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Terminal Bullet Performance

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**capward**

One of Us



posted 09 December 2009 00:25

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quote:

Well I suspect the big difference today is that I pulled the boxes up to the chronograph, all impacts were at 17 FEET--not 20-22 yards as I normally do. So all impacts are nearly right out of the muzzle. Now someone tell me, is it possible that the bullet has not fully stabilized at this point yet??? If impact distance is increased to say 20 yards stabilization is probably a bit better? Need some professional opinions on this please.

Michael,

The **only** way to truly know is to move the boxes back to their normal positions at 20+ yards (*Edited to correct distance*)...and go ahead and move the chronograph back there with them, I'm sure you'd not accidentally shoot the screens.



Jim

"Life's hard; it's harder if you're stupid"  
John Wayne

Posts: **4954** | Location: **Central Texas** | Registered: **15 September 2007**



**RIP**

one of us

posted 09 December 2009 01:01

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For decades now, the lore has required at least 20 yards for the bullets to "go to sleep" or settle down and dampen the nutating-heebie-jeebie-tremors of muzzle exit.

I always shot the IWBB at 25 yards.

Will get out the iphone and look at some pictures.

DRG says: "Kiss my liberal grits!"

Posts: **28032** | Location: **KY** | Registered: **09 December 2001**



**michael458**  
One of Us




posted 09 December 2009 01:32

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Jim and RIP

Yes, just as I thought. I really did not think about it until everything was loosing stability at the very end of penetration, then I want to know why. Since most everything I did today I have not done before I was not sure, until I fired the 500 MDM off. When it too lost stability I was quite sure it was the short distance I was shooting. Normally when set up the testing for solids has been 20-22 yds and the 500 MDM has been stable 100% of the total penetration.

So one thing is a fact, all work at extremely close range, and all will do the job up close without issue. Since I have plenty of 550 gr .500s , 450 .458 North Forks, and 370 416 North Forks, I will repeat the test again at 20 yds. The damn box is nearly 12 ft long both together! If there is significant gain, then I still have a couple of the GS Customs left, or could just shoot the ones I already shot? 

Thank you RIP, I figured as much, but that confirms enough for me.

Michael

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Posts: **8426** | Location: **South Carolina** | Registered: **23 June 2008**



**capoward**  
One of Us




posted 09 December 2009 02:36

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quote:

If there is significant gain, then I still have a couple of the GS Customs left, or could just shoot the ones I already shot?

I don't possess any GSC bullets or I'd send you some to replace the .416 410gr FN that you shot so that you could fully redo your test.

Jim   
"Life's hard; it's harder if you're stupid"  
John Wayne

Posts: **4954** | Location: **Central Texas** | Registered: **15 September 2007**



**Bike Rider**  
One of Us

posted 09 December 2009 02:49

[Hide Post](#)

Michael,

Does the first box have the wood back or have you removed the wood back?

Want to make a bet?

The little 6.5mm 156gr vs the 512 or 550gr .50cal..... wanta bet 😊)))

Bikerider

Posts: **243** | Location: **USA** | Registered: **20 August 2002**



**michael458**  
One of Us



posted 09 December 2009 03:34

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Jim

I still have a couple unfired GS Customs, that will work.

Bike!

Might bet against the 6.5---but no bet on the 9.3 320!

No, first box I used one of those plastic coated cardboard thingies! Works great for the back. Of course about all I did today was "Test to see if the solids would work up close" and they did.

Not sure if I can get back on the range tomorrow or not, will try, but will be after lunch before I get back in.

I still have a couple of 458 caliber NONCONS to test too. Actually more interested in testing those right now, but will do the solids again too.

Also of note, I have some "Super Penetrators" donated by I Bin Therbefor that are on the way, and also have some new Woodleigh Monos donated by Con on the way. So we will see how they do in comparison.

As far as I am concerned the North Forks, GS Customs did as expected, and very well at that. No surprises here, even though I have not worked with them before. I see them as equal to the Barnes Banded, neither one really doing anything the other won't do, at least in this limited test so far. North Forks and GS Customs, look very similar to me, don't see much difference in nose profile, so I imagine what one does, the other will do also. I would not hesitate to use either the North Fork, GS Custom, or the Barnes Banded, for any thing one uses a solid for.

One thing, the 410 GS Custom at 2527 fps did penetrate deeper than the same at 2108 fps by a total of 5 "Straight" inches. Not a tremendous amount, but none the less deeper.

I did also use our "Witness Cards". I chose to place them every 10 inches throughout the mix. That seems about correct for FN Solids.

I can also attest that doing the tests with the Witness Cards while excellent, I love them, will continue to use them, it certainly slows the process a bit. I spent nearly 3 hours testing the bullets you see above, 6 rounds! It takes a bit of time to get everything set up each time, especially tearing down 60 inches of mix each time, rebuilding it again, inserting the cards correctly, and in general getting everything correct for the next test. But, in the long run, worth it!

Later

Michael

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Posts: **8426** | Location: **South Carolina** | Registered: **23 June 2008**



**Con**  
one of us

posted 09 December 2009 03:45

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Michael,  
If all goes well ... watch your postbox late next week. Some 45cal, 400gr Woodleigh monos on the way.  
Cheers...  
Con

Posts: **2198** | Location: **Australia** | Registered: **24 August 2001**



**PWS**  
One of Us



posted 09 December 2009 05:07

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It would be interesting to see a graph plotted with penetration on one axis and velocity on the other. +400fps only added 5-6" total penetration. Wonder if there's a velocity threshold where penetration really starts to improve or drops off?

Posts: **1138** | Location: **Kodiak** | Registered: **01 February 2005**



michael458  
One of Us



posted 09 December 2009 05:30

[Hide Post](#)

Con

I am on the lookout, thanks too!

PWS

I have always been extremely curious about velocity vs penetration with solids. I did a test about a year ago with a 416 caliber 350 Barnes Banded. 2100 fps impact and 2450 fps impact, in this test the slower bullet penetrated deeper! Not by much, 3-4 inches as I recall. Today's test was just the opposite, with the GS Custom. My test work is "limited" at best in this area. In another test with the .500 caliber 510 gr bullet--2100 fps and 2350 fps, there was zero difference in penetration. None at all, both side by side. Also recently I did a 500 Barnes banded, I think one at 1800 fps or so, the other at 2250 fps or so, both exited the box, no definite data on exact penetration. So yes velocity makes a difference, one way or the other, possibly nose profile having something to do with either velocity being on the up side of penetration, or in some cases the downside? It's just something we can pin down exactly just yet. I really doubt that one can make a blanket statement either way. I do think nose profile or type of nose profile can make a difference of whether velocity hi or low, adds to penetration. I have always believed that one would reach a threshold at some point. But what point, with what design?

Michael

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Posts: **8426** | Location: **South Carolina** | Registered: **23 June 2008**



michael458  
One of Us



posted 10 December 2009 01:32

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I just got through repeating most of the test from yesterday with the 416 caliber 410 GS Custom Solids, 370 North Fork Solids, 458 caliber 450 North Fork Solid, and my own 500 Caliber 550 gr SSK Solids. Along with the two 458 Caliber NONCONs.

Today, back to impacts at 22 yds, hoping things would settle down somewhat and get 100% stability throughout.

Yes, and no?

Something screwy happened to the 410 GS Custom. Fired in the 416 B&M at 2240 fps muzzle, 2205 fps Impact the bullet traveled straight to 38 inches, from there something happened it got sideways in the mix at 40 inches travels off course and out of the top of the box at 45 inches. No way I can explain how this can happen. Bullet looked fine, could load it up and shoot again.

458 B&M 450 North Fork 22 yard impact at 2169 fps dead straight to 57 inches. Did not veer off course, but found sideways at the end of penetration. Pretty much close to the same performance as yesterday.

416 B&M 370 North Fork Solid 22 yard impact at 2340 fps straight to 55 inches. About 2 more inches than yesterday's test at 17 feet, still found sideways at the end of penetration, no sign of veering off course.

500 MDM 550 gr SSK Solid 22 yard impact dead straight to 68 inches found straight in medium. But, I fired a second bullet and it lost stability at 65 inches and went off course and out the top of the box? Yet another ?? to go with the 410 GS Custom?

Any number of issues could have occurred to cause these two bullets to lose stability, but I tend to believe that both is outside of normal behavior for these bullets.

More great success on two 458 caliber NONCON bullets. A 260 Brass HP at 2760 fps impact, same story, petals shear at or around 2-3 inches, spread out around center at 4 inches, penetrated to 6-7 inches total. Remaining slug weighing in at 177 grs continued to penetrate to 19 inches. Phenomenal for such a small bullet! Also found nose forward in the mix, no signs along the way of veering off course or tumbling.

The other NONCON, 305 gr Brass HP, same design as the 260, just at 305 grs. 2725 fps impact velocity, petals shear at 2 inches, and these penetrated past 8 inches, some going to as far as 10 inches. Remaining slug weighing 203 grs penetrated to a phenomenal distance of 24 inches! Nose forward, straight penetration, no tumbling or veering off course.

All in all not much real difference from yesterday's test, with the one great exception I can't explain concerning the 410 GS Custom? Since the test yesterday did not show anything near today's test I would have to say that it was some sort of anomaly I can't explain. I do not believe that this is standard behavior for these bullets.

I don't have any photos of these yet, and really not much need to show more solids that honestly can be shot again. One day I am going to do that just to see what happens!

Received the Super Penetrators from I Bintherbefore, THANKS--These are the ones we have seen before with the little metal disk on the nose! Honestly I forget where these are made and by whom? Sure easy to measure meplat, will get details on these and photos maybe by tomorrow. I don't know guys, I am probably wrong, but from the size of the disk, shape of the nose, I am not so sure these are going to do so well, not in my test, it is tough on bullets of all sorts! Just opened these up, don't really know what I have yet, looks like 416 caliber and a 458 caliber. Will get more on this tomorrow.

Michael


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Posts: **8426** | Location: **South Carolina** | Registered: **23 June 2008**



<p><b>RIP</b> one of us</p>	<p> posted 10 December 2009 06:16 <span style="float: right;"><a href="#">Hide Post</a></span></p> <p>Michael, Those .416/410-grain copper-mono GSC FN's are just to long to be trusted. Gerard recommends the 380-grainers for most applications.</p> <p>Norbert Hansen (Germany) designed those "Superpenetrators" and proved them on elephant.</p> <p>Posts: <b>28032</b>   Location: <b>KY</b>   Registered: <b>09 December 2001</b> </p>
<p><b>I Bin Therbefor</b> One of Us</p>	<p> posted 10 December 2009 06:40 <span style="float: right;"><a href="#">Hide Post</a></span></p> <p>Michael</p> <p>You received from me, 3@ 500 gr 458 cal and 3@ 410 gr 416 cal. If you need more, let me know.</p> <p>For explanation see:</p> <p><a href="http://www.grosswildjagd.de/penetrat.htm">http://www.grosswildjagd.de/penetrat.htm</a></p> <p>Posts: <b>404</b>   Registered: <b>08 May 2005</b> </p>
<p><b>michael458</b> One of Us</p> 	<p> posted 10 December 2009 13:11 <span style="float: right;"><a href="#">Hide Post</a></span></p> <p>RIP</p> <p>Well that may explain. The Rigby is a Ruger #1, not sure of twist rate. The 416 B&amp;Ms are 1:14. If Gerard recommends the 380 GS, the 370 NF is close, and it does fine.</p> <p>I have seen the Superpenetrators and I am sure they will work. The mix is tough on bullets however.</p> <p>I have to get back to making Witness Cards again, used all I had made up!</p> <p>What about the light weight 458 NONCONS? I am going to order 500 of the 305s. I also need to drop velocity down to around 2000 and test. Actually I need to really drop velocity down to around 1200 or so and see what happens too!</p> <p>Hi I Bin Therbefor, thanks, 3 each should do I think. Soon as I can get to them I will give them a go.</p> <p>Michael</p> <p><a href="http://www.b-mriflesandcartridges.com/default.html">http://www.b-mriflesandcartridges.com/default.html</a></p> <p>The New Word is "Non-Conventional", add "Conventional" to the Endangered Species List! Live Outside The Box of "Conventional Wisdom"</p> <p>I do Not Own Any Part of Any Bullet Company, I am not in the Employ Of Any Bullet Company. I do not represent, own stock, nor do I receive any proceeds, or monies from ANY BULLET COMPANY. I am not in the bullet business, and have no Bullets to sell to you, nor anyone else.</p> <p>Posts: <b>8426</b>   Location: <b>South Carolina</b>   Registered: <b>23 June 2008</b> </p>
<p><b>buffalo</b> One of Us</p>	<p> posted 10 December 2009 13:46 <span style="float: right;"><a href="#">Hide Post</a></span></p> <p>Hi Michael. Instability might be an issue here. I used the GS 410 FN's in my 416 Wby with a 1-12" twist barrel and at 2700 f/s</p> <p>Posts: <b>873</b>   Location: <b>Denmark</b>   Registered: <b>04 January 2005</b> </p>
<p><b>buffalo</b> One of Us</p>	<p> posted 10 December 2009 14:28 <span style="float: right;"><a href="#">Hide Post</a></span></p> <p>Michael- when will you test the 338 (low and high vel) as well as the 320 grs 9,3 and a 6,5mm 156 grs bullet? Just to compare with the big bores.. The 500 MDM penetrates remarkably better than its competitors.. Even though it has lower SD and lower speed. Amazing.. Just show us all that there is more to penetration than we can just calculate.. What twist do you have in your 500 MDM?</p> <p>Posts: <b>873</b>   Location: <b>Denmark</b>   Registered: <b>04 January 2005</b> </p>
<p><b>Gerard</b> one of us</p>	<p> posted 10 December 2009 14:37 <span style="float: right;"><a href="#">Hide Post</a></span></p> <p>Michael, Thank you for proving what I first said in 2001 and many times since then. "Also rather use the 380 gr FN than the 410 gr FN. A couple of PHs twisted my arm to produce the 410 and, after they tested both, no one is buying the 410 for the 416 Rigby or the 416 RM."</p> <p><a href="#">Here is the original post</a> . The quoted link no longer works and I have learned much about BC since then, but the bullet length/weight/twist issue has not changed.</p> <p><a href="#">From a post dated October 2004</a>: "The 380gr FN is clearly superior to the 410gr FN and will also be less inclined to turn from it's path in the animal because it is shorter."</p> <p>The 410 works in Ulriks 416 because it has the tighter twist.</p> <p>"Going to sleep" is only an issue if the stability factor is too low to start with. Static stability, like speed, is set 7 to 10 calibers ahead of the muzzle. From that point, speed decreases and static stability increases.</p> <p>Posts: <b>2848</b>   Registered: <b>12 August 2002</b> </p>

**michael458**  
One of Us



posted 10 December 2009 14:48

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Buffalo

I would tend to lean towards instability with my 1:14 twist rate in the 416 B&M as being the issue with the 410 GS also. Since yours has a 1:12, I would say that you are good to go, and of course I know you have tested this before hand anyway. Velocity in the close test did make a difference between the 2527 fps in the Rigby and the 2100 fps in the 416 B&M. Do you have results at 2700 fps in the W?

Bike Rider and I tested the 6.5 156 gr bullets some time ago--3 of them thru at least 62 inches of mix and out the back of the original box. Not recovered. 2 looked stable all the way thru, 1 appeared to go slightly off course, but only by a couple of inches in 62 inches. He pulled these bullets from old military stock!

The 9.3 320 Woodleigh also went completely thru the box and stuck in the retaining wall in the back. Nose forward too! I will retest it with the two boxes put together! Along when I do the 338 tests. When? Maybe next week I think.

All my .500s are 1:12 twist rates! I am very satisfied with the penetration of both the 50 B&M and it's 510 gr Solid and the 500 MDM using either the 510 or the 550! I am going to repeat the 550 test and slow this bullet down to 2150 fps at the muzzle, with a 2100 fps or so impact. Just to see.

Probably next week too on the Super Penetrators Bin sent. Will test the 458s in one of the Lotts and maybe the 410s in one of my 416 Rems.

Michael

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Posts: **8426** | Location: **South Carolina** | Registered: **23 June 2008**



**Con**  
one of us

posted 10 December 2009 15:27

[Hide Post](#)

Quick everyone ... send Micheal more projectiles ... he's obviously not busy enough as is.

Cheers...

Con

Posts: **2198** | Location: **Australia** | Registered: **24 August 2001**



**michael458**  
One of Us



posted 10 December 2009 15:33

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Gerard

You are welcome I suppose, to be quite honest I love the design, and I myself was somewhat dismayed at the results yesterday, but clearly a stability issue. With the 370 North Fork being very close or near the same design as your GS Customs, and it being stable this goes a long way to explaining yesterdays issue. I agree, Ulriks 1:12 twist being able to handle the 410s.

Gerard, question, with the 450 458 caliber North Fork and the 370 416 the total penetration is straight, no veering off course, but at the very end of penetration I find the bullets sideways in the mix, it must occur that last 1/2 inch or so only? I know it is not an issue to be concerned over for sure, and I can only assume that the bullet has lost all momentum and energy at that point and therefore lost it's stability? Like I said, this is ONLY at the very end, two inches before this it is still straight and nose forward, even an inch before as far as I can tell. Not to mention both these bullets have already penetrated to 53-57 inches of this mix, more than enough to do anything asked of them in the field.

Michael

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Posts: **8426** | Location: **South Carolina** | Registered: **23 June 2008**



**michael458**  
One of Us



posted 10 December 2009 15:52

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Con

Slow up some eh! Damn solids are hard to deal with and a lot of work! I made a special trip to our local paper Monday and filled the back of my Excursion with bundled print! Quite a bit of print! Bike Rider brought a truck load only a couple of months ago, and it was getting low! Low enough to be a concern of being able to continue test work. Especially with you guys sending extra solids for me! Solids chew up a lot of paper---quick! I chewed so much this week I must spend today cleaning up the range, bagging chewed paper, making new witness cards and getting data recorded, and you see how little was actually tested!

Nahh, keep em coming if you want me to do it. Don't mind at all, I learn a lot too! As stated in the beginning most everything I have tested in the past were bullets I intended to use in the field, so if I found something that worked I really had no need to test other bullets from that point! So I am learning a great deal too, and I enjoy learning.

Michael

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Posts: **8426** | Location: **South Carolina** | Registered: **23 June 2008**



**Bike Rider**  
One of Us



posted 14 December 2009 01:21

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Michael,

Well I was going through some ammo this weekend and located what might be the ace in the hole for the deepest penetrating bullet. Want to bet against a 20 caliber? 😊)) I might even give it the nod over the 6.5 (156gr) and 9.3 (320gr). Wanta bet?)

Bikerider

PS. its longer than the 6.5mm 156gr fmj we tested last month.

Posts: **243** | Location: **USA** | Registered: **20 August 2002**



**michael458**  
One of Us



posted 14 December 2009 14:40

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Bike

.20 Caliber????? First I will need stronger reading glasses to see it! Maybe a microscope? Second, ain't that about the size of my wife's sewing needles? Third, can that be loaded in a sabot, I have nothing to shoot that in? If one

loaded in a .500 caliber sabot--Does that qualify as BIG BORE?  🤖

Yeah, I might take up a bet on that one!

Michael

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Posts: **8426** | Location: **South Carolina** | Registered: **23 June 2008**



**Bike Rider**  
One of Us



posted 14 December 2009 15:16

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Michael,

Yep its about the size of a sewing needle 😊) Sure we can sabot them and launch them from the 50 B&M. Would look kinda cool.

If I were a betting man which I am I would take you up on this one. Will bring some with me next visit. Here is a hint.... Sturdivant

Bikerider

Posts: **243** | Location: **USA** | Registered: **20 August 2002**



**michael458**  
One of Us



posted 16 December 2009 21:04

[Hide Post](#)

Test work is going to be "terminated"! At least until after Christmas! I will be out of town from the 18th--23rd, then it's Christmas, so there is not much time to do a lot.

However, since I Bin Therbefore made the effort to get some 458 and 416 Super Penetrators to me, the least I could do is make the effort to get something done with it, and not wait a couple of weeks! So I did these tests this morning.



416 Remington

410 Super Penetrator

370 North Fork

350 Barnes Banded



458 Lott

500 Super Penetrator

500 Barnes Banded

500 Woodleigh

475 JDJ

450 Barnes Banded

450 North Fork

I Bin, sent samples of 416 caliber 410 gr Super Penetrator and 500 gr 458 Caliber. I chose 458 Lott and 416 Remington to test with, and loads that I had already established for other bullets in that weight.

I first tested the 458 500 gr version. I did not expect much from these, even though they have been proven in the past, and in the 458 Lott I got no surprises. Impact velocity at 22 yds was 2155 fps. The bullet traveled straight to 30 inches, between 30 and 40 it started to veer off course, at 40 inches it was 5 inches off course and at 46 inches it went out the bottom of the box, hit the floor, and I never found it! Magic disappearing bullet! I don't have a clue as to where it went after leaving the box.

Posts: **8426** | Location: **South Carolina** | Registered: **23 June 2008**

The 416 caliber version did surprise me however. Impact at 22 yds at 2310 fps the bullet basically traveled straight to 50 inches. At 40 inches and 50 inches it was 1 inch off course, so I give it pretty straight to 50, at 60 inches it was starting to turn sideways, tumble, and was 3 inches off course at that point. Out the top of the box at 62 inches.



**465H&H**  
One of Us

posted 16 December 2009 21:51 [Hide Post](#)

How about testing the Woodleigh 550 grain .458 at 2,150 fps out of the Lott?

465H&H

Posts: **5686** | Location: **Nampa, Idaho** | Registered: **10 February 2005**

**I Bin Therbefor**  
One of Us

posted 16 December 2009 21:55 [Hide Post](#)


Thanks for the quick Super Penetrator test.

The results take some pondering!

Best of the holidays to you and yours.

Posts: **404** | Registered: **08 May 2005**

**michael458**  
One of Us



posted 16 December 2009 23:11 [Hide Post](#)

465HH

I could test the 550 Woodleigh FMJ, but I don't have any currently. I have loads for the 550 Soft and have tested it. I would guess right now it would test pretty much the same as the 500 gr versions, maybe slightly deeper straight line penetration.

I Bin

You are welcome, mixed results I think, but the test was limited. So it is hard to say. Regardless of the mixed results it does not show being any better than some bullets we have currently anyway. Not that it is not a good bullet, but we already have some good ones. After a little more examination of the .458 caliber bullet I measure it at .4555, not .458. That is a little undersized if you ask me. Also there is not a lot of bearing surface to go along with that. I figure the .458 did not stabilize because of that. The .416 did better, but it measures in at .415. As I calculate that is most likely the reason for mixed results.

Michael

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Posts: **8426** | Location: **South Carolina** | Registered: **23 June 2008**

**RIP**  
one of us


posted 17 December 2009 00:29 [Hide Post](#)

Norbert's .458/500gr "Superpenetrator," did it do any better than a Woodleigh .458/500gr RN FMJ/solid?

Good enough for elephant braining if even a Woodleigh RN can do that. 

Posts: **28032** | Location: **KY** | Registered: **09 December 2001**

**michael458**  
One of Us



posted 17 December 2009 04:36 [Hide Post](#)

RIP

The .458 version about the same as the Woodleighs. However I do think the penetrator is undersized and that should be part of the issue. .416 version did rather well in comparison. Bearing surface on both bullets is a little weak. Basically the bearing surface is those three bands! I think if the .458 was actually .457 or so and a little more bearing surface it would have done fine.

Yes, .416 version plenty good for elephant braining, penetration of the .458 sufficient, but don't trust that undersized bullet. Not the designs fault, production issue.

Michael


<http://www.b-mriflesandcartridges.com/default.html>

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Live Outside The Box of "Conventional Wisdom"

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Posts: **8426** | Location: **South Carolina** | Registered: **23 June 2008**

**capoward**  
One of Us




posted 17 December 2009 11:11 [Hide Post](#)

Thanks for the testing updates Michael...have safe travels and a Merry Christmas.

Jim   
"Life's hard; it's harder if you're stupid"  
John Wayne

Posts: **4954** | Location: **Central Texas** | Registered: **15 September 2007**

**michael458**  
One of Us



posted 30 December 2009 21:17 [Hide Post](#)

Hey Guys! Well I have been back at it once again this morning. Had a few things that needed to be looked at. First and foremost thanks to Con we got to look at some of the new Woodleigh Mono Solids, strange looking things I suppose, but regardless of how they look, How Do they Perform?

A few NonCon bullets that was sent, 230 gr Copper .500 caliber, 300 gr Brass .500 caliber, and I found two 428 gr Brass HP 458 caliber bullets I had from some time ago, about a year ago I tested this bullet, but failed to recognize it's importance at the time.

Retested today with the same results as a year ago, only this time with witness cards, and a bit different attitude in which to look at these more seriously.

I will begin with the NonCons first.

Below you will see the results of the two .500 caliber bullets.



Opps, failed to get photos of the brass one, but typical fashion as all the other brass ones.

The very small for caliber 230 Copper performed well for it's light weight. The petals sheared very much like the brass at 2 inches, but unlike the brass the petals remain within the same wound channel as the slug. Where brass spreads out and away from the wound channel. I theorize that this occurs because the copper petals retain longer and not explode off at the same time as the brass ones do. Every single brass HP I have tested does nearly exactly the same thing, petals seem to explode at 2 inches of

penetration, move out and away from center. All copper bullets I have tested react the same, petals shear, but remain in the wound channel throughout. As you can see from the photos these petals have been slitted to facilitate shearing. The slits made no difference in the way they shear, or the way they penetrate, only to make sure they did shear is all.

Next is the 428 gr Brass NonCon HP in .458 Caliber. No surprises here, very deep penetration when compared to say a 450 Swift A Frame or similar bullet. For instance one may count on 20-22 inches of penetration with a 450 Swift at 2200 fps, the 428 NonCon remaining slug here went to 27 inches! There is also a lot of damage and trauma caused within the wound channel from 2 inches up to 14 inches, once again a bit more than what you would see with the same 450 Swift A in the same mix. The next time I use a 458 B&M for buffalo, I will be shooting one of these up front, yes in place of the wonderful 450 Swift A that have I used in the past!

Once again this NonCon gave 100% dead straight penetration, and as you see below was found NOSE FORWARD in the mix--Exactly the same as every single one of these bullets I have ever tested. And as far as I can tell every single one that has ever hit animal tissue.



**458 B&M  
428 SSK Brass HP  
Impact Velocity 2220 fps  
27 inches Total Penetration  
Retained Weight 340 grs  
100% Straight Line Penetration**



I am sold on these NonCon bullets. While I have not put the Brass HPs to animal tissue, yet, I have seen what the copper ones can do on Australian buffalo, and it was impressive to say the least. Whether brass is more effective than the copper, I don't know. I will say I don't think they will be less effective at all. I believe they will transfer massive amounts of trauma and shock to the system, and penetration is fantastic with the remaining slug. Penetration of the remaining slug is dead straight, and far deeper than any conventional expanding bullet. Also wound channels even after the petals have sheared is devastating. The remaining slug seems to transfer far more trauma to the mix, and to animal flesh than just a solid slug would. The edges are extremely sharp, and I am sure this contributes to this destruction of tissue. I don't have much hunting going on in 2010, I have a couple of muskox in April, I will be using a 416 B&M and the 330 NonCon brass HP. Not sure what my hunting partner is taking for a rifle yet, but if he is taking something I have NonCons for, he will be shooting 1 also. Then maybe moose in the fall. In 2011 I am planning on testing the NonCons in a serious manner when I return to Africa.

Michael

<http://www.b-mriflesandcartridges.com/default.html>

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Posts: **8426** | Location: **South Carolina** | Registered: **23 June 2008**



**michael458**  
One of Us



posted 30 December 2009 21:39

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Next for today was the 458 B&M and the 400 Woodleigh Mono Solid, so generously supplied by Con in Australia. Thanks!



458 B&M  
400 Woodleigh Mono Solid



I only had Con send 5 of these as neither was sure they would get through without issue, they did, but did not leave a lot of left overs to experiment with. So I picked a load that had given me 2325 fps with some other bullets of the same weight and used that. It worked pretty good, giving me 2312 fps at impact. Yes, I tested close again because I had no idea where POI was, and not enough bullets to waste to find out, but guess what, it worked perfectly! As you can plainly see below.



This is a tremendous amount of penetration for a 400 gr bullet in 458 caliber! It was 100% dead straight line penetration, and as you see below, found nose forward in the mix. Dead on the 50 inch Witness Card!



Now to keep this in perspective remember our 450 Barnes Banded Solid and the 450 NorthFork Solids at a touch over or around 2200 fps penetrate to 55-57 inches in the same mix. Those two bullets are proven field performers on elephant, buffalo and hippo!

One thing to note, and I think is of importance, is the meplat size on this bullet. It is the largest meplat of several bullets measured. Meplat size is .336 inches, that works out to be 73.4% of diameter, which is an important number to remember. In my opinion it takes a minimum meplat of 60% of diameter to accomplish the goals of a flat meplat solid. I am told by other experts that optimum best performance is no more than 80% of diameter. I can tell you from field experience that 65% to 70% of diameter is more than adequate and works extremely well. So regardless of the funny looking Woodleigh, with the meplat at the top at 73.4% it is a fine performer for sure. It does not come up short any any arena. Compared to the 500 Gr Woodleigh RN FMJ which gives us only around 30 inches or so of straight line penetration before veering off course. Now we all know from experience with others that the RN bullets have killed a lot of elephants and buffalo in the past, so 30 inches of straight penetration in this mix I use must be considered "adequate" for the job. So a bullet that gives 50 inches I would assume would also be adequate for any job asked of it, even though it is light for caliber, in our mindset. Today I would not hesitate to use this bullet, but with my mindset I would much rather it weigh 425-450 grs.

Suffice it to say that with modern flat nose solids, and these NonCon HP bullets we can do things with lighter projectiles than what we have done in the past, if need be. Now I don't propose this to anyone, but can you imagine how some of these lighter solids, the Woodleigh, and even the smaller .458 caliber 330 gr Barnes Banded, and throw in some of the .458 caliber NonCon HPs how these would enhance what a 45/70 could do????? Oh these are wonderful days in which we live! Bullet technology has taken another leap as far as I am concerned!

Michael

<http://www.b-mriflesandcartridges.com/default.html>

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**michael458**  
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posted 30 December 2009 23:32

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Making the "assumption" that my test work with solids is going to be slowed someone, as I have but one request left to do, and waiting on the bullets I think we should do a quick review and summary concerning the solids. We have been all over the page with this on several occasions, but I think to put everything in one place would help sort out some issues.

All RN Solids are not created equal! Of the nose profiles I have tested and worked with one begins to notice vast differences, even within the same manufacturer! For instance there is a vast difference between a 470 caliber Woodleigh RN and a 458 Caliber Woodleigh RN. The 470 caliber RN is the single worst test solid I have ever fired. Tumble, veer off course, penetration short and more comparable to a soft point than a solid. While in the tests the .458 caliber 500 Woodleigh FMJ RN gives us around 30 inches of straight line penetration before veering off course in the test medium. Knowing that this has been adequate in the past for field work, then we must consider that 30 inches of straight penetration in this test medium is "adequate" for field work. I might use a 458 500 Woodleigh FMJ RN in the field if I had nothing else, but I promise you I would not use a 470 caliber 500 FMJ RN. Yes, no argument, they have been used with success many times, but I am not going to use one period.

Other RN designs in smaller calibers are more than good, for instance 9.3--358 and 338 caliber Woodleigh FMJ RN penetrate like their bigger distant relatives in big bore Flat Nose bullets! Yes, correct, I have tested these and they drill deep and straight, and they are RN, but they are even a different profile RN from their larger bore cousins in RN. So, all RN are not created equal, and all RN designs cannot be considered either bad or good for that matter. This includes the Barnes and others. While I have used Barnes RN solids many times in years past and performance was fine, I would not use them again. They veer and tumble in the test medium, and many others do not, I am going to use the best, not the worst or even less!

All Flat Nose Designs are not created equal, but performance is close on the better ones! We have tested Super Penetrators, North Forks, GS Customs, Barnes Banded, JDJ FN designs, Woodleigh funny looking whatever you call them solids, light weight, heavy weight, brass, copper alloy and all sorts of things now! With few exceptions there is not much difference in performance overall.

For instance 458 caliber, 450 North Fork and 450 Barnes Banded FN perform dead equal, while having a vastly different look and profile. Exactly the same story with the 416 caliber 370 North Fork and 350 Barnes Banded, very equal performance with both, vastly different look and profile. What all these have in common is a very similar size meplat on top. The 458s measuring in at 67.7% of diameter with the Barnes and 68.6% of diameter with the North Fork. Very close, and as best I can measure meplat, on some bullets that can prove a chore, try it.

Our 416 caliber 410 gr GS Customs bullets suffered in my 416 B&M due to being long and heavy bullets, and not enough stabilization at 1:14. If you recall we had a successful test with the same bullet in one of my 416 Rigby! Now I am not sure of the twist, it is possible it could be 1:12? At any rate I believe wholeheartedly that the GS Custom bullet is a very successful design. It appears to me that the North Fork bullets are very close to nearly the same sort of nose profile and design, and in the lighter weights at 370 grs did extremely well. So GS Customs I would have in the same class as the Barnes Banded and North Forks! Deep and straight penetration!

Recall JDJ design, I really want to get my hands on some more of these, the 458 caliber 475 gr bullet I tested some time ago penetrated the entire box, 62 inches of material and exiting the rear, not recovered, dead straight penetration, at 2140 fps. This may be an excellent design for solids, I would like to test more of these. I also have one design like this in a .500 caliber bullet at 455 grs, it is also superb, and penetrates far better than it's weight for caliber would suggest, from 43 inches dead straight at low velocity of 1800 fps to 56 inches when run at 2200 fps. Again, if we consider 30 inches adequate, then 43-56 is pretty damn good!

The Super Penetrator! Bullet with the disk on top! Different, had some issues with stability in the 500 gr 458 version fired from a 458 Lott. I think this might have been more with the bullet than with the twist rate. The only bearing surface was the 3 bands, diameter of that is .456, .001 short of normal for mono solids. The percentage of bearing surface when compared to overall length is 15.6% of the bullet actually taking engraving, compared to Barnes at 29%, North Fork at 30%, and most others averaging from 20-32%. Combine this with the .456 factor, and maybe the 458 caliber 500 Super Penetrator was handicapped even before being fired.

Our 416 caliber 400 gr Super Penetrator did very well in the 416 Remington I used, Win M70 of course. In measuring the bearing surface of the 416 I come out to 23.5% of the length of the bullet, and it measures .415, same as all mono bullets. However, I did notice that it did deform slightly, the bullet shortened up, from 1.535 overall, to 1.522 when fired and recovered. I have not seen this before in a straight wet print mix. In addition to that this bullet even at .415 did not show strong engraving.

410 .416 Super Penetrator

Recovered Bullet from  
Wet Print Mix  
Meplat .281  
OAL--1.522

Unfired  
Meplat .279  
OAL--1.535  
Band Diameter .415  
Bearing Surface .36  
Meplat 67% of diameter  
Bearing Surface 23% of total Length



photobucket

This combined with the poor performance of the .458 version, I tend to lean towards quality control and materials used for making this bullet as the main issue with it, not the design of the bullet. The meplat measures .28 inches on the .458 and .279 inches on the 416, 61% of diameter for the 458 and 67% of diameter on the 416. This also could be a factor?

I am EXTREMELY pleased with the test results of the light for caliber solids we tested, in particular today's 400 gr 458 caliber Woodleigh Mono, and some time ago the 330 gr Barnes Banded in .458 caliber. Both of these bullets giving excellent deep and straight penetration, for more than the 30 inches required to be adequate. I love solid bullets and have used solid bullets as backup to my softs and Noncons since 2006 on every single animal I hunt and shoot, even thin skinned critters. With these bullets in my 458 B&M they will be perfect matches for my lighter conventional and NonCon bullet in 350-400 gr bullets giving the same POI.

One bastard child one might say is the Hornady DGS, with it's round profile, and the flat meplat on top. I only tested the 480 gr 458 version when they first came out. In the test medium it did not fair much better than the old 458 500 Woodleigh FMJ. It went a bit better than 33-35 inches, then veered off course. Now, we know 30 is adequate, so we are above that mark in the medium. I can also tell you the medium is not animal flesh, the medium is much tougher and it is tougher on bullets than animal flesh, whether it be expanding conventional, NonCons, or Solids! This bullet has a small meplat of around .275 as very best I can measure it, this comes to dead on 60% of diameter (my minimum size meplat for stability). 465HH returned from shooting and testing this bullet on elephant tissue a few months ago, with fantastic results and performance from a 500 gr version of the same! With this in mind, and also knowing even in the tests the Hornady surpassed minimum adequate, then I think this is an excellent bullet for those of you that cannot get some of your bolt guns to feed other Flat Nose designs. This one will feed I would think in nearly any rifle. I also think that Hornady probably had this in mind when they designed the bullet. So if I could not get the various FN bullets to feed proper, this Hornady DGS would be at the top of my list to give a try.

Now I really do not intend, and I am not going to get into an argument over these solids. That's been done a 1000 times if not more, and count me out if you want to argue. Go argue with a fence post if you want. I have not said RN are bad, FN are good, or this or that won't or will, I have not ever said that test medium is animal flesh, please refer back to POST #1 on that one. This is my opinion, right or wrong, believe it or not, or shove it where you want. I don't get paid for this, it's not my job, I do this for myself, not for you. You can reap the rewards of this, as I have, or you can do whatever you want with it, but what I won't do is argue about it. It is what it is! Test work, in a fairly consistent medium, to compare bullets to bullets! There are many considerations to take into

account to why one South Carolina registered: 23 June 2008  
posts: 8425 | Location: South Carolina | Registered: 23 June 2008  
What I can tell you that is 100% accurate, is that each and every bullet that

capoward

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I have tested, that has been successful in the test medium, has been just as successful in the field on real buffalo capes, australian pasto, cape elephants, leopard, lions, bears, numerous kudus, zebras, impalas, elands, elk, red stags, pigs, moose, wolf, heartbeasts of different variety, roan, sables, giraffes, wildebeasts, and many more I can't think of off the top of my head, all dead, very good that Michael is a custom ammunition, then put bullet to flesh in the field! Every conventional bullet that failed in the tests, also failed in the field! These are things I can tell you with 100% confidence, and I can back every damn bit of it!

It is what it is, like it, use it, trash it, do as you please!  
"Life's hard; it's harder if you're stupid"

Thanks John Wayne

Posts: 4954 | Location: Central Texas | Registered: 15 September 2007

Con one of us

<http://www.barnesandcambridge.com/default.html>  
posted 31 December 2009 04:12

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Live On! The Barnes 450gr Woodleigh

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Posts: 2198 | Location: Australia | Registered: 24 August 2001



**michael458**  
One of Us



posted 31 December 2009 04:56

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Jim  
Thanks!

Con

Get the bullets on the way! I have a couple of truck loads of paper ready! However, I think after today I can predict what the results will be before they arrive!

Busy yes, but not too busy to find a day to shoot now and again! If I get too busy to do that I will hire someone else to do my job and just shoot all day!

Welcome!

Michael

<http://www.b-mriflesandcartridges.com/default.html>

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Posts: **8426** | Location: **South Carolina** | Registered: **23 June 2008**



**ALF**  
one of us

posted 31 December 2009 20:35

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Posts: **7852** | Registered: **16 August 2000**



**ALF**  
one of us

posted 31 December 2009 20:38

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Posts: **7852** | Registered: **16 August 2000**



**ALF**  
one of us

posted 31 December 2009 22:24

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Posts: **7852** | Registered: **16 August 2000**



**DWright**  
One of Us

posted 31 December 2009 22:58

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Now my biggest fear in all of this is that the charging Elephant or Buff may not be able to read. . . . .

<http://www.mazamasportinggoods.com>

Posts: **1324** | Location: **Oregon rain forests** | Registered: **30 December 2007**



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