

A 500 Linebaugh Anyone?
by Alex Beer

I know I know, I can see it now, here in Australia people will be scratching their head and asking “A 500 what?”

The 500 Linebaugh was named after its maker, Mr. John Linebaugh, from Cody Wyoming, in the USA. Mr. Linebaugh believes that when it comes to hunting big game with a handgun, bigger is better. Why try to load a smaller cartridge bigger, up to, or even beyond its maximum limits in an attempt to increase its hitting power, when you can just load a bigger cartridge normal? A bigger cartridge loaded normal will hit just as hard if not harder, with less pressure, less muzzle blast, and less felt recoil than a hotted up load in a smaller caliber. And because of its lower operating pressure, the bigger shell will be much easier on the gun too. Bigger, heavier projectiles would also allow handgun hunters to achieve increased bullet penetration on the bigger species of game animals, and there-for be more effective for harvesting those larger species.

Looking for a cartridge with all this in mind, Mr. Linebaugh took the 348 Winchester case, shortened it to 1.400” and then opened up the case mouth and slipped in a 440 grain .510” diameter lead bullet. And so was born the 500 Linebaugh. The resulting cartridge will launch that 440 grain cast lead bullet at around 1200 to 1250 fps from a 5½” barreled much modified Ruger revolver. When I say much modified, I mean much modified because major non-reversible alterations are needed to shoe-horn a shell this big into a Ruger revolver.

In this day and age of high velocity, I suppose 1250 fps doesn’t sound all that brilliant, not when you compare it to the 1400 plus fps of a 357 or 44 Magnum. But hang on a second; look at the bullet weight this thing is heaving, 440 grains as opposed to 158 grains for the 357 magnum, or 240 grains for the 44 magnum. Look at the muzzle energy these three shells develop.
(Muzzle energy = bullet weight x velocity x velocity divided by 450240)

357 Magnum	- 158 grain bullet – 1450 fps max (8-3/8” barrel) = 738 ft/lbs muzzle energy.
44 Magnum	- 240 grain bullet – 1450 fps max (7-1/2” barrel) = 1121 ft/lbs muzzle energy.
500 Linebaugh	- 440 grain bullet – 1250 fps max (5-1/2” barrel) = 1527 ft/lbs muzzle energy.

You can see there is some difference between them, but nothing all that awe inspiring yet.

Now try the Taylor Knock-Out formula and compare the three cartridges again. This particular formula was developed by Mr. John Taylor, a very experienced African big game hunter. From around the late 1920’s to I think the late 1950’s he took vast numbers of Elephant, Rhino, Hippo and Cape Buffalo, not to mention a swag of other big game animals. He used, at one time or another, most of the large and medium bore calibers available back then. With his wealth of practical hunting experience and associated knowledge, he came up with this formula to help compare the knock down power of the various nitro express cartridges. Even in this day and age, this formula is a very useful tool with which to compare cartridges. Mr. Taylor’s formula brings the caliber of the bullet (the bullet diameter) into the picture. The bullet’s diameter does have a definite added positive effect in terminal ballistics.

(Taylor Knock Out = caliber in inches x bullet weight x velocity divided by 7000)

So when we do the sums again, we get the following:

357 Magnum	- .357” dia. – 158 grain bullet – 1450 fps max (8-3/8” barrel) = 11.5 TKO’s.
44 Magnum	- .429” dia. – 240 grain bullet – 1450 fps max (7-1/2” barrel) = 21 TKO’s.
500 Linebaugh	- .510” dia. – 440 grain bullet – 1250 fps max (5-1/2” barrel) = 40 TKO’s.

Bit more intriguing now isn't it? When the bullet's diameter is factored into it, the difference between these three really becomes evident. Even though the 500's bullet speed is 200 odd fps slower than that of the 44, because of its bullet weight and diameter, the 500 Linebaugh has almost double the hitting power of the 44 Magnum.

Let's put this into a different perspective. Most people would agree that the 375 H&H Magnum is more than adequate as a large game caliber, so let's run both the equations on it and see how it stacks up. A 375 H&H Magnum with a 300 grain bullet at 2500 fps has 4164 ft/lbs of muzzle energy, and a TKO of 40. Now that makes it quite interesting, when it comes to hitting power, the 500 Linebaugh with 40 TKO's is right there along side the 375 H&H Magnum.

Let's take two more grand old cartridges, the 30/06 Springfield and the 270 Winchester. The 30/06 with a 180 grain bullet at 2700fps has 21 TKO's and the 270 with a 130 grain bullet at 3100fps has 16 TKO's. Both the 30/06 and the 270 have proved time and time again to be out-standing performers in the hunting fields, and rightfully so too. Yet more often than not, here in Australia, handguns are put down as 'underpowered' for any sort of hunting, yet the 44 Magnum with a 240 grain bullet at 1400 fps has a TKO of 20, and the 45 Colt with a modern load in a Ruger single action of a 265 grain bullet at 1250 fps has a TKO of 21. So both have basically the same TKO's as the 30/06. Under-powered for hunting? I can't quite figure that one out!

Obviously, due to the sighting arrangement on most handguns, most people wouldn't attempt a shot at game at scoped rifle type ranges anyway, and any hunter worth their oats should know, and adhere to, their own limitations. But, when used right, it's been proven time and time again that many handguns and handgun cartridges do have ample power to humanly take game. It raise's the excitement level and puts the hunt back into hunting when you have to stalk in closer to your game. There is something really satisfying about cleanly taking an animal with a handgun from fifty odd yards, when you could have had a shot from twice that far but you chose to try to get in closer.

We mentioned bullet penetration a little earlier. Mr. Linebaugh has run some penetration seminars in the States where they did penetration tests with many different caliber/bullet combinations. Here are a few sample results.

500 Nitro Express	- 570 grain round nose solid at 2150 fps - forty eight inches of penetration
458 Winchester Mag	- 500 grain round nose solid at 2260 fps - forty seven inches
375 H&H Mag	- 300 grain round nose solid at 2550 fps - forty inches
500 Linebaugh	- 435 grain hard cast lead at 1270 fps - thirty eight inches of penetration.

Each of these was fired into the same type of test medium, I don't remember exactly what, but I think it was packed newspaper soaked in water; it seems to be a pretty common test medium. A bit surprising? A big, heavy, comparatively slow moving projectile from a handgun will penetrate nearly as well as some of the 'recognized' big game calibers, and it's that straight line penetration, along with size of the bullet hole that is so effective on big game, not necessarily just the magical "on paper" figures of foot pounds of energy that is so often equated with killing power. Sometimes bullet speed doesn't help in achieving penetration, sometimes it works against you. Mr. Linebaugh put this very well when he said, "You can walk through water, but you can't run through water". Okay, so shooting bullets into wet newspaper may not be conclusive proof of bullet penetration on game, but it's still an interesting and valid comparison all the same.

In many places in America it is legal to own, use and even hunt (and wouldn't I'd love that) with these large bore revolvers, but here in Australia, it's a different story. Anybody who is interested in big caliber handguns has a problem, even more-so if you want to fire such a thing.

You see, after a much publicized shooting incident at a Melbourne university, where unfortunately two people were killed, our Government officials and law makers, in their ultimate wisdom, decided to add to the already vast list of handgun regulations. They decided that after a person had passed all police background checks, and that they were a member of a recognized pistol club, and that they had the correct storage for handguns, and that they had to attend a specific number of shoots per year per handgun they own, and that they had to justify owning each handgun they wanted to own, our officials then decided that people would not be allowed to own anything with a caliber larger than .38, unless they shot Western Action or Metallic Silhouette. Even then, the caliber was restricted to a maximum of .45 and these handguns could not be used unless the owner had a special permit which had to be applied for, and, if you made all the right noises, was then only issued at the discretion of The Commissioner of Police.

Sounds a bit grim doesn't it? But all is not yet lost. On the positive side, calibers greater than .45 can be owned, but there is a small catch. They can only be owned on a collector's license, and generally speaking, firearms held on a collector's license cannot be used and they "must be rendered temporarily in-capable of firing"

Well, I've wanted a big revolver for many years, I've always liked the bigger calibers, rifle and handgun, and for some time I'd been entertaining the idea of building myself a Ruger Bisley in 500 Linebaugh. So I rang our Firearms Services and put them the question. "Can I build this revolver and get an exemption to use it for Metallic Silhouette?" The answer I received was not what I had expected. "Don't know" they said, "We've never been asked anything like this before, better put the query in a letter and send it to us. We'll check it out and make a decision".

Fair enough I thought. So a letter was drafted and sent off with high expectations. But, as with many Government departments, when they are given a curly question, I had to wait for an answer. So I waited, and waited, and waited some more. To cut a long story short, six months and a number of follow-up phone calls later, a letter arrived in my post box. Eagerly I opened it, expecting a positive result. In short, the answer was an emphatic "NO" Under no circumstances could any handgun over .45 caliber be used for anything, anywhere, anytime. End of story.

Damn, I thought, I hate disappointment. But not being one to just lie down and accept no for an answer, I rang, and got through to (wonder of wonders), the manager of our Firearm Services and asked her to explain the reasons why I was not allowed to build and register the revolver.

She said under the "C.O.A.G" agreement (Council of Australian Governments) signed by all the State's police ministers in 2004, no handgun of greater than .45 caliber and no handgun with a barrel length of less than 4" in a revolver, and less than 5" in a semi-automatic was allowed to be used on any range for any match for any reason. (Remember I originally asked if I could build this revolver to shoot Metallic Silhouette)

"What about the people out there with Desert Eagles in 50AE" I asked

"They have them on collector's licenses" came the answer

Okay I thought, I'll ask my question again but from a different angle. "Could I build and register the handgun on my firearms dealer's license as a display piece, an example of the kind of thing I could build for potential customers who wanted something a bit different?"

She asked, "Why so big a caliber?"

"Wow factor" I told her. (Wow, did you see that Alex Beer & Co. 500 caliber revolver)

“Yes,” was then her answer, “You can build and register it for that, no problems at all, as long as you don’t take it to a range and practice or shoot any match with it. For that matter, if you ever decided to not renew your firearms dealers’ license, you could transfer it onto your private collector’s license, but then it would have to be rendered temporarily in-capable of firing because it would then be part of a collection.

“Great” I said. Now comes the tricky part, “What about proof testing it?”

“Why would you want to proof test it if you are not allowed to use it?” she asked.

I said (truthfully too I might add) “I’ve had a number of enquiries from overseas and I want to get into the custom revolver market outside Australia, and there was no way that I would send out a custom revolver of any caliber without first test firing it with a bare minimum of fifty rounds of full power ammunition. So I need to be able to test fire my revolvers”

“I don’t have a problem with that at all,” she said, “You have *‘to test’* in your firearms dealers license conditions don’t you?”

“Yes”, I answered.

“Then you can *‘test’* it all you want. You just can’t take it to the range and practice or shoot a match with it and have count as an attendance”.

Occasionally, it seems, you can get lucky and encounter something really quite rare, like a public servant who is a little more sensible in their interpretation and enforcement of non-sensical laws.

Okay then, let’s make a start on this big bore revolver. After a bit of searching around on the internet for some bits-n-pieces, an e-mail was sent to Mr. Hamilton Bowen, (who is a brilliant custom revolver maker and a heck of a nice bloke as well) of Bowen Classic Arms Corp, PO Box 67, Louisville, Tennessee 37777. USA. to organize an oversize five shot cylinder blank and an oversize locking base pin to suit the Ruger New Model Bisley.

I needed an import permit to get these ‘firearm parts’ into the country, so an application for a B709A, an Australian Customs Permit to Import, was put in and the permit duly received. A certified copy of the same was promptly air-mailed off to Mr. Bowen, as sometimes this copy is needed in America to organize an export permit, through the U.S State Department, before some gun parts can be dispatched out of the U.S.

A 500 Linebaugh combination chamber and throat reamer as well as a piloted base pin reamer were sourced from Dave Manson (another good bloke) of Dave Manson Precision Reamers, 8200 Embury Rd, Grand Blanc, Michigan 48439 USA. Ph 810-953-0732, Fax 810-953-0735 (apply international dialing codes as necessary) Both Hamilton Bowen and Dave Manson were only too pleased to help, any questions I had were answered promptly and straight forward. Great people to deal with!

In due course the parts from the States arrived. I was very happy with the cylinder blank and base pin from Bowen Classic Arms. The machining was superb. The cylinder indexing ratchet and the locking bolt notches were cut crisp and smooth, and the oversize base pin was a perfect fit in its hole in the cylinder. These are very high quality components. The reamers were terrific too. I’ve since bought seven or eight more reamers from Dave Manson. I have over a hundred chambering

reamers alone in my workshop, not to mention numerous throaters, headspace gauges etc, and these Dave Manson ones are the best yet.

With the cylinder blank and the other assorted pieces now on hand, I rang around our Australian barrel manufacturers to see what .510 caliber barrel stock they had. Sprinter Arms in South Australia had some in 1:24 twist and MAB in Queensland had some in 1: 15 twist. A quick e-mail was sent to Hamilton Bowen to enquire about the twist rate. He said they use 1:20 twist in their guns, so the 1:24 should be fine. Alright then, a six inch length of the 1:24 was purchased from Sprinter Arms and dispatched to me post haste.

The project donor gun, a Bisley in 44 Magnum was totally stripped, right down to every single part and prepared for some major changes. The Bisley was chosen because of its grip frame shape. They are far superior for handling recoil. Because of the considerable recoil this cartridge generates, firing a revolver with the standard grip frame in this caliber would no doubt be rather unpleasant, probably even downright painful. The Bisley grip makes this recoil more tolerable.

From the factory, frame measurements can, and do tend to vary considerably from gun to gun, so a cylinder made to a fixed set of measurements would almost never fit properly, let alone have good alignment from chamber to barrel. To achieve this correct fit and alignment in my revolver, I modified the frame to accept the oversize 5-shot cylinder, then accurately fitted an oversize locking bolt, a locking bolt bearing block, a trigger pivot spacer and the oversize base pin. This made sure cylinder any movement was kept to a bare minimum. It also provided solid, accurate cylinder lock-up. The indexing ratchet on the new cylinder was designed to free wheel. This means the cylinder will rotate silently in either direction when the loading gate is opened. I like this idea on a big-bore big recoiling revolver.

Action geometry was then altered as necessary, because this six shooter had to become a five shooter. Even with the oversize cylinder, five of these big shells only just fit. The action operation was then smoothed and precisely timed. The trigger pull was stoned and adjusted for a minimum amount of creep and the let off is now right at 3 lbs. I also fitted an over-travel stop screw so the trigger has no backlash either. It's a nice trigger pull! The fit of all the parts was held to as tight a tolerance that would still allow the revolver to function reliably.

That solid accurate cylinder lock-up achieved earlier then allowed me to line-bore the cylinder. With the cylinder in frame, and the frame held in a purpose built holding jig in the milling machine, the chamber pilot holes were reamed through a guide in the frame's barrel ring. This achieved as perfect a chamber to barrel alignment possible. The chambers were then reamed off the line bored pilot holes to minimum size with correctly sized throats, and the headspace was set to minimum specifications.

Both headspace and throat dimensions are very important factors when it comes to accuracy in a revolver. Get them wrong and all you'll probably have is a well fitted good looking gun that won't shoot anywhere near as good as it looks.

The chambers were cut with recessed case heads. That means the back of the shell is flush with the back of the cylinder. This made for really good loading gate support. Ruger revolvers tend to need all the loading gate support they can get when big recoiling cartridges are fired in them.

Here though, we ran into a slight hic-cup. The sheer size of the rim of the 500 Linebaugh case was too large to allow the shell to go past loading gate into the cylinder, so the loading trough under the loading gate had to be carefully opened out so the shell rim would pass comfortably through. I say carefully because there isn't much metal here between the loading trough and the

transfer bar gallery inside the action frame, and I didn't want to break through into the transfer bar area, that would not have been pretty.

The barrel blank was machined parallel and the barrel band fore-sight made. The barrel was threaded and fitted to the frame and a minimum diameter 11° forcing cone was cut and polished smooth. The cylinder gap was then set at .002". Then the muzzle was accurately crowned. The barrel was then locked into the frame and the bore carefully lapped. This was done to even up any irregularities down the bore and to remove any frame thread choking.

A quick observation on crowning: the crown is possibly the MOST important aspect of any barrel when it comes to good accuracy. I've seen some pretty ordinary looking barrels with a good crown shoot more than acceptably well, but I've never seen a good barrel with a poor crown shoot well. The crown must be cut square and it must be absolutely true to the bore. Recessed, eleven degrees, radiused, target, flat, whatever. I don't think the style of the crown itself matters half as much, so-long as it's cut square and true to the bore.

A steel ejector rod housing was fitted up snugly behind the barrel band shoulder. This made the ejector rod housing recoil proof, it just can't come off under recoil. The ejector rod head was then checkered to give a no slip operation when the gun is being emptied and a new ejector rod housing retaining screw was made and fitted to totally fill the screw hole. The new screw slot was regulated to run length ways. It looks a whole heap better that way!

Then the locking screw for the new base-pin was fitted to the barrel. A hole was carefully measured and marked out, then drilled .060" deep. The locking screw was then cut to length so when it was tightened, the bottom of the screw would be just clear of the bottom of the hole. This locks the base-pin into place with no torque on the base-pin. With a revolver fitted as tight as this one is, any torque on the base-pin could lock up the cylinder and or not allow it to turn properly. Big recoiling revolvers will almost certainly have the base-pin go AWOL sooner or later (usually sooner than later) if the base-pin is not some-how locked into place. The standard base-pin retainer is, unfortunately, just not quite up to the task.

While waiting for some Hornady loading dies and empty brass to show up from the States, I made up some new grip panels out of some old quarter sawn slabs of Tasmanian Blackwood I had put aside just for such an occasion. These are mouthwateringly beautiful grips, cranky curly grain with tiger stripes. This particular piece of Blackwood was quite tricky to work; because of its grain structure it couldn't be chiseled. It basically had to be filed and sanded the whole way. Blackwood is not recognized as a good rifle stock timber, it's said to be too short in the grain structure and there-for can be a bit brittle. I don't know how well they will hold up to the recoil this 500 will generate, I guess only time will tell, but wow, these Blackwood grips are pretty.

When the empty cases turned up, they created "some concern" with Australian Customs. They were worried about the size of the cartridge cases and they wanted to know where was the "pistol" that used these "unusually large" cases. But after proving that I was a genuine firearm's dealer and a bona-fide custom revolver maker, and after explaining that I was building the gun as a display piece, and after explaining the need to test fire in the event I was to build a revolver for someone outside of Australia (the Australian Government is big on exporting stuff at the moment), they relaxed a little and handed them over.

The gun was polished and taken to my chosen engraver, Mr. Gerald O'Connell, of Burnie here in Tasmania, Australia to have a little engraving put on the frame. I didn't want to over do the engraving, there had to be enough, not too much but not too little either. Mr. O'Connell also engraved the caliber and the makers name on the barrel. He did a nice job too, the lettering is

straight and precise, and the engraving flows smoothly and breaks up the larger flat and plain areas on the sides of the gun and on the cylinder.

A 440 grain LFN .512dia. LBT bullet mould and a .512 sizer die were sourced from the States. I needed to cast some big bullets and load some “test” ammo to see if all this works. I reckon it’s going to be interesting when I drop the hammer on a loaded round for the first time. Might even be a bit of fun too, especially for anybody watching...

These LBT moulds are highly regarded in the States, and after the first casting session with this one I can see why. This would be the easiest casting mould I’ve ever used. When you follow the manufactures instructions, the bullets just fall out of the mould, and this Long Flat Nose style (LFN) really looks good.

Another e-mail was sent to Hamilton Bowen at Bowen Classic Arms Corp and one of his excellent ‘Rough Country’ rear sights with the ‘Target’ blade was duly received and fitted into rear sight recess. This sight does not have the normal ‘click’ windage adjustment. It has opposing screws. One is backed off and the other is screwed over to it to adjust the windage. This is, if you will pardon the pun, a bullet proof adjustment system. It simply will not move unless you want it to. The sight picture formed with a one hundred thou’ wide fore-sight and this rear sight can only be described as excellent. Basically, it’s about as good a sight picture as you can get.

The grip frame screws were all dressed, so when they were tightened, the screw slots run along the length of the gun. The hammer and trigger axle pins were trimmed to the right length and the ends carefully domed and polished. The left ends of the pins were slotted like screw heads to match the cylinder bolt block retaining screw that had been fitted into the left side of the frame. All the parts then got a final polish with 600 grit emery cloth and then carefully gone over with fine ‘Scotch-Brite’ to give the gun an even satin finish.

A trip through the bluing tanks, a little lube and a final assembly of all the parts was all that was necessary to finish it. And here it is, done. A fine looking big five shot 500 Linebaugh revolver.

Now, let’s have some more fun. Let’s go and ‘test’ this thing. Hornady brass was primed with PMC large pistol magnum primers, (couldn’t get a supply of CCI 350’s) and charged with 26 grains of Alliant 2400 and topped of with an LBT 440 grain LFN projectile. The projectiles were cast of three parts wheelweights, two parts linotype, and lubed with Lyman Ideal. This load combination gave an average muzzle velocity of 1239 fps. Over the sand-bags I’ve grouped this load down to 1-1/4 inches for five shots at 25 yards, but I usually average about 1-3/4 inches. Once, off-hand at 25 yards I did manage to put three shots into three quarters of an inch, but then my true marksmanship capabilities returned and I skillfully opened the group up to 2-1/2 inches with the last two shots. Still, I guess 2-1/2 inches off-hand at 25 yards with this cannon is nothing to be sneezed at. That kind of shooting will keep meat in the freezer any day.

Another load tried was 30 grains of A.D.I - AR 2205 (Australian equivalent of Hodgdon H4227) with all the other components the same. This has an average velocity of 1226 fps and it groups around the same 1-3/4 inches as the 2400 load. With either of these loads, the gun takes a fair bit of hanging on to. Recoil is what you might call rather stout. It’s not an easy revolver to shoot groups with, but it sure is fun. I must admit though, it probably shoots far better than I can.

Make no mistake, these loads defiantly kick, but none of them actually hurt. As Hamilton Bowen said to me “As long as the gun doesn't bite you somewhere and draw blood, it is survivable, though I never shoot more than 15-20 rounds of that sort of stuff at a sitting”. Very wise words there Mr. Bowen, I now know I wouldn’t want to shoot a long session with these big loads either.

A more pleasant load is the same case, primer and projectile, but this time charged with 12 grains of A.D.I - AP70N (Australian equivalent of Hodgdon Universal) for approx 950 fps. I can group this load a little better, maybe because it kicks less. It averages 1-3/8 inches for five shots at 25 yards. This load would probably shoot clear through most anything you'd ever point it at anyway.

Just for fun I set a pumpkin about 6" in diameter on top of a fence post at around 70 yards, and smacked it off-hand with the first shot with one of the 1200 fps plus loads. It just exploded. There was an area on the ground about 30 feet across that was covered with bits of pumpkin. It sure made me smile. Quite spectacular and very entertaining!

This has been one of the most interesting handguns that I have had the pleasure of building. It's tight, it's smooth, it looks good, it's very accurate when I can hold it right and that cavernous hole in the muzzle really grabs people's attention! I like this 500 Linebaugh, it has been fun to build, and it is great fun to *'test'*!

I'd love to be able to *'test'* it on a deer or a buffalo, but I suppose while I'm here in Australia, I reckon it might have to remain a dream..... Good thing they haven't made dreaming illegal!

Special thanks must go to Hamilton Bowen of Bowen Classic Arms Corp. His advice, his patience, and the time he spent answering e-mails and the odd telephone call was invaluable. Without his un-selfish assistance, this project would not have been anywhere near as successful or as enjoyable.