



Technical Newsletter From  
Your Ballistic Technicians  
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## **Why Loading Manuals Vary** by Dave Brown

We receive a great many calls questioning how it is that loading manuals vary so much in their maximum loads. After all, the loads were developed with the same bullet weights and propellant charges, weren't they? It's a fair question, since it does seem that with all the testing that goes into them, all manuals should theoretically arrive at the same maximum loads for a given set of components.

Actually, manuals are a report of what was shot with safe results for a particular gun and group of components, under specific conditions. Seldom does a starting load prove to be a maximum, but it can happen. Many handloaders make the dangerous assumption that the listed "maximum" loads are not really maximum. They believe published maximums are reduced to provide some degree of buffer between the listed max, and the "real" maximum. This simply isn't the case.

The answer to why manuals vary lies in the fact that guns, propellants, cases, and primers vary. As an example, we recently tested a popular rifle cartridge in two identical barrels. We chambered them here in Sierra's machine shop, using the same reamer in both barrels. Despite being from the same barrel maker, and being as nearly identical as we could make them, one maxed three grains above the other.

The point here is obvious; guns vary. Not only does the pressure vary in different guns, so does the velocity. A handloader cannot assume he is getting the same velocity as the manual's gun gave, even if the barrel lengths are the same. An increase in pressure can accompany a decrease in velocity. In short, a handloader must understand that cartridges act differently in various guns. He can then understand that factors such as the variation in burning rate, case capacity and hardness, primers, and air temperature affect the overall performance of any component combination. Remember, always start your loads low, and work up carefully as pressure signs in your gun will allow.

### 1995: A Championship Summer

With the 1995 competitive season winding down, Sierra has once again enjoyed a very successful summer. While space does not allow the listing of all of the local, state, and regional championships won by competitors shooting Sierra bullets, a partial listing of high profile successes is listed here.

Congratulations to all Sierra shooters and winners this year. Our staff enjoys receiving your letters of accomplishment and we share each with the men and women at Sierra responsible for maintaining the precision and accuracy you demand. We all wish you continued success.

American Handgunner World Shootoff Champion:	Jethro Dionisio
NRA National Highpower Rifle Silhouette Champion:	Pedro A. Ruedo, Jr.
NRA National Hunter Rifle Silhouette Champion:	Marco Borrega
Bianchi Cup:	John Pride
Jeep Masters X Grand Master:	Doug Koenig
Jeep Masters X Rifle Master:	G. David Tubb
Jeep Masters X Handgun Master:	Jerry Barnhart
Jeep Masters X \$100,000 Shoot Off:	Jerry Barnhart
NRA National Highpower Rifle Champion:	Mitchell Maxberry
Chevy Truck Sportsmans Team Challenge:	Brian Enos, Doug Koenig G. David Tubb
European Champion Action Pistol:	Angus Hobdell
Canadian National Highpower Champion:	Jim Paton
Canadian National Highpower Aggregate Champion:	Alain Marion
Canadian National Highpower Unlimited Champion:	Bill Wylde

On July 8 at the Original Pennsylvania 1000 yard Benchrest Club, John K. Voneida II broke the world record 1000 yard bench rest. John shot an incredible 3.151" for a 10 shot group. John's accomplishment broke the previous record held by Frank Weber of 3.960" set in November of 1993. Using Sierra's .30 Caliber, 200 gr. HPBT MatchKing, John scored a perfect 100 in winning, and at the same time taking the record away from Sierra's 220 gr. HPBT MatchKing. Congratulations John Voneida!!



John is shown with his Remington model 721 action and a walnut laminated stock he made. The barrel is a Hart stainless steel match barrel. The scope is a Leupold 24X target scope. the rifle is chambered for a .30 Cal. cartridge which he designed based on the 8mm Rem. Mag. Cartridges were loaded using Federal 215M primers, IMR 7828 powder, and of course the Sierra 200 gr. HPBT MatchKing bullets.



## Working Up A Load

By Paul Box

Q. I have just purchased a new rifle in one of the .243 varmint models. My shooting will be on woodchucks from 150 to 400 yards. How should I develop a load for it?

A. First, choose a thin-skinned bullet, such as our 80 gr. Blitz and one of the slower powders like IMR-4831. Load a dummy round with the bullet seated out long, and check to see if it touches the rifling. Set your over-all-length (oal) for the bullet to just lightly touch the rifling if magazine length will permit. Start out by loading three cases with the starting load of 40.2 grains with a standard large rifle primer and the brass you prefer. Shoot these three for a group, and note the load on the target. Load three more half a grain higher and test these. Continue increasing your load in this manner, watching for pressure signs. We recommend a maximum load of 44.6 grains. Now review your targets and pick out the load that showed the most promise and load this again, this time seating your bullet .005" deeper. Test this combo, then try .005" deeper again, continuing thru a total of .025" decrease in oal. Also try using different brands of primers, again staying with the same load. This will fine tune the load to see if it has anything better to offer. Loading in this fashion will help develop a load that fits your individual rifle.

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