

## **Gun Notes: A Common Sense Look at Handgun Hunting** **by John Linebaugh**

My first sixgun was an old 3-screw .357 Ruger Blackhawk, 6 1/2" bbl. I shot this for about 1 year and then traded it to my brother and bought an identical gun 4 5/8" length. I was about 15 or 16 then and considered myself somewhat of a sixgunner. In my native state of Missouri I probably was. But in the eyes of real sixgunners I was plenty wet behind the ears. I read everything I could in the magazines about shooting and game shooting. To take a deer with a sixgun seemed an enormous task, one requiring exceptional skill and ability. I did not feel I was up to it. I continued to pack a sixgun for the years to come but never put it to use on anything bigger than rabbits and a few treed coon.

In 1976 I moved to Wyoming and was fortunate enough to meet two gentlemen who had over the several previous years taken nearly 100 head of big game between them - with sixguns! From what they taught and showed me I began to plan for some "sixgun only" hunts. I had reams of material, and each "expert" had his idea and method. However, none of them seemed to fit comfortable on me. Many used the short, underpowered rifles but I wasn't fooled by that approach. I was too deeply engrained with theories of Elmer Keith.

I had a .44 Mag Super Blackhawk but planned to use a gun of equal power but with less noise and recoil. How could I do this? With the grand old .45 Colt. It gets its energy from bullet weight and caliber. I purchased an Old Model Abilene (pre-Mossberg) in 6 1/2" barrel length and started loading both 250 Hornady JHP and 260 Keith cast slugs. My loads were 29 gr. gr. H-110 under the 250 Hornady slug for 1420 fps and 27 gr. H-100 under the 260 Keith cast slug for 1400 fps. Both shot to the same point of aim and were very accurate loads. (These loads are safe in... my gun... I don't know yours and do not suggest you use these - they are for information only.)

In Wyoming one can obtain up to 3 antelope licenses per year by drawing for addition doe or fawn-only permits. With permits in hand and .45 Colt Abilene I was very determined to become a true Sixgun or Handgun Hunter. The first antelope I shot was a doe bringing up the rear of a band of about 30 head. I was hidden and watched them file past....I purposely picked the last doe as I wanted an animal that was all alone as much as possible. First of all because I didn't want to lose sight of my intended target in the dust storm that always follows a shot. Second, I wasn't too steady and did not want to cripple any other animals. As the animals filed past I set my unsteady sights on the front shoulder section of the last doe antelope. I was concentrating so much on sight picture, trigger squeeze etc. I failed to note the sudden stop of the next-in-line antelope. They bumped together just as the Colt went off and to my dismay the lead antelope crashed to the ground as the last doe, which was my intended target, stormed off with the band.

I carefully reloaded my empty chamber and stepped off the 110 yards to the doe. My slug, a 250 Hornady JHP, had hit her "exactly" dead center in the round steak area. She never regained her feet after taking the shot. I finished her with a neck shot and started looking for my slug after dressing her. The 250 JHP cut dead center through both rear hip joints, shed its jacket and came to rest just under the hide on the off side. Now that's not like I wanted the story to end....I would like to tell you I hit her within an inch of where I was aiming and she folded with a perfect heart shot. But I believe in the truth and facts.

Embarrassed a bit I was. But I learned many things from that shot. The most important thing I gained was, CONFIDENCE. More than I could ever gain from all the magazines ever printed. True, I couldn't shoot as straight as say, Ed McGivern, but did get close, missing my intended target by about 1 foot at 110 yards. And I did hit meat. And the knock down power my gun delivered even with a lousy shot made me realize the true potential of the big bore sixguns. Everything I had read led me to believe the biggest and best sixgun could only approach a .30-30 rifle. Malarky! I do not believe that anymore.

The "industry" give us foot-pounds of energy figures to ponder over on cold evenings. We could shoot phonograph needles at the speed of light for, say, "20 tons" of energy and never stop anything bigger than a bull pack rat. Or we can shoot heavy .44 and .45 caliber slugs and do things very few would believe. I long ago quit using the foot-pounds formula ( using it only now to figure pressures ) and went to the most perfect formula by the late John "PONDORA" Taylor of African fame. Taylor's formula that he called "Knock Out" is figured this way:

Caliber in diameter  
times  
bullet weight in grains  
times  
velocity  
divided by  
7000

Don't ask me how he came up with such a formula or what the "7000" figure comes from. I do not know. But I do know that the resulting figures you get are a very accurate example of what your gun and load will do on game. Taylor claimed that while shooting his big critters that could hit back, that the big guns offered KNOCK OUT over the little guns even though exact shot placement was not accomplished. Example: a charging bull elephant taken head-on in the forehead with .416 and .470 bore rifles. I quote from "African Rifles and Cartridges" page 12 ..author Taylor says, "If you take a frontal head shot at an elephant with a .416 and miss the brain by a small amount, you will probably not knock him out. His hindquarters will give way and he will squat there like a huge hog for few moments, then, if you don't finish him off at once, he will heave to his feet again, slew around and clear off. But if you had taken the same shot with the .470 and missed the brain by the same amount, that elephant would have been knocked entirely unconscious, and would have remained down for anything up to five minutes - yet the theoretical energies of the rifles are the same."

Now Taylor was hunting Elephant, Rhino, Cape Buffalo and other dangerous game, plus was using rifles of immense power compared to our sixguns. This I will agree on. But by using this formula, that I believe is absolutely as perfect as humanly possible, to measure a projectile's effect on a critter, one can realize the power and potential the big bore sixgun possesses. This formula will also show how the said sixgun with it's big-bore and heavy slugs rates with the popular rifle caliber's used by many hunters today. Here is a quick comparison:

.44 Magnum 240 gr. slug at 1400 fps : .430 X 240 X 1400  
divided by 7000 = 20.6 Knock Out (KO)  
.270 Winchester 130 gr. slug at 3100 fps : .277 X 130 X  
3100 divided by 7000 = 15.9 KO

Interesting huh! It was shocking to me too. Now, you say, there is a bug in the works here 'cuz you're comparing a fast high-speed expanding slug against a heavy slow solid type slug. I agree, there are some variations we can argue 'til the end of time and never solve the problem. But of the dozen or so deer and antelope I have taken and seen taken with a sixgun, the results compared to a comparable rifle are disgustingly similar. The front area on the big slugs do thing I don't think anyone, no matter how much game he shoots in his lifetime can explain fully or accurately.

Now with this big caliber, heavy slug theory in mind I would like to throw out another.."myth" ...I will call it, that enters my mind. That is the never-ending story that full-power loads must be used. More power is always a welcome thing to have on hand, IF one can utilize it by hitting his intended target. If not, super power is harmless. Now I am a firm believer in Robert Ruark's advice. "Shoot enough gun, and if you can't, or won't learn how to, STAY HOME!" But some of us may be in a situation that enough shooting can't be done to harden ones nerves against blast and recoil. I myself have this problem as I proof my big guns several times, not just 6 shots, and then shoot them extensively before shipping to owner. Most of my big loads exceed .44 Magnum "considerably". I do not do this on a daily basis so I must fight flinch in between times. This is why I like the .45 Colt so much, as its big heavy slugs will perform even though I stay far away from anything resembling heavy loads. (Perhaps I should use the word "magnum loads" here, but I detest the word.)

A prime example of this happened a couple years ago. My wife and I made a quick antelope hunt. I found at the last minute the only .45 Colt ammo I had on hand was 8.5 gr. WW 231 under a 260 Keith cast slug. In her 4 5/8" Seville Birdshead grip this load chronographs an even 850 fps. Just a factory equivalent load with a good bullet. To make a long story short she shot a big doe antelope at around 90 yards. The old doe made a gallant attempt to keep up with the departing band of sisters, but got weak-kneed in 10 steps and died almost instantly. The big Keith slug penetrated both lungs cutting a full perfect .45 caliber hole right through. I want to say I don't recommend this sort of thing unless you shoot very straight, or on any game over the size of deer. But the fact remains that good killing power exists well below the "bellerin" level. To those who like milder loads I will say this; I feel personally this sort of thing should be confined to the .44 and .45 caliber guns. Others just don't have enough caliber or bullet weight to be dependable performers in this area.

Another thing that is involved with this type of load is the trajectory. A good buddy of mine once told me his .44 would shoot 2 or 3 inches flatter than my .45 Colt at 100 yards. I readily agreed but asked him to prove to me under field conditions that he could shoot well enough to notice it. Besides, isn't handgun hunting supposed to be a close-in affair for those who want something a bit more challenging than "IF YOU CAN SEE 'EM YOU CAN HIT 'EM RIFLE HUNTING"? With good loads in a powerful accurate sixgun I can justify long shots on game. This same buddy told me he set a 100 yard limit on his shooting. Nothing over 100 yards. I told him I would not set such a distance limit but rather looked at each condition. I have seen times I would not shoot 40 yards and others when a 200 yard shot was not out of line. (But rare, I'll agree.) The 40 yard shot would be in heavy timber, late evening and chancy, while the 200 yard shot was in open plains and no cover for hundreds of yards or maybe a mile or two. Let conditions and your known limitations be the judge.

Another misconception I see once in awhile is this....take a rifle hunter with his new .300 +P Belchfire Magnum and a 1 to 25 Power scope. He misses a shot and immediately blames the gun. Sound familiar? (And I am not putting down rifle hunters because I am one, still.)

The point I want to make is this...if a handgun hunter made an equal type shot under similar conditions and missed the following excuses would be spoken by non-handgun hunters: "Aw, those dang pistols ain't accurate over 10 feet plus they ain't got enough power for big game anyhow."

Don't let this discourage you, especially if you are a beginner. Just do what the rifle shooter mentioned above would do...SHOOT AGAIN! But most of all, keep your confidence. Just remember you have a powerful weapon, one equal to most popular "big" hunting rifles used by the majority of hunters. You have limitations and you know them if you're a serious hunter and shooter. Keep them foremost in your mind. You are out there for a fair chase hunt and have taken a back seat to all riflemen by choosing a sixgun for your only armament.

So when the moment of truth comes, that elusive buck is right there, just keep your cool, be confident, and KEEP SHOOTING!

### **Gun Notes: Heavyweight Bullets by John Linebaugh**

The trend in bullets over the last few years has been heavier in handguns, and lighter with the attending high velocity in rifles. This combination in a rifle leaves a lot to be desired on heavy game - often becoming the most game-crippling combination ever devised. In handguns the extra weight is a good thing, to a point. As with most things it got out of hand. Using the .44 Magnum for an example most experienced shooters can see the standard 240 gr. slugs can be improved upon greatly. The heavier the game one shoots the more evident this becomes. Soon slugs of 300 and 320 gr. weight were on the market. And just behind them came slugs up to 360 gr. in weight.

Now there is nothing wrong with bullet weight, but to keep pressures in balance we need to go up in case capacity or better yet, caliber. Most shooters unknowingly pour in more powder, or worse yet, follow the advice of others who only think they know, and bet their well-being on the MAGNUM headstamp on the case head. In most cases they get by, but few have little idea of what is really happening inside their sixgun.

True, we have bigger and stronger guns today but we're still shooting the same small cartridges and asking more and more performance out of them. This parallels the old saying of, "Don't Send a Boy to Do a Man's Job." Brian Pearce says, "It's like pulling a 24-foot stock trailer loaded with horses with a (small) Toyota pickup." You are gonna over-work the truck to get the job done. With too heavy of bullet in any given caliber we're overworking the gun. The velocity/pressure ratio is out of balance. I have long been promoting safe full-power loads for the various .45 Colts. This has been met with various reactions from laughter to fear.

A look at a Ruger in .44 Magnum and in .45 Colt Comparing Performance Levels

CALIBER	POWDER CHARGE	BULLET & WEIGHT	VELOCITY	PRESSURE
44 Magnum	24 gr. H-110	250 gr. Keith	1528 fps	39,600 psi
44 Magnum	21 gr. H-110	318 gr. LBT GC	1354 fps	44,000 psi
45 Colt	29.6 gr. H-110	250 gr. Hornady JHP	1587 fps	40,000 psi
45 Colt	25.2 gr. H-110	315 gr. NEI cast	1357 fps	40,000 psi

The 250 gr. Hornady JHP in the .45 outran the 250 gr. Keith a bit and the pressures are about the same. So what? And the 315/318 gr. slugs are running practically identical velocities with the .44 only showing 4,000 more psi. So what? Now look at the pressure barrels for each caliber.

The .44 Magnum pressure barrel in the above test was 10" in length.

The .45 Colt pressure barrel in the above test was 5 1/2" in length.

Whatever the .44 Magnum will do, the .45 Colt will do with roughly 1/2 the barrel length, pressures being nearly identical. From the limited pressure testing we have done, we have found that whatever the .44 Magnum will do, the .45 Colt will duplicate with about 5,000 psi less pressure. This is with standard bullet weights. As the slugs get heavier the gap widens.

An interesting point to note is the .45 Colt holds about 4 to 5 grains more powder than the .44 Magnum. Our load/pressure data proves this difference while pressures remain comparable. But you can see the .44 has to work 4,000 psi harder than the .45 to move a 318 gr. slug at the same speed, this even discounting the drastic difference in barrel length.

The point I'm getting to is this: As the bullet weight goes up pressure does not go up accordingly. It usually goes well until we reach the balance point of bullet weight in each caliber. I have not done nearly enough testing in all the calibers to give you an exact bullet weight/velocity limit for each caliber, but here are my ideas: The .41 Magnum is probably at its best with not over 250 gr. slugs. I will not shoot over 300/320 gr. in the .44 Magnum and my favorites are the 290 Keith and the 320 LBT at not over 1300 fps in 7 1/2" guns. I've done the majority of my testing with the .45 Colt and feel the 350 gr. is about the best heavy of them all and is my maximum recommended weight in this caliber. I have shot 420 gr. cast bullets to some interesting velocities, but they are too big for the gun and well over the balance point for that caliber. I also feel the 350 gr. is a happy maximum weight for the .454 Casull.

The thing to keep in mind is this: I have had several shooters tell me they are shooting a given load, say 24 or 25 gr. of H-110 and a 300 gr. slug in their .44 Magnum, for a velocity of 1450 to 1500 fps. Don't gasp. I've heard this several times and have seen it in print in a couple of gun magazines. Look back at the pressure data and take a guess what they are doing in their guns!

Here is some more data to help you figure out what is happening. A .44 Magnum runs 44,000 psi with 21 gr. of H-110 and a 318 gr. slug. Go up 4 gr. to 25 gr. and think what the pressures are. In the .45 Colt 25 gr. H-110 is 40,000 psi with the 315 gr. slug.

In the .45 Colt our proof load is 29 gr. H-110 with the 315 gr. bullet. (This is in our strong 5-shot guns.) From Hornady's pressure barrel it runs 1617 fps and develops an honest 59,000 psi. This is what we proof our custom .45 Colt with. They are fitted with our oversize cylinders. **THIS IS NOT FOR ANY STANDARD, STOCK, .45 COLT OR THE "BEND IN THE MIDDLE" CONTENDERS.** This is a pressure barrel tested proof load and only a proof load. But we do have "would be" reloaders walking around shoot loads equivalent to these type of loads in their .44 Mags.

Another problem with this is that due to the fact the .44 has less case capacity than the .45 they are loading way beyond the working case capacity the .44 offers. Pressure does not go up comparatively. Powder, when ignited, needs working room to work "comfortably". Putting too much powder in a crowded space means a pressure curve well out of proportion to the velocity return we get. Put too heavy a slug on top this and pressure climbs even further out of line. Heavy slugs seat deeper in the case aggravating the situation even more, and reducing case capacity. Some bullets are made with a double crimp groove so the reloader can seat slug further out in the case, but this does not cure the problem completely. When the powder itself reaches the limit to burn with the pressure limits it is designed for, and at the rates it is designed for, it goes wild. The result is called "DETONATION."

Results are that pressures soar off the scale in relation to the velocity we obtain and at worst a destroyed gun and injured shooter. All of this in search of "high velocity". And for what? To shoot through a skinny Whitetail, or a piece of paper, or to impress your pals?

I would guess there are lots of heavy bullet shooters out there that are running some "UNREAL" pressures in the revolvers. Their argument being they are using strong Redhawks or other strong guns and pressure signs are "normal". I have personally loaded hundred of rounds of ammo well over 60,000 psi and even 70,000 psi level in special test guns. In all cases I got normal extraction and normal looking primers. Scott Heter of Speer wrote me years ago of fired cases falling out of the chamber of pressure guns when the gun was tipped up. These loads exceeded 60,000 psi. Even with this high pressure the cases fell out of the chamber by gravity.

Straight cases handle pressure differently than bottle-neck cartridges and often show no excessive pressure signs. We have blown a few guns up here, on purpose, and in all instances upon recovery of the cylinder fragments and case remains, the primer has shown normal pressure. Pressures in these instances have run from 70,000 to over 100,000 psi in our estimation. Do not depend on case pressure signs for danger signs in a sixgun. In most cases the first sign of high pressure you will have, other than excessive recoil and blast, is a bulged cylinder or cracked bolt notch.

I have long stressed loading guns to the Full, Safe, Potential. But not to endanger or impress anyone. And I'm picking on the .44 Magnum here. The .44 and .45 are just what I have worked with the most and I use them for comparison. The .44 will always be what we judge other sixguns by, just like the rifleman uses the .30-06 to judge all other rifle cartridges by. My point is this: If you need more power, use a bigger gun. A .44 cal. 300 gr. at 1300 fps will shoot through a lot of material. The same slug will shoot through a bit more at 1500 fps, but

so what? As long as we shoot completely through our intended target we've done all the damage we can do. The animal won't know or care if it's 1200 or 1700 fps. All the extra speed does for us is give us more range. If we can't apply it to our target we're kidding ourselves.

"But what about really big game?" "We need more speed for more penetration!" I say, "So what?" A .44 is still a .44 whether it's going 1200 or 1500 fps. I prefer a bigger caliber and slug even if I have to loose a bit of velocity. The bigger gun can do an equal amount of work as the smaller caliber with less pressure, blast, and felt recoil. And with handguns we simply can't get enough velocity to shock big game animals like we can with our medium and big-bore rifles. A sixgun is simply a long-range punch press. It simply punches a hole in game. Often times velocity works against us in penetration if our bullets are too soft, or perhaps, too hard.

My route is a dependable cast slug, not too hard, not too soft, at a moderate velocity not to exceed 1300 fps and let caliber and bullet weight do the job. CALIBER AND BULLET WEIGHT are the only CONSTANTS we have in external ballistics, since velocity is a constantly DIMINISHING VARIABLE. I have tried several avenues and find myself coming back full circle to moderate velocities and dependable cast slugs. Robert Smythe always said, "...not to exceed 1100 / 1200 fps." Jim Taylor has killed quite a bit of big game with his .45 Colt 300 gr. at 1200 fps. My wife and I have shot around 4 Mule Deer and a dozen Antelope with .45 Colts. The loads ranged from 260 Keiths at 900 fps to 250 gr. JHP at 1500 fps. While the JHP always knocks a 1" hole through game they don't drop any quicker than the .45 caliber hole made by the cast slug at 900 fps. In these cases of ours, shots were made from 90 to 130 yards.

I like 1200 fps as a balance point for shooter comfort, trajectory, and ample penetration. If you are after dangerous or really big game, don't load your little gun up. Load your big gun normal. In other words, don't send a boy to do a man's job.

Firing Record .45 Colt 7" Pressure Barrel				
LOAD		BULLET	VELOCITY	PRESSURE
1. 27 gr. H-110		260 gr. Keith .452"	HI - 1491	HI - 33,000
			LO- 1426	LO- 28,200
2. 23.5 gr. H-110		315 gr. NEI .453"	HI - 1338	HI - 32,400
			LO- 1283	LO- 29,400
3. 23.5 gr. H-110		320 gr. LBT GC .454"	HI - 1318	HI - 32,400
			LO- 1241	LO- 27,600
4. 23.5 gr. H-110		300 gr. Patriot JSP .454"	HI - 1287	HI - 28,800
			LO- 1166	LO- 23,300
5. 23.5 gr. H-110		300 gr. Hornady JHP .453'	HI - 1250	HI - 28,800
		(resized)	LO- 1090	LO- 20,300
SD				
.44 Magnum 7" Pressure Barrel (Loads #6 & 7) 10" Pressure Barrel (Loads #8 & 9)				
LOAD		BULLET	VELOCITY	PRESSURE
6. 24 gr. H-110		275 gr. Patriot JSP .430"	HI - 1533	HI - 39,300
			LO- 1485	LO- 34,800

7. 23.5 gr. H-110	300 gr. Patriot JSP .430"	HI - 1477	HI - 42,500
		LO- 1438	LO- 37,600
8. 24 gr. H-110	250 gr. Keith .430"	Average - 1528	Average - 39,650
df			
9. 21 gr. H-110	318 gr. LBT GC .430"	Average - 1354	Average - 44.000
df			
Loads #1 - 7 taken in Hodgdon Lab with 7" Pressure Barrel Loads #8 - 9 taken in Hornady Lab with 10" Pressure Barrel			

COMPARISON			
Load #1	45 Colt - 260 gr.	Average Velocity 1458	Average Pressure 30,600
Load #8	44 Mag - 250 gr.	Average Velocity 1528	Average Pressure 39,650
			fd
Load #3	45 Colt 320 gr. GC	Average Velocity 1279	Average Pressure 30,000
Load #9	44 Mag 318 gr. GC	Average Velocity 1354	Average Pressure 44.000

Most knowledgeable shooters know the foot-pounds of energy formula the industry uses to measure or compare bullet energy leaves a lot to be desired. First, it just is not an accurate way to measure comparable bullet effect on critters, and second, critters can't read. A lot of shooters have switched over to the TAYLOR KNOCK-OUT formula for a much more accurate means of measuring bullet effect on game. The TAYLOR KNOCK-OUT FORMULA runs as follows:

Bullet Weight (in grains) X Caliber (in inches) X Velocity ÷ 7000 = Knock Out (KO)

For example a .30-06 rifle using a 180 gr. bullet at 2600 fps:

$$180 \times .308 \times 2600 = 144144 \div 7000 = 20.5 \text{ KO}$$

By using the Taylor Formula on our energy comparisons of the .44 Magnum and the .45 Colt in the above tables we can get an idea of what caliber and capacity does for us.

Load #1	$260 \times .452 \times 1458 \div 7000 = 24.4 \text{ KO}$	average pressure - 30,600
Load #2	$250 \times .430 \times 1528 \div 7000 = 23.4 \text{ KO}$	average pressure - 39,650

A glance at the above table shows that the .44 Magnum and the .45 Colt are equal in the power department. But the pressure tables show quickly the advantage of caliber and capacity. While the KO's are nearly duplicate, the pressure difference is substantial. The .45 Colt with the standard weight slug shows a 4% advantage in KO over the .44 Magnum with its normal weight slug, but the .45 does it with 29% less chamber pressure. (It was also done in a 3" shorter pressure barrel)

With the 318/320 gr. slugs in both calibers the KO is nearly identical, but the .44 has to generate 46% more chamber pressure (again, in a 3" longer barrel) than the .45 just to break even. As the bullet weight goes up and out of balance per each caliber, you will see this pressure/velocity ratio widen its gap until it is clear off the scale. It becomes clear pretty quickly that power, or energy, or KO or whichever you prefer to call it comes only with a

price. I believe in getting by as cheap as possible in this area. But lets say you don't mind running high pressure, and you're still within the specs set by the powers that be for your particular gun/caliber. That is OK by me too. But if you really want to race, the big calibers have no competition. They can still deliver more usable power per unit of pressure than the "next size down" cartridge can dream of.

I once had a self-proclaimed "expert" tell me has never been able to detect any difference in the .41 Mag, .44 Mag or the .45 Colt, all loaded to their full potential. My answer is that he has never done any long range shooting. This will quickly tell who gets there with the most steam left.

I feel the bigger calibers (to a point and depending upon the application) are better as long as obtaining components and reloading for them is practical. I feel for certain the .44 Magnum and the .45 Colt are the two finest calibers in the country today. With the number of good guns chambered for both and the availability of components, not much else is needed except for those special applications. Even then the field is covered with fine revolvers in .454 Casull, and the .475 and .500 revolvers. I wouldn't hesitate a second to choose a good .45 Colt for my only sixgun for the rest of my days. From rabbits to Cape Buffalo, it has proven its worth. And the thing I like about the Colt is this: It does it so easy.

The loads listed in the accompanying tables are safe in ALL RUGER single action revolvers. The .45 Colt Ruger Blackhawk is approximately 85% as strong as the Ruger Super Blackhawk in .44Magnum caliber. Industry specs on the .44 Magnum is 40,000 psi maximum, NOT TO EXCEED 43, 500 ABSOLUTE MAXIMUM. The industry will stand behind their guns to this MAXIMUM pressure in factory loads. ( Most companies will not honor warranties if handloads are used.)

Lets give them the benefit of the doubt and hold our loads to 85% of the 40,000 level they prefer. This still allows us to use up to 34,000 class loads which is a safe working pressure in the Ruger .45 Colt. It is as safe as the .44 Magnums 40,000 psi Maximum recommended level. I have shot hundreds of proof-type loads in the Rugers in .45 caliber, even going as far as purposely destroying some cylinders with overloads. We know just how strong they are. They will take 34,000 psi for two lifetimes with little care. At this pressure level you are working with about a 100% safety factor. Sure, they will stand a little more, but I don't really care. A .45 Colt with honest 30,000/34,000 psi loads "in the gun" have about a 35% advantage over the best .44 Magnum loaded accordingly.

I want to make it clear here: This is not an "Anti-44 Magnum / Pro-45 Colt" article. I have simply tried to clear up some myths and rumors and set the ballistic record straight in this small area. If I could have had some .41 Magnum pressure data on hand it would have compared accordingly to the .44 Magnum just as the .44 compares to the .45 Colt. The load data used in this article has been used by myself for several years, and recommended to dozens of other shooters across this nation for a couple years now. All report good results and fine accuracy. If I show a prejudice toward the .45 Colt it is deserved and well-founded. I happen to like all sixgun cartridges above .40 caliber. I just like the .45 Colt the best.

## Notes on the Smith & Wesson

The load data printed at the beginning of this article is considered MAXIMUM safe loads with listed bullets for RUGER BLACKHAWKS ONLY - (and, if you must shoot them, Contenders).

The Smith & Wesson Model 25-5 chambered for the .45 Colt is a fine gun and one I pack daily myself. The problem with the Smith & Wesson guns in general is not so much a strength factor but rather a design factor. Before you S&W people beat up on me please listen. It has long been evident that the Model 29 in .44 Magnum very quickly beats itself apart with full-power loads. This is not technically a "strength" problem as much as a design problem and the assemblage of several small parts that are not as rugged as the Single Action design. In the course of time if all the little parts wear a tiny bit this soon adds up to a lot of play in the overall fit and lock-up of the gun. This in turn allows the gun to get a further "run" at itself under discharge and thus hastens the battering process.

In reality the Model 25-5 is about 80% as strong as the Model 29 in the cylinder area. The frames are the same and are designed for a 40,000 psi load level even though we know this is a bit more than they are happy with. It's too bad S&W built a 40,000 psi cylinder and installed it in a 30,000 psi frame, so to speak. (note: since this writing S&W has worked on the problem of the cylinder unlatching and rolling back under recoil after it gets a bit worn) The 25-5 in .45 Colt is safe to 80% of the 40,000 psi of the .44 Magnum Model 29. This allows a load of 32,000 psi in this frame. I have shot hundreds of the 32,000 psi class loads listed at the beginning of this article in several Model 25-5's. Recoil is heavy due to the S&W "hump" on the grip, but I do not see these loads as being dangerous in this fine gun. I do consider 32,000 to be ABSOLUTE MAXIMUM for this gun and prefer to hold my personal loads to 5% under those listed loads for approximately 25,000 psi. I carry a S&W 4" in .45 Colt daily and shoot a 260 gr. Keith at 900 fps for general duty. When I saddle up and go into the hills I pack the same gun with a 310 gr. NEI Keith over 23 gr. H-110. This gives me about 1080 fps and all the punch I need for anything on our mountain. As with any gun and load data, work up carefully. I assume responsibility only for the ammo I myself assemble.

### **Gun Notes: High Pressure Loads by John Linebaugh**

Time-proven technology along with metallurgical and propellant advancements have given the modern shooter the greatest boost in performance ever witnessed in history. Every serious sixgunner knows the .357 was the first "high pressure" loading in the great country. It stood as KING for 20 years until it was replaced with the .44 Magnum. Both of these rounds were loaded to approximately 40,000 CUP levels.

Dick Casull started the very first experimentation with real super guns in the late 1950's and after 20-plus years of work and experimentation finally realized his dreams come true when Freedom Arms began producing his fine .454 Casull revolver. Others followed the "high performance" game and we now have the greatest assortment of sixguns and 5-guns to be found in the world available to us.

Many shooters stayed with their standard .44 and .41 Magnum revolvers but over the years have "crept up" on heavier loads, many through their own experimentation or the urging of other's printed results. The trend now is for heavier bullets and higher velocity. This is all fine and well if the overall picture and results are kept in perspective. But one one must remember: Nothing comes for free, and, Walk! Don't run! in the search for increased performance. Perhaps this sounds a bit dogmatic coming from the maker of some of the biggest-bore revolvers in the world. But in 10 years of sixgun building and experimentation we have seen a few results most shooters will never see.

Hardly a day goes by here in the shop that we don't receive a phone call that the subject doesn't finally turn to heavy bullets in .41 and .44 Magnum revolvers. Many seriously ask "Why can't I just 'heat up' my .44 and keep using it?"

The answer is, you definitely can. But keep in mind the gun and caliber limitations. Just adding more powder isn't the answer. Just getting more pressure isn't the answer. And often times even if you do gain more velocity through your efforts, it still may not be the answer to increased performance. About 8 years ago I had just finished a .45 Colt on an old Abilene frame. Barrel length was 7 1/2 inches and the 6-shot cylinder was oversize in diameter and full frame length. Our load was 30 grains of Hercules 2400 and 225 gr. Speer JHP. Our goal was 2000 fps, just like Dick Casull called for in the .454. Velocity was in the range of 1700 fps so more powder was needed. We ended up shooting 36 grains of 2400 and our top velocity was 1960 fps. We never did reach the magic 2000 fps goal, but did knock several nickel-sized corks out of a 5/16' steel plate.

From what I know today after studying pages of pressure-tested load data and comparing powder performance and pressure curves, I believe we were shooting loads well into the high 50,000 CUP level that night. This kind of pressure in this barrel length should have given us 2000 fps +. But it didn't. The gun was tight and built right. It did its part. It was a few years later before I fully understood what was taking place. In this application the lightweight slug wasn't offering enough resistance to make the powder work to its full potential. It has been our findings that it is much easier to get more velocity with heavier slugs than with light ones.

More pressure is generated of course, but the powder works better and more consistent results are the norm. But the serious condition exists when we add more powder and the pressures go up, but we don't get more velocity in return. Impossible you say? Modern powders are great propellants but have their limitations. Each powder is designed to operate within a certain pressure level. If you apply said powder below its "happy" pressure level it will give disappointing results. Hangfires and even misfires can result. Load the same powder in an application that is not harmonious with its personality and it will develop pressure well off the scale compared to the velocity you get in return.

This application or condition can be created by caliber, by too heavy a bullet, or (a REAL culprit), too heavy a bullet that is seated too deeply into the case. All three of these conditions add up to one major overlooked condition and that is "capacity". CASE CAPACITY. All powders need enough "room" to work properly for their application. By using a lot of slow-burning powder under extremely heavy bullets, results can vary from excellent to questionable.

The trend among handgun shooters today is heavier and heavier slugs. All cartridges have limitations and balance points. I've said it before that the 300 to 320 gr. is absolutely the

maximum weights I will use in the .44 caliber. The 350 gr. weights are the maximum in the .45 Colt. With weights beyond this in guns of a "NORMAL" cylinder length (which limits the overall loaded cartridge length) length begins to crowd the case capacity and seriously affect the volume the powder has to work in.

Some may argue that their charge of 296 will act the same no matter how it is compressed. And it is true that this powder and its brother H-110 work best under mild compression. But when we push our powder charge well into the bottom of the case and cork it with a slug too long and heavy for that caliber we are changing several things.

We change the "dwell time" - the time the bullet sits in the chamber (after the powder is lit) before it starts to move. The more time taken here the sharper the pressure curve becomes. The reduced capacity limits the working area of the powder which means it has to try and do its normal amount of work in a less than normal space.

We also change the burning rate. With retarded bullet movement due to excess bullet weight the burning rate of the powder increases (it burns faster) generating more gases and vicious circle is created.

And we change (or "shift") the problem area to the gun. The quick pressure curve that now lasts longer than normal due to increased dwell time, and the faster burning rate which generates more gas and more pressure than normal, hits the gun in the cylinder right at the base of the bullet. I have seen many cracked and blown cylinders to prove the blowup starts in the bolt notch. The greatest part of the pressure is put on a small part of the cylinder, usually near the bolt notch. With a normal type load of proper bullet weight - not seated too deeply in the case - the pressure curve should flow through the cylinder well into the barrel throat and frame.

For a moment, think of your cylinder and barrel frame area as a stack of washers with chambers and bores through them. If pressure was exerted through the whole stack, say for nearly 2", wouldn't that be stronger and safer than trying to apply the same amount of pressure on only the first few washers?

Thousands of rounds of testing here have proven to us that gun life is better with safe heavy loads using slow powders than it is with light loads using fast powders. Case life agrees. The fast powders "hit" the gun very quickly and the slow powders "take up the slack" so to speak, slower and with less hammering effect.

I have measured one of my early .500's on a Ruger frame recently that I know for certain has had over 1000 Proof-Class loads and a few hundred maximum loads. I cannot measure or detect any movement or wear in the gun. All loads used H-110 or WW-296 powders.

When we talk of "Proof Loads" here our pressures are in the mid to high 40,000 CUP level. Still well within the bounds of H-110 or WW-296 to operate properly and in a normal manner. Some .44 Magnum loads I see recommended, the pressures, due to bullet weight and case capacity, are clear off the scale for this caliber. I have seen pressure data from special pressure guns that proved to me the loads were not operating properly. By overloading any gun we prove nothing and gain little. Over slow powders too much and soon your gun shows the same signs it will show with fast powders. However, instead of working with mild pressures we are generating excessive pressures.

The visible signs may not be the only damage done to the gun either. Metal fatigue goes unnoticed until something serious happens. The blast and sharp recoil patterns I find with overloads are the worst part of the shooting game, to me. The first few head of big game I shot with a handgun were with full power loads. A few I have taken were with about 1/2 power loads. They were taken just as quickly and humanely as before. Once we completely penetrate a target we cannot do any more. Heavier slugs and more speed help a great deal to accomplish this goal, but everything has its limitations.

In this time when hunters are looked over very seriously and often times unfairly, we need to put our best image forward. Safe hunters, safe gunhandlers, and safe HANDLOADERS are needed to teach our young shooters of tomorrow.

### **Gun Notes: The Mechanics of Handgun Accuracy by John Linebaugh**

Over the years I have seen and read many articles that tried to discover the reasons behind handgun accuracy or why some guns shoot harder than others. These articles have gone from far left to extreme right in their theories, and are more often than not very general in their information and final assumption. In my years of handgun building, I have seen many different instances in many different guns that affected accuracy, both for the good and the bad. Just because you have an expensive handgun with a reputable maker's name stamped on the side of it, and some fine ammunition - whether factory made or handloaded - doesn't mean you have an accurate combination. Only serious work on a steady bench will tell you what your gun will do. Joyce Hornady said it right with this statement: "Accuracy doesn't just happen, you have to make it happen." I have seen dozens of stock "out of the box" and well-worn sixguns that will shoot from good to excellent just like they are. These are the guns that keep my faith up in the gun industry. They do a pretty good job of making reasonably good sixguns for the numbers they produce. But what makes one gun more accurate than another, even if they are of identical model? The most basic answer I can give you in a word is: "tolerances." Tolerance means the error plus or minus the few thousandths the finished part is over or under the specs drawn up by the gun maker.

#### **EXAMPLE:**

On a given day let's say the "MACHINE" (we won't go into what kind of a machine as that is another world of it's own) develops a problem with holding the exact same tolerance that the engineers drew up and standardized on the blueprints. Or perhaps the machine operator is having a bad day and overlooks a chip on the machine's automatic indexing stop, or the tooling is dull or any one of a dozen other little bugs that work overtime to destroy final accuracy in a machine shop. And a gun shop is nothing more than a machine shop set up and fully tooled to make only guns.

Now back to this machine with the chip on the automatic stop and the sleepy operator. While drilling and milling the revolver frame, we come up with a frame that has the barrel hole a few thousandths under specs. Now, on the other side of the plant, we have another operator drilling lots of holes in a piece of steel that will hopefully become a cylinder. This operator and machine are working to reach the same specs that are on the blueprints. These are the same blueprints that control every part for that particular model of gun built by different

machines and different operators in various parts of the plant. Now this cylinder the operator has just made by some twist of fate happens to be over specs a few thousandths, whether it be machining error, heat treatment distortion, or whatever, and by another twist of fate ends up in the frame that is under spec. Now we have an assembled sixgun that technically is out of alignment as to the cylinder throats to the bore. In this case, if the frame is .003 under spec and the cylinder is .003 over spec we have a bullet hitting .006 high in the barrel. In reality this gun could shoot very well, but that doesn't make it right.

Now comes the bolt notches, another critical location. And the bolt window in the bottom of the frame. Here is another operation that leaves the door wide open for error. With these tolerances and ideas in mind, I'll tell of a few machining errors I have seen in new unfired guns, and just how critical they are and to a point what you can do about them. First, you need to set an accuracy criteria or standard that you can be happy with. I have shot a lot of new Ruger sixguns and generally they will shoot about 1 1/4" to 1 1/2" at 25 yards with good handloads. I have seen a few, I'll throw a wild guess and say 20% of them I have tested, that will shoot under the 1" mark at 25 yards. Very few, less than 10% will group over 2" at 25 yards with a little load work. In reality, this is very good accuracy. But if you demand better accuracy and your out of the box gun won't deliver no matter what you feed it, here is what to look for. Out of the many things that affect individual handgun accuracy, these are the most important, listed, in my opinion, by virtue of their matter of importance:

#### ALIGNMENT:

Out of all the things affecting sixgun accuracy, I feel alignment is the most important. This means finding a gun that has the cylinder throats in direct line with the bore of the barrel. Let's go back to our tolerance story. Gun companies make hundreds of parts every day. Most blueprints I have seen and drawn up require a plus or minus .001 maximum runout for these important parts. This means if the frame is out +.001 and the cylinder is out -.001 we can only be out of alignment .002 total. But getting what the blueprints call for in actual useable parts is quite another job. Let's use the example in our story of the .003 runout. With +.003 in the cylinder and -.003 in the frame we have .006 against us. Now let's say we have .004 left on the bolt notches and .005 right on the bolt window. Here we have .009 total alignment problems. A gun with this type of alignment problem could shoot very well, but in all probability not as well as a gun made to proper dimensions. In my daily gun work here I find most sixguns I work with vary plus or minus about .004 maximum in the location of the barrel and cylinder and about plus or minus .008 in the bolt window. Bolt notches on the cylinder vary plus or minus .003 to .004. What we end up with here is a puzzle of parts that are assembled and sold to the shooters of this great land.

Speaking in terms of dimensions, if we are fortunate enough to get a sixgun that has a high cylinder in a high frame, and a left notch in a left window, you have a shooter. The same could be true with a low cylinder and low frame, and good notches and a good window. As you can figure out for yourself the combinations and degrees of error for the good and for the bad are considerable. This is the reason for the oversize forcing cones in the rear of the barrels of factory guns. They accomplish two goals: First, they eliminate all lead shaving and spitting that is so unpleasant to the shooter and bystanders, and second, they gently guide the slug into the bore and try to true it up as best as possible before it's slammed into the rifling and thus stabilized. In more cases than not this stability is questionable and gets worse with the more degree of misalignment. No amount of forcing cone, or special angles, or free bores can take the place of good gun tolerance and alignment. On guns badly out of alignment, some

tinkering with barrel forcing cones and loads can improve the accuracy considerably, but still technically the gun is not right.

#### AMMUNITION:

Next to alignment, I feel good ammunition goes a long way towards making an accurate sixgun. In our testing here the most accurate loads have always been with heavy slugs and near maximum loads using H-110 powder. Try to stay away from ultra light slugs and extremely heavy slugs. I like the 300 grain class of slugs in the .44 caliber as maximum and use the 310 and 320 grain slugs in .45 colt caliber. Either a time-proven Keith style slug from NEI moulds, or the LBT slugs are very accurate if cast and sized properly for the individual gun. In the .475 and .500 Linebaugh revolvers we use the LBT-LFN style slugs exclusively. The .475 is happiest with a 385 to 420 grain slug and the .500 thrives on the 410 and 450 grain LBT slugs. In many cases we have obtained under 3" groups at 100 yards with the .500 caliber and these bullets, and again with maximum loads of H-110. Consistency is the name of the game here and one can't be too careful in bullet casting or sizing. Hand pick your slugs and examine them carefully. If they are anything less than perfect, they're not worth wasting a primer on. Less than perfect ammo is like a less than perfect gun. True, it may shoot pretty well, but it's technically out of order. Lots of wrongs can't make a right. Making match grade ammo for a sixgun is something I haven't spent much time at. Just use good cases, seat primers properly and to the bottom of the primer pocket, and be picky about your slugs. Bullet lube can affect accuracy and I personally won't use any of the new lubes that resemble crayons. My personal choice is Javelina or NEI Hawkeye. Some say too much lube can cause a bullet to "float" on a layer of grease in the barrel, thus never allowing the bullet to really take a bite on the barrel. I have seen this effect to a degree, and by wiping 90% of the grease out of the bullet lube grooves, accuracy improved considerably. But each gun and its barrel is a case of its own, and only lots of experimenting could prove this out in each case. In our case we were using a very slick and smooth Shilen blank and I personally feel this type of barrel needs less grease than a rougher barrel. Also, the hotter the powder and loads, thus higher pressure, the more grease we need as the powder gases and high pressure burn up and blow away more of the layer of grease on the bore. These theories are extremely variable and hard to nail down. I have seen the results of these conditions but haven't done enough testing in this area to draw any hard and fast rules. Serious testing with your particular gun and loads is the only way to find the best combination.

#### BARRELS:

I will probably draw some fire from this statement, but I feel that the quality of the barrel in a sixgun, and its effect on the gun's accuracy is not as important as many people think. Good alignment and ammo will do wonders in a "just fair" barrel. True, the slicker the barrel etc..., the harder and cleaner it will shoot, but I have seen some very rough barrels shoot near the 1" mark at 25 yards. As long as the barrel has no tight or loose spots, the crown and forcing cone are cut true, and a good properly sized and lubed slug is used, surprising accuracy can be obtained. In several cases we have taken a gun that was rebuilt and aligned properly, and put on several different barrels from the best grade Douglas and Shilen, to poor homemade handcut barrels. Surprisingly the difference is minor. Now I do believe that with less than perfect ammo or other variables that the better the barrel the better the chances of it shooting well become apparent. Several of my friends here shoot old time lever guns and trapdoor Springfields with lead slugs. I have on many occasions seen amazing accuracy even to extreme long range from guns that have barrels so pitted and worn as to be discarded and

though of as worthless. Ruger barrels in general on their sixguns are about the best all around style and design you can ask for. They will shoot almost anything tolerably well. The S&W 5-groove is very good and has a better finish thus making it less apt to lead. The Douglas barrels we use here in the shop on all our conversions are very smooth and have shot extremely well in our applications. Lapping a barrel in my opinion never hurts anything but doesn't always help. In some cases, especially if the barrel is tightened to much into the frame and "choked" (like 90% of the Rugers are done), much can be gained by lapping this tight portion out. With this tight section of barrel the bullet is undersized and then is allowed to rattle the rest of the way down the barrel. Too hard a slug can basically do the same thing. Once it is engraved by the rifling upon entry to the barrel it will continue to wear away until undersize at exit of the muzzle. I once shot some very hard heat-treated slugs into heavy bone and wet paper. These slugs were headed for Africa and a bull Elephant. The barrel showed leading and the chronograph showed only slight increases in velocity with each added grain of powder. Upon recovery of the slugs from the wet paper the diameter of the bullet showed a .508 size. This started at .512 and passed through a .510 barrel. The slug had worn away a full .002 in the 5 1/2" barrel. This explained the white barrel with much leading effect and the lower than normal velocities. As the bullet wore away it lost it's resistance to the barrel and leaked gas. Had the bullet stayed full bore size it would have maintained it's seal and kept up it's job of creating resistance and thus kept the powder working in it's proper curve. Never the less the gun shot well enough to kill a pair of bulls. The gun shot near the 2" mark at 25 yards with these slugs and this condition of too hard a bullet leaving the muzzle undersize.

#### CHAMBERS & TOLERANCES:

Sloppy chambers and oversized tolerances plague the gun industry today. Chambers are getting larger and ammo is getting smaller. In the .45 Colt this is especially true and some claim this came from the absolute need of firearm reliability under trail conditions and black powder fouling from our frontier era. In my opinion these so-called trail conditions just don't exist much any more and black powder isn't used in my new modern sixguns for any reason. A dirty uncared for gun is more of a sign of laziness, not a "rough trail". With an extreme array of loading dies, slugs, loading operators, and so forth, the companies have opened up their chambers for absolute reliability. With good ammo loaded properly most chambers are several thousandths bigger than they need to be. But believe it or not this will not cause a gun to shoot big groups like you may believe. Most rifle builders I talk to agree unanimously that Remington rifles have the widest variation of chamber dimensions of any maker. But Remington rifles, especially in the smaller varmint calibers shoot extremely well out of the box with these sloppy chambers. I've seen several Colt SAA and Rugers shoot well under the 1" mark at 25 yards with oversized chambers. What we gain by minimum chambers and tight throat tolerances is less brass working and better gas seal behind the slug. This basically adds up to more velocity per grain of powder. A tight chambered gun will shoot harder than a loose chambered gun. Tight barrel cylinder gap is very important for velocity. The smaller the throats in the cylinders - as long as they are larger than a properly sized slug by at least .001 - will help velocity a lot. A small forcing cone in the rear of the barrel has the same effect. This is what you get when you have a well made gun or a custom gun made up. When the cartridge is fired, the gas expands to push the bullet out the barrel. If the chambers are oversized the case expands more than normal. If the throats in the cylinder are oversized the gas leaks by the slug. If the forcing cones is much larger than necessary, gas expands into the limits of it's tolerances. Every time gas has to fill an area because of sloppy tolerances, we are robbing power from the bullet. A wide barrel / cylinder gap leaks badly and robs more. Our modern powders are progressive burning and require resistance to make them work properly and

efficiently. Large tolerances don't seal properly to create this resistance, so in most cases the powder never gets to working properly. The slower the powder the more apparent this becomes. We have to take up the slack by loading heavier loads, thus we are generating more gas to push the slug to the desired velocity. Basically it's like cars and miles-per-gallon. A tight, well-built engine gets more miles per gallon than an identical engine that is worn and loose. The loose sixgun and engine wastes fuel intended to drive the slug and the piston. One thing that is for certain, guns have personalities just like humans. No two are exactly alike. One can take the finest sixgun made and if you look long and hard enough, you can find a few out-of-the-box, well used sixguns that will shoot just as good or better. You could probably find a few street punks in the ghetto that are powered by Snicker's Bars and Pepsi that can outrun our best professional athletes with all their intense training and superior diets. But overall, it's a rare thing. Another much overlooked factor is confidence. This is totally human, I know, but is a very important part of the shooting system. If the best shooter doesn't have confidence in his firearm, his groups will tell the tale. Knowing one has a fine sixgun, in all areas of dimension, fit and finish only makes the system more complete and harmonious. The sixgun has simply replaced the blade of yesterday. But the artistry and love of one's weapons is alive in all of us. I'm not educated well enough in the area of just how much 'confidence' plays a part in our ability to apply the resources our firearms afford us, but I personally feel it's a lot more than most of us would dare to believe. With the finest sixgun, and utmost confidence, one must still practice. Gimmicks and gadgets can't replace that endless struggle we have to conquer or master. Practice the art of hitting with a sixgun and you will be rewarded to the extent that you work at it.

### **Gun Notes: The .45 Colt - Dissolving the Myth, Discovering the Legend by John Linebaugh**

When Colt's Patented Firearms Manufacturing Company came out with the .45 Colt in the Single Action Army or "Peacemaker" model in 1873, little did they realize what they had created. In the following years the gun (and the men who used it, whether for good or bad), would be remembered in story and legend, and yes in MYTH. Secondly, what made the .45 Colt such a great round during the black powder era was, capacity, caliber and bullet weight. These are still its strongest points today thanks to the fine components we have available. Add to that a strong gun capable of fine accuracy and now we can discover the .45 Colt's POTENTIAL..

#### **DISSOLVING THE MYTH**

Bear in mind that to discover the potential of any cartridge requires a strong modern well made firearm to contain and fire the round safely. The main argument against the Colt .45 is that there are thousands of "unsafe" Colt SAA blackpowder revolvers out there just waiting with mouths open to swallow your new high pressure reloads. This is a fact of life but I assume the reader of this report is a safe, intelligent person and experienced handloader. This entire report is based on facts proven in the popular and strong Ruger Blackhawks and Bisley models chambered for the .45 Colt Cartridge. I have felt a need for a long time to set the record straight as to the full safe potential of this fine gun and round. This material is not about Colt SAA, Dakotas, or any other import. These are fine guns in their own realm, but require safe, carefully assembled handloads of much LESS PRESSURE than we are talking

about in the Ruger Revolvers.

AGAIN, ALL THE INFORMATION IN THIS REPORT PERTAINS "ONLY" TO NEW MODEL RUGER SINGLE ACTION BISLEY OR BLACKHAWK REVOLVERS.

How strong are the Ruger Blackhawk and Bisley model revolvers? Reports from the prestigious H.P White laboratory prove to us that most American Made revolvers offer approximately 100% safety factor with current Industry standard pressure level ammunition. Example: The .44 magnum is loaded to 40,000 CUP (Copper Units of Pressure). H.P White's lab reports states that the Ruger Super Blackhawk was destroyed in a controlled test at approximately double that pressure. (80,000 CUP) The Smith and Wesson Model 29, also in .44 magnum caliber showed comparable results. Today we have stronger guns chambered for the .44 magnum (Redhawk prime example) but the Model 29 S&W and the Ruger Blackhawk gave life to the .44 magnum cartridge. The strength and design of these guns satisfied the industry at the time (1955) and the standards were set from these firearms. By careful measurement and a little simple mathematics we find that the Ruger Blackhawk in .45 Colt caliber is approximately 80 % as strong as the Blackhawk in .44 magnum caliber. Some may argue that the .45 Colts usually are fitted with fluted cylinders while the new .44 Rugers are nearly all unfluted. Exceptions to this rule are Flatop .44 magnum Rugers, **THE GUN THAT WAS MADE FIRST BY RUGER FOR THE .44 MAGNUM ROUND**. Lately Ruger has produced some special run of guns in .44 Magnum chambering that again have the fluted cylinder feature. Also a few early Bisleys were fitted with **FLUTED** cylinders in .44 caliber. However most were unfluted roll marked cylinders. But the most important factor we have found here is there is very little difference in strength between a fluted and non-fluted cylinder. The strength of the cylinder can vary more from the quality of the material and the tensile strength of the part due to different points of hardness. When steel is heat treated it can easily vary a couple of points. This is only a few thousand pounds of tensile strength but this is likely to mean more to absolute strength than the difference in the design of the part in the argument between "fluted" or **NON-Fluted**". The important fact is that the initial part (in this case the cylinder) was **OVER ENGINEERED** to account for these variables. They are amply strong to safely handle any safe load. To **DEFINE SAFE: ANY LOAD THAT DOES NOT EXCEED THE INDUSTRY'S RECOMMENDED MAXIMUM OPERATIONAL PRESSURE**.. In the case of the .44 magnum, this is 40,000 CUP. Not to exceed 43,500 **ABSOLUTE MAXIMUM**.

The Ruger Blackhawks and Bisley models chambered for .45 Colt are approximately 80% as strong as the same Ruger chambered for .44 magnum. This means we can load the .45 Colt to 80% of the pressure of the .44 Magnum round and still maintain the 100% safety level. 80% of 40,000 is 32,000.

To check our findings we again turned to H.P White Labs and their findings paralleled ours. Ruger Blackhawks in .45 Colt caliber were destroyed in controlled test conditions at approximately 60,000 CUP pressure levels.

We went further on our own here and purposely destroyed several cylinders with loads that were later pressure tested in Industry Standard Pressure barrels that proved pressures were in the area of 60,000 CUP. Now that we know just how strong the guns are we are working with perhaps you figure you can heat up the a loads a bit. Such "logical thinking" jaspers will get a **REAL LOAD**. Overloading often times does no visible harm, but stress and fatigue go unnoticed till something lets go. In this era when shooters and hunters are looked over very

critically we need safe responsible hunters, shooters and HANDLOADERS. THIS MEANS YOU!

## FRAME STRENGTH

Here at Linebaugh Custom Sixguns we build some of the most powerful handguns in the world. All of our guns at this time are built exclusively on the Ruger Blackhawk frames. (Ruger Super Blackhawk, Blackhawk and Bisley models are all identical. All frames in the new model that was introduced in 1973 are the same.) In all of my findings the first part to let go in a revolver is the cylinder. I have tested cylinders from purposely bulging them to total destruction. In all cases the frames were not damaged until the cylinder totally failed. When a firearm is fired there is pressure on the base of the bullet to propel it out the barrel. There is an equal rearward thrust against the case head and thus transferred onto the action of the firearm. This is known as CASE HEAD THRUST. Case head thrust is CHAMBER PRESSURE x THE SURFACE AREA OF THE DIAMETER OF THE REAR OF THE CHAMBER. I won't go into great detail but a 45 Colt at 32,000 CUP chamber pressure exerts just under 3 tons of pressure on the back of the frame. A .44 magnum at 40,000 CUP chamber pressure exerts just over 3 tons of pressure on the back of the frame. Basically the same.

When we fire one of our .475 or .500 caliber revolvers we hit the Ruger frame with approximately 5 tons of pressure, (thrust). This duplicates the thrust of a .458 Win Mag. In testing and building over 200 major caliber revolvers on Ruger frames we have never yet had a frame move, stretch or bend. They are very tough. The cylinder is the first part to let go.

## PRESSURE SIGNS IN SIXGUN CARTRIDGES

When I first met Ross Seyfried in 1982, I would have to say that him being "skeptical" of my claims about my .45 Colt turning his .44 magnum into a white mouse were an "understatement". Ross welcomed me to his home but was at best "distant and cold". The ultimate slap in my face was when he refused to shoot my test guns. The #1 gun being a converted Seville in 7 1/2" barrel length and #2 gun a 6" Abilene, both fitted with SPECIAL OVERSIZE 6 SHOT CYLINDERS. If memory serves me correctly he made a statement on this order. QUOTE: I want to see you shoot them first. I'm going to stand over behind the barn and when the parts and pieces quit falling I'll come out and see what's left of you and the gun. I've never seen a man blown up before, this will be fun. UNQUOTE.

After firing a gun full Ross realized all was well. He came over and inspected the gun and pushed the empty cases out with the ejector rod. Every case and primer was inspected with his trained eye. A look of disbelief overcame him. What is this load again he asked hoping to catch me lying. A 315 gr Keith style slug at 1550 fps was my reply. And what do you estimate the pressure at? Approximately 55,000 CUP was my reply. His look of disbelief turned to something bordering on disgust. After a chronograph session which proved my velocity claims Ross looked lost for words. Accuracy at 100 yards from sandbags were in the 3" to 4" range. Loads tested that day were 260 gr Keiths at 1750 fps, a 280 Keith at 1680 fps and the previously mentioned 315 gr Keith slug from NEI moulds going an honest 1550 fps. We shot these velocities over Ross's personal chronograph so he knew I wasn't lying or stacking the deck. After 3 hours of this he leveled with me and spoke. "Linebaugh, I thought for months you were a nut. I still do but I can't argue with what I see here. I expected poorly constructed guns, extreme high pressure signs, bulged guns and badly leaded bores and poor accuracy. Instead I see excellent accuracy, quality workmanship, full claimed velocities, clean barrels

and most of all, the cases simply fall out of the chambers and pressure signs on the case and primer are non-existent. What gives here?" I've been happy to report to Ross since then that his actions have been repeated by dozens of other amazed sixgunners in the last 9 years since that warm spring morning in 1982. The .45 Colt case is just as strong as any handgun case on the market. Especially in the Federal brand. I have proof load data here from Hornadys pressure barrel that goes over 62,000 CUP. I have shot this load hundreds of times in my special 5 shot custom revolvers and with our tight chambers case life is excellent. And primer pockets remain tight till the case is discarded due to split necks. This comes from repeated crimping and case mouth belling. The Winchester case will stand the pressure fine, but will begin to get sticky in the chambers after a couple of shots. This is not a weakness in the design of the case, it simply lacks the springy nature of the excellent Federal case. The Remington case is about half a good as the Winchester case. It's amply strong for any loads that can be safely used in any Ruger revolver, but I don't use them personally.

### The Myth of The "Weak" .45 Colt Case

There has been so much written about the "weak" .45 Colt case. This probably started when The Grand Old Man of the Shooting game, Elmer Keith made this statement in his excellent book "Sixguns." "While shooting a 300 gr 45/90 rifle bullet in my .45 Colt SAA with 35 grains of black. Finally a weak .45 Colt case head blew off with this load. The gas blew the loading gate off the gun breaking its shank and cutting through the flesh of my trigger finger. From this experience I decided the bullet was a bit heavy for the thin cases and thin chamber walls of the cylinders. I cut one band and groove from the mould leaving it to cast a 260 gr flat point bullet. This worked very well with 40 grains of black. It was a very good game killer and flatter in trajectory curve than the 300 grain slug with 35 grains of black" ( Sixguns by Keith page 129)

"weak". The only thing weak is their limited research on the subject. The cartridge case in any firearm is simply a gasket to seal the hot gases away from the shooter and the firearm. Yes, it's critical that this component be of best quality and design. But overall the firearm itself contains the pressure. The reason the .45 Colt case bulges is the chambers in NEARLY ALL modern .45 Colts are grossly oversize. The case simply has to stretch beyond its elastic limit to reach the support of the chambers of the firearm. The modern .45 Colt case measures .476 diameter at the case head web area. Most modern chambers run from .486 upwards to .490. This means the new case has to expand from .010 to .014 to seal the chamber and be supported by the firearm. It is then resized and the process repeated till the case fails. And fail it will, and more than likely prematurely due to overworking. Modern MAGNUM brass will do the same if fired in too large a chamber. Shooting a .44 magnum round in .45 colt chamber (NOTE; THIS IS A PRACTICE I DEFINITELY DO NOT RECOMMEND) will bear this out. Cartridge brass does not have the tensile strength of modern steels. IT'S MERELY A GASKET.

Another trend I have seen lately is the loading up of the new Rifles being chambered for the .45 Colt. Namely the Winchester 94 angle eject. The same writers that are now loading the rifles to a before unheard of pressure level of 40,000 CUP in this caliber are the same ones that belittle and talk down the .45 Colt in a sixgun. Does the weak case that limits the Sixguns abilities suddenly transform into a magical wonderall of magnum strength when chambered in one of these lever action wonders? I find their investigation of the facts at hand less than complete. I have rebarreled a few 94s in .45 Colt that had chambers so oversize than factory ammo would split cases and separate heads upon the first firing. Factory ammo is loaded to

around 13,000 CUP even though the industry standard is 15,900 CUP. Personally I prefer shooting my heavy loads in well made sixguns rather than the current trend of rifles out there chambered in .45 Colt.

Overall we can dismiss the myth that the .45 Colt case of modern solid head manufacture is weak. We now understand the faults of the guns chambered for this fine round and will next try to explain how to get the best out of your stock Ruger Blackhawk. Over the years I've read several articles about this guns potential. Most of the load data was guess work. All the theories here have worked successfully for myself and hundreds of handloaders across this great land for nearly 10 years now. All the findings and pressure data in this report are proven safe and valid through years of use by hundreds of customers and Reputable Industry Standard Pressure Testing Laboratories

### THE PRACTICE OF ASSEMBLING SAFE HANDLOADS IS YOUR TOTAL RESPONSIBILITY...

While going over this report, **CONSTANTLY BEAR IN MIND THAT THESE RESULTS, VELOCITIES AND ALL LOAD DATA WERE ESTABLISHED WHILE USING THE MODERN RUGER SINGLE ACTION REVOLVERS ONLY !!!**

We have dismissed the use of any other style or model of revolver. We recommend the use of **ONLY NEW MODERN MANUFACTURE SOLID HEAD DESIGN CASES ONLY NEW MODERN MANUFACTURE SOLID HEAD DESIGN CASES**. It is not our intent to "Magnumize" (a word and term I detest and one the fine old .45 Colt is so far above) this fine cartridge sixgun combination. It is only our intent to load this much misunderstood and underestimated cartridge to its **SAFE, FULL POTENTIAL**, and share our findings with other interested shooters. Much data in the past has been at best, guess work. I'm proud to say our record and findings have been backed up by Laboratory controlled Pressure tested data.

### POWER

Many may think we are in a power race. This is not my intent. I simply like the big bore revolvers because they are a **BIGGER HAMMER**. They can deliver a bigger slug with less pressure than the next smaller round can. This means less breech pressure, less felt recoil, less wear and erosion on the sixgun itself, less noise and blast and more enjoyable shooting. After comparing our ballistics maybe you will figure so little is to be gained over the .44 magnum with a .45 Colt why should I bother to go to the bigger caliber. Hardly a day goes by here at the shop that we don't receive a call or letter from a handgun hunter who asks why does the old reliable .45 Colt hit a harder blow than lesser caliber sixguns, even with moderate velocity loads. The answer is caliber and bullet weight. These are the only **CONSTANTS** we have in external ballistics. Velocity is a constantly diminishing variable. Velocity and foot pounds of energy look good on paper. We feel a much more reliable formula that tells the true results on game is John Taylor's Knock Out Formula

Caliber x Bullet weight x velocity divided by 7000

.430 x 240 gr x 1400 fps = 20.6 KO

.452 x 260 gr x 1400 fps = 23.5 KO

I have personally taken about 10 antelope and 1 mule deer with a .45 Colt. My wife has taken around 6 antelope and 5 mule deer with her .45 Colt. She uses a 4 3/4" Seville and the handload is a 260 Keith cast at 900 fps. This load will shoot lengthwise of antelope and mule deer at 100 yards. In my estimation it kills as well as the .270, 30-06 class rifles if the shots are placed properly. If I were hunting heavier game I'd step up the velocity to 1200 fps and in extreme circumstances, (elk, hogs, bear) go to the 310 gr cast slug. This load, 310 at 1200 will go through elk like so much air. These loads can be managed by anyone who is serious about handgunning big game. My wife is 5' 1" and goes about 100 lbs with her gun on. She likes the power the .45 gives her with a minimum of recoil and blast. She has hunted with me for 15 years now and is a very serious handgun shooter. I think the .45 Colt has a lot to do with this as it gives her big bore power without big bore recoil and blast. My sons also shoot the .45 Colt a lot and I had the pleasure to watch my oldest son at age 14 take a nice mule deer buck this year with a 5 1/2" Colt SAA at about 90 yards range. The load, 260 Keith at 900 fps. Its plain, no bells or whistles, but it works every time.

## COMPONENTS

In a technical sense the .45 Colt is a big caliber, large capacity case that must operate at low chamber pressure compared to many magnum rounds. The fact that it has more capacity allows this to happen. In general loadings the .45 Colt will do anything the .44 magnum will do with about 6000 to 10,000 CUP less chamber pressure, depending on the load and bullet weight used. With standard weight slugs the difference is not as wide as it is with heavy slugs. This is the same rule that applies to calibers in rifles. A 250 gr slug is unheard of in a 7 mm mag, but neck the same case to .338 and the 250 gr slug is perfectly balanced. But like magnum cartridges the secret behind the .45 Colt's potential is the powder used to drive the slugs. For years Hercules 2400 was considered to be the finest magnum handgun powder available. Pressure data has shown that this is not true and the finest sixgun powders available today for heavy handloads are Hodgdon's H-110 and Winchester's WW-296. These powders are basically the same and can be fully interchanged as to charge weights. I've probably shot over 50 lbs of WW-296 in all my testing and twice that much H-110. I feel H-110 is kinder to lead bullets than W296 but H-110 does vary from lot to lot more than W296. I have never seen a "hot" or fast can of H-110 but have used some that was a grain or 2 slower than normal. The only way you can tell this is with Pressure equipment or a chronograph. With these powders VELOCITY MEANS PRESSURE. If you're not getting normal velocities, your powder is slow and not generating normal pressure. By working up carefully 1/2 gr at a time till your normal velocity is acquired you can continue to use these slow cans of powder. NEVER EXCEED OUR RECOMMENDED VELOCITIES...

### VELOCITY AND PRESSURE COMPARISONS SHOWING THE SUPERIORITY OF H-110 AND W 296 OVER OTHER COMMONLY USED POWDERS IN THE .45 COLT. 7" TEST BBL.

BULLET	POWDER	GRAINS	VELOCITY	CUP
260 GR. LEAD SWC	H-110	27	1459 FPS	30,600
260 GR. LEAD SWC	H-4227	26	1377 FPS	30,600
260 GR. LEAD SWC	# 2400	20.5	1294 FPS	29,800

260 GR. LEAD SWC	HS-6	16	1259 FPS	30,800
260 GR. LEAD SWC	UNIQUE	12	1199 FPS	30,000
310 GR LEAD SWC	H-110	23	1330 FPS	30,000
310 GR LEAD SWC	H-4227	23	1176 FPS	29,400
310 GR LEAD SWC	# 2400	19	1172 FPS	29,400
310 GR LEAD SWC	HS-6	14	1119 FPS	30,400
310 GR LEAD SWC	UNIQUE	11	998 FPS	29,200

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I've used the following slugs because they handle 98% of my shooting requirements. Heavier slugs can be used but are not needed and will make the powders listed with burning rates faster than H-110 and WW 296 act even more radically. Too heavy a slug, seated too deeply in the case can cause #2400 to act like Unique and Unique to act like Bullseye. Small increases in powder charges can result in dramatic pressure jumps. For any serious heavy handloads I use only H-110 and WW 296 powders. These are the 2 most stable powders we have for this reloading application. Our pressure testing has proven both powders to be absolutely stable up to 60,000 CUP. Steady, smooth and no pressure spikes. Other powders can be used but great caution is advised..

THE FOLLOWING LOAD DATA IS TO BE USED ONLY IN RUGER SINGLE ACTION REVOLVERS. WE THE PUBLISHER ASSUME NO RESPONSIBILITY FOR THE RESULTS OBTAINED FROM THIS PRINTED DATA OR THE HANDLOADS ASSEMBLED USING THIS DATA. SAFE HANDLOADING PRACTICES ARE YOUR RESPONSIBILITY.

STARTING LOADS					MAXIMUM LOADS			
BULLET	POWDER	GRS	VEL	CUP	POWDER	GRS	VEL	CUP
225 JHP	H-110	28	1400		H-110	30	1500	28,000
225 JHP	H 4227	26	1310	23500	H4227	28	1426	28800
225 JHP	HS 6	15	1244	24400	HS 6	17	1309	28200
225 JHP	UNIQUE	11.5	1170	24400	UNIQUE	12.5	1301	29,400

This slug is good for up to deer sized game. I much prefer cast slugs of 260 gr or heavier. Do not depend on this JHP slug or any other bullet of this design to give deep penetration. No matter how heavy it is.

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Starting Loads					Maximum Loads			
Bullet	Powder	Grs.	Vel.	CUP	Powder	Grs.	Vel.	CUP
260 cast	H-110	25.5	1364	24,800	H-110	27	1459	30,600
260 cast	H 4227	24	1180	24,800	H 4227	25.5	1340	30,000
260 cast	#2400	19	1165	24,800	#2400	20.5	1294	29,800
260 cast	HS-6	14	1130	25,000	HS-6	15	1225	30,000
260 cast	Unique	10.5	1050	24,800	Unique	12	1199	30,000

This data can be used with the 240 gr. Sierra JHP, 250 XTP and 260 Speer JHP

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Starting Loads					Maximum Loads			
Bullet	Powder	Grs.	Vel.	CUP	Powder	Grs.	Vel.	CUP
310 cast	H-110	21.5	1109	24,400	H-110	23.5	1316	32,000
310 cast	H 4227	21	1016	24,900	H 4227	22.5	1164	30,000
310 cast	#2400	17	1013	24,400	#2400	19	1172	29,400
310 cast	HS-6	12.5	994	25,000	HS-6	13.5	1043	29,800

THIS DATA CAN ALSO BE USED WITH 300 GR SIERRA, HORNADY XTP & SPEER BULLETS.  
 JACKETED BULLETS WILL RUN MUCH SLOWER VELOCITIES DUE TO FRICTION.  
 DO NOT INCREASE POWDER CHARGES TO GAIN THIS VELOCITY BACK

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Starting Load					Maximum Load			
Bullet	Powder	Gr.	Vel.	CUP	Powder	Gr.	Vel.	CUP
350 JSP	H-110	20	924	24,400	H-110	21	1092	31,000

THIS DATA CAN ALSO BE USED WITH CAST LEAD SLUGS OF EQUAL WEIGHT.  
 350 GRAIN SLUGS ARE THE HEAVIEST WE RECOMMEND IN THE .45 COLT.  
 THIS IS ABOUT THE BALANCE POINT OF THIS ROUND.

THE 7" PRESSURE BARREL USED TO OBTAIN THE ABOVE VELOCITIES AND PRESSURE DATA IS MEASURED FROM THE MUZZLE TO THE BREECH. THIS WOULD DUPLICATE A 5 1/2' REVOLVER. BEFORE LOADING WITH THIS DATA BE SURE YOUR FIREARM IS IN PERFECT MECHANICAL CONDITION. BE SURE YOU'RE READING THE LOADING DATA PROPERLY AND YOUR COMPONENTS ARE CORRECT. EITHER LARGE STANDARD OR LARGE MAGNUM PISTOL PRIMERS ARE SUITABLE FOR THESE LOADS.

THIS LOAD DATA TO BE USED "O N L Y" IN MODERN RUGER SINGLE ACTION REVOLVERS

#### PERSONAL NOTES AND EXPERIENCES;

When we first started seriously experimenting with the .45 Colt cartridge and sixguns chambered for this round we had several problems and almost started to believe what we had read about its shortcomings. Our first early guns were Colt SAA and Dakotas. We loaded these guns using H-110 and WW 296 exclusively and our most popular slug at that time was the old 250 Hornady JHP. This is a very accurate slug but very soft and will fail badly on big game. Since we were limited in the strength of these guns we approached all loads very carefully. Loads were accurate and consistent but necessarily low in velocity.

Our next test vehicles were the fine old Abilene models in .45 Colt. Only about 500 of these guns were made in this caliber by the New York firm. It went bankrupt and what was left of this outfit became Seville and El Dorado. When the Seville arms became available we soon went to work on these. The Abilene and Seville both were bored with minimum Industry standard chambers. the diameter being .483 but the chamber throats were still oversize at .457 diameter. This was a help with proper size chambers and the strength the guns offered over the Colts was the biggest breakthrough we had so far. Before in all other loadings the chambers and throats were so oversize that our powder charges, (especially H-110 and WW 296) would not even begin to burn properly with the recommended charges the load manuals printed. The tighter guns helped this somewhat but performance was still at best 3rd rate.

After reaching maximum full power load levels listed by said manuals, all looked well so we continued to work up our powder charges. (All experimenting in this area was with H-110) The heaviest load we could find for the 250 Hornady JHP and H-110 was 25 gr. At this level our velocity was around 1200 fps. At 26 gr. we hit a tight spot. Velocity was erratic and blast warned us something wasn't happy. At 27 gr we simply got more of the same. We stopped and pondered. After lengthy deliberation we went on to 28 gr of H-110 behind the 250 Hornady. Velocity came up, the hollow blast sound we were getting disappeared and turned into a deep cracking sound. Things overall smoothed right out. At 29 gr the guns really came to life and settled down. ( ALL THIS DATA WAS SHOT IN SEVILLE AND ABILENE REVOLVERS )

What we were experiencing was a load density problem and a lack of resistance because of too large of throats, cylinder gap, etc., to make the slow burning H-110 work properly. We turned from JHP to cast lead slugs. Most of our problems completely disappeared. We soon found that lead slugs would duplicate jacketed slugs velocity with about 2 grains less powder. We also found that powder charges that were safe with jacketed slugs were too heavy for lead

bullets. The jacketed slugs simply don't seal up in the bore like the much superior cast lead slugs. If a particular gun showed sluggish signs we went from a .452 dia slug to a .454 thus creating more resistance, and better seal in the throats of the cylinder. We soon learned that TOLERANCES were very important. We started with setting back the barrels a thread and closing the barrel/cylinder gap to under .002 instead of the common factory gap of .006 plus. This alone can boost velocity over 100 fps without changing the load. We next went to smaller chambers and .454 chamber throats. This combination with a proper size .451 barrel and tight .002 cylinder gap made the .45 Colt more than we could ever hope for.

Since this load data and report is about Ruger Single actions lets take a look at these. The Rugers are undoubtedly the strongest most well thought out modern sixguns in the world. They are an engineering marvel but why they won't tighten up their tolerances and chamber proper size charge holes in the cylinder is beyond me. Ruger .45 Colt chambers are BIG. I have seen and measured hundreds of them and they are .486 to .490 in dia. This is the maximum allowed by the industry. The chamber throats are .457 to .458. Recently the new Bisley models had .455 throats but the chambers are still oversize. If you wish to shoot your Ruger AS IS, here are a few ideas that will help you. Remember we need resistance to make the H-110 to work properly so for best results use the cast lead slugs. Heavier slugs work better than lighter slugs and bigger slugs (in diameter) work better than smaller slugs. If I were shooting a stock Ruger with big chambers and throats I would use a 260 Keith cast and the 310 Keith or 320 LBT cast slugs exclusively. I would size these to .452 and try them with our recommended charges of H-110. If all is well your velocity should be close to ours and accuracy in the 1 1/2" range at 25 yards. If your not satisfied with this I would use the same slugs but size them to .454 dia. Bullets should be in the 15 to 20 Brinnell range. DO NOT MAKE THEM TOO HARD. Too hard a bullet (with high antimony content) is a joke and suited only for special purposes. I shoot straight wheel weights / water dropped. This gives me about 18 to 20 hardness. PLENTY HARD, but yet soft enough to form to the bore properly and seal right. Bullet lube, anything that is soft and gooie. If it resembles a crayon, that's all its good for. The oversize .454 slug will fill the gap between the .457 throats and the .452 barrel. (most Rugers have .451 - .452 barrel diameter) A reliable chronograph is the most valuable tool a handloader can own. By knowing and keeping an eye on velocity you have a good idea if your getting results or just noise. Velocity and pressure go hand in hand. With H-110 and WW296 if you get a gain in velocity, you're getting an equal gain in pressure. For this reason your charge weights may vary from ours, but as long as you do not EXCEED our recommended velocities with each bullet weight you will not be exceeding our recommended maximum pressures. We have shot a couple hundred stock Rugers here, and out of the box most will shoot under 1 1/2" at 25 yards with good handloads using properly sized cast slugs and heavy charges of H-110 or WW 296.

My personal loads include only 3 loads that I have settled on for all my handgun shooting. All are safe in Rugers and have been recommended to hundreds of shooters, All report good results and accuracy.

Powder	Gr.	Bullet	Velocity	Use
WW 231	8 gr.	260 cast	900 fps	defense/plinker/big game
HS 6	13 gr	260 cast	1050 fps	big game
HS 6	13 gr	310/320 cast	1000 fps	big game

H-110	24	260 cast	1280 fps	big game
H-110	24	310/320 cast	1250 fps	big game/ dangerous game