taught to watch for flattened primers, but they are not always signs of high pressure. Soft primer cups will flatten quicker than a hard one, plus there can be slight differences in both the hardness and thickness of primer cups out of the same box. Firing pin extrusion is another mistaken high pressure sign that is more often caused by oversized firing pin holes in the bolt face and if this is combined with soft cups, the extrusion can become excessive.

The dreaded ejector mark on case heads is often thought to be a sure sign of excessive pressure but it can also be caused by brass that is too soft in the head area causing brass flow even with mid range loads. Pressure signs should always be looked at very carefully, using two or more pressure signs before judging if it is hot or not. If you do perceive high pressure always back the load off until the pressure signs go away.

Bullet Pull

by Dave Brown

With most rifle dies the sizer will make the inside dimension of the case neck as much as ten thousandths smaller than it is after the expander is pulled out of the neck. When this occurs the neck usually flexes back about a thousandth smaller than the expander. Expanders that are one to three thousandths under bullet diameter can be adequate to give sufficient bullet pull depending upon what forces are placed upon the bullet. A benchrest user using a quick burning propellant needs far less tension on the bullet than an elk hunter burning slow propellant or a service rifle competitor using a semi-auto. The benchrest user may be able to move the bullet with his fingers. A hunter using all his effort should not be able to move the bullet while trying to shove it into the case with the bullet's nose against a block of wood. The semi-auto user should not be able to move his bullet even after feeding an inert test cartridge against an inert case already in the chamber.