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## Terminal Bullet Performance

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**RIP**

one of us

posted 01 February 2010 04:01

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Good.

What a relief!

Just to prove your corrupting influence has made it to Kentucky, here is the rogue's gallery, police lineup, perp walk, wildcat walk, lion's den, or whatever else this could be called:

Sorry.

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



**MikeBurke**

One of Us



posted 01 February 2010 05:07

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Today I completed my bullet box and completed my first round of testing.

The box is 72" long. Everything is constructed from pressure treated pine and screwed together. A row of 2 by 6s are placed 12" from the front to simulate bone. After completing the box I set it up 30' from my shooting bench. I then took a laser level and found the center of the box and then noted the position and height that I needed to fire. I wanted to make certain each bullet was travelling parallel to the box. I nailed a piece of 1/4" in luan plywood and marked five targets. All newspaper was thoroughly soaked. After each shot I moved the rest horizontally and vertically to maintain a true parallel bullet path. The chronograph was placed at the box to measure impact velocity.

The test was conducted using a 470 K-Gun with 500 grain Woodleigh Solids running at 2100 FPS MV. I had some problems with my chronograph today, but the shots that registered were running 2075. I trust this is correct; they are the same loads I used in Africa.

A total of 5 shots were fired. The first was in the center of the target, then clockwise starting lower right.

Shot 1: 36" of penetration then came out of the top.

Shot 2: 40" of penetration then stopped at the top of the newspaper.

Shot 3: 33" of penetration then came out of the side

Shot 4: 40" of penetration then stopped in paper, seemed to be straight.

Shot 5: 39" of penetration then came out of the top

All of the bullets looked good, very straight, no damage.

The first 12" of penetration was very straight line. I matched the luan from the front of the box to the 2 by 6 positioned 12" behind the luan and the bullet path was straight. Only after traveling through the 1 5/8" of treated pine did the bullet path start to deviate. Please note the bullets entered the wood at a 90° angle. I placed the 2 by 6 to simulate bone.

I am waiting on bullets, so probably no further testing until next weekend. Does anybody have a load for the 470 that would slow the Woodleigh down to 1700 FPS? I was thinking about 72 to 75 grains of RL15 with extra wad. My normal load is 90 grains of RL 15.





My new bullet box needs a couple of more braces, but wanting to shoot got the better of me.



Note the relation of the holes in the bulkhead (set 12" back) and the luan in the picture above. The first 12" was very straight. After hitting the 2 by 6 the bullets went of course.







Shot three almost blew out of the side.



The fifth shot, it almost lifted the 2 by 6 I had laying on the top. I may build a top with hinges to help keep the bullets in the box.

Posts: **2939** | Registered: **26 March 2008**



**hughman**  
One of Us



posted 01 February 2010 05:23

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Hi; I'm just a newby but have been following this thread since it started. I may have missed something, but the discussion on relevant sample size rang a bell from my old prospecting days. I think that basically the sample size required depends on the consistency of the results. The more consistent the result, the fewer samples are required to obtain a valid result. So if Michael does the experiments three or four times and gets results that agree, that's the end of the discussion.

Hugh

Posts: **106** | Location: **Ontario, Canada** | Registered: **27 January 2010**



**RIP**  
one of us



posted 01 February 2010 06:09

[Hide Post](#)

We have another statistician! His name is "hughman."  
A practical "human."  
May not be rigorous enough for Alf or 465h&h.  
Good enough for me! ☐  
When the IWBB was roaming the range, three point data was about all I could do. Whew!  
Letter Rip

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



**RIP**  
one of us



posted 01 February 2010 06:22

[Hide Post](#)

Mike70560:  
Nice work!  
Having your bullets enter a 1/4" board and then the 2x6s so early on is fine for solid testing,  
but 5 shots in one batch of wetpack?  
That is more than 5 BBs into a block of ordnance gelatin, by its effects on the medium.  
How is that consistent from shot to shot when the medium changes after each shot?  
Confusing to dissect the results too.  
Easier to read BBs in ordnance gelatin too!

This testing stuff is a lot of work.  
Many are called but few answer!  
I am dreading getting back into it.  
Thinking about the truckloads of newspaper needed ...

In the IWBB, ten ten-inch-thick compartments consisted of:

7.5" water  
1" plywood  
1.5" of air and thin plastic flat-sided waterbucket "witness walls"  
repeated in series, to 100 inches.

70 to 80 inches in a straight line was tops for the "bestest" brass and copper FNs at 2700 to 2800 fps.

Woodleigh RN FMJs and old Barnes brass RN solids would only go half as far, and exit the sides when tried  
at 2100, 2300, 2500 fps, in 470 NE, 470 Capstick, and 470 Mbogo,  
20", 10" and 16" twists respectively.

Wetpack would seem to be tougher than IWBB medium as far as total distance traveled by solids.  
It may be more forgiving on the RN FMJs than the water buckets were as far as keeping them straight.  
A simple stack of wood keeps the RN solids straighter than anything.  
Wetpack may be most "lifelike."  
I would rather fight than not switch to wetpack. ☐

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





I will cut back on the shots. It was difficult to trace the shots because the bullets went everywhere. Shooting through only 40" of paper, there is not a lot to change after two shots.

These were the bullets fired today



capoward  
One of Us



posted 01 February 2010 08:44

[Hide Post](#)

I've been staying out of the validation discussions and every time I cave in to the impulse to throw my 2-bits into the pile common sense fortunately rises to the occasion and I delete a page or so of written crap. So while battling the conflict internally again I'll attempt to win my personal battle by only posing this.

I am perfectly willing to accept Michael's bullet penetration testing as valid performance results for the bullets being tested in the wet paper products mix that he uses as it relates to the specific firearm(s) the bullet was fired from. I do this fully understanding the potential lot-to-lot manufacturing variances in bullets and gun powder as well as the potential bore and groove variances as well as twist rate between rifles used...any of which might change the outcome from a previous test.

So...what specifically is the intended purpose of this proposed testing endeavor?

Mike,

That's a nice test mix box. You might want to check out Michael's second box...I think around 11/6/2009... that he built in an attempt to capture the bullets that were fully penetrating his single box.

Jim 

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

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



someoldguy  
One of Us



posted 01 February 2010 14:19

[Hide Post](#)

quote:

So if Michael does the experiments three or four times and gets results that agree, that's the end of the discussion.

Another ☐

The most practical suggestion yet IMO.

-----  
Glenn

Posts: **942** | Location: **Alabama** | Registered: **16 July 2007**





quote:

Originally posted by 465H&H:  
Michael,

My suggestion is to do 5 of each meplat size. Then we can look at the variance of the samples and if there is overlap, we can make an estimate of the number of additional rounds needed to get statistical significance. As far as some people arguing with the results, that is a given. Some on here will argue with Einstein. or the bible.

But be sure to talk to me before you run the tests so we can be sure to eliminate the other variables.

465H&H

465

I am still waiting on those bullets we talked about, have not received them yet. Requested 5-10 each with the different meplat sizes.

This particular test I think is an important one, one that we can answer proper, and I think it needs to be 5 each also. This concerns something we all have a question about, what is a proper meplat size for solids, and what can we get away with and still have proper straight line penetration? I requested either .500 or .458 whichever was easiest to run, with 75%-65%-55%-and 45% meplat size of diameter. When these come, then honestly it will be time for a proper run at it.

The test we have been discussing since last week concerns twist rate between 45/70 and 458 and one particular bullet the 400 Barnes Buster. This 400 Barnes Buster in 458 caliber of course, seems to be a good bullet to run this test with. The meplat as best I can measure is somewhere between 55-60% of diameter. Now what I am seeing, preliminary, is that this meplat is not enough to overcome a slow twist rate, but in a faster twist rate seems to be far more stable during terminal penetration. Quite by accident we are looking at this. The 330 Barnes Solid we tested has enough meplat to overcome the slower twist rate--Or so it seems! This is the test called upon. At first I am testing 45/70, it was Jim that brought up doing the faster twist rate in the 458 B&M, and thanks to Capo, he brought it to our attention! I am still thinking it over, and probably going to drop back to 3 bullets, each twist, with witness cards all the way. I can get 3 across without intersect or damage. Then replace the medium for the next one. Unless there are serious anomalies with the 3 each, I think we can settle the twist rate issue. Which to me is moot to begin with, common sense should tell us that.

However, there is one very interesting point. I mentioned enough meplat to overcome a poor twist rate! To my great surprise this can occur. Remember my .500s and my search for a proper solid? Of course, how could you forget, I bring it up constantly. When going from 1:18 to 1:12 it improved results considerably for the RN solid I had been playing with, from roughly 60% stability in 1:18 to 90% stability in 1:12. This was not one bullet, two, or even 5. It was many bullets. I had begun to be satisfied, but since Barnes and some others were doing the FN thing, and I had such good results on buffalo with the FN Barnes in Tanzania, I thought ok, lets sample some FN designs. In my notes at the time I stated early that I did not think results would improve much if any with a FN design over what we already had. Those notes are still there as a reminder to me, in my load data. When the FN bullets to test arrived, I tested and was astounded at the results! The FN bullets were not even the correct weights, coming in way under weight, but still out penetrated the RN substantially and dead perfect straight with few exceptions. I had 4 different types and samples, I bought several 100 of each, and most of those you have seen photos of.

Well, later I still had a couple of 1:18 twist guns, absolutely would not stabilize the RN. So I figured to test some of the FN in the 1:18. To my great surprise I was once again astounded, the FN solids in the 1:18 twist were stable (as I recall, not looking at notes now) to around 90% of total penetration!!!! The flat meplats had overcome the twist rate! I have the one bullet that is 70% meplat of diameter and it was the most stable of all.

So out of one test, come more, sometimes several. So for me, twist rate is important, and can in fact be a huge factor in more stable terminal penetration. In addition, meplat and size of meplat make a big difference too, and can actually overcome some other issues, such as twist rate, and of course even sectional density!

This 400 Barnes Buster is right on the edge I think with meplat size! In a fast twist it can be stabilized to give good straight line penetration, but in a slow twist it does start to veer off course and cannot stabilize by mere meplat size alone!

No, one cannot and will never convince or please everyone! Too many factors involved in trying to do so. So, just test, report what you have and go to the next one.

Thanks  
Michael

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

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michael458  
One of Us



posted 01 February 2010 15:01

[Hide Post](#)

Mike

Excellent Job, Just Excellent! Welcome to the world of testing for yourself! Good report! And good consistency also. For the most part, that bullet in your rifle is penetrating between 36-40 inches total? What was the straight line before beginning to veer off course? This is what I try to find first, at what point did it begin to stray? I am assuming the numbers from 33-40 are total penetration before either stopping or leaving the box or medium.

RIP is correct however, 5 is a lot in one section. It's hard to be 100% but from the looks the 4 on the outside could be a little close to the edge of the medium as it penetrates. Depending on your stack, and how tight your box is. In my box that may be a little close to the edge of some of the medium. If the box is tight side to side, and it appears it is, then it might be fine. Your results are close, and I really would like to know what the straight line penetration of each bullet was before it veered off course, I bet that number is even closer!

Now, what was the test medium? As we talked about?

All in all however, a FANTASTIC START for you! A good job, excellent! I so much welcome the assistance you can provide for us all!

Fantastic, congrats on a job well done!

Michael

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

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



someoldguy  
One of Us



posted 01 February 2010 15:04

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quote:

In addition, meplat and size of meplat make a big difference too, and can actually overcome some other issues, such as twist rate, and of course even sectional density!

That's why I think you have to use the meplat diameter instead of the bullet diameter when you're looking for the sectional density relating to penetration. (For non-deforming bullets, of course.) The traditional sectional density calculation won't do. So it's bullet weight/7000/meplat/meplat (on your calculator.)

About the twist rate, I've got the half-baked hypothesis that a faster twist rate increases the momentum by a certain amount. Not a great amount, but also by an amount that can't be ignored.

Glenn

Posts: **942** | Location: **Alabama** | Registered: **16 July 2007**



michael458  
One of Us



posted 01 February 2010 15:06

[Hide Post](#)

Hi Hughman (or Human)

Look, his very first post, I feel a little proud that he would choose this as his first post!

Welcome to our little world Hugh! We are all glad you have moved from "lurker" to "participator"!

Please continue to add your thoughts and comments (especially when I agree with them 😊) Oh, come on guys, that was a little funny!

For sure, we welcome your participation and welcome to AR I guess. Although not an AR spokesman, I can tell you this, I have met some damn fine people here, and many of them have been participating right here on this thread! Of course these are shooters for the most part, and shooters are a different breed of folks! My kind of folks!

Welcome!  
Michael

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

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





**MikeBurke**  
One of Us



posted 01 February 2010 15:24

[Hide Post](#)

The first 12" was good straight penetration. After the bullets went through the 1 5/8" of wood they started veering off.

Posts: **2939** | Registered: **26 March 2008**



**michael458**  
One of Us



posted 01 February 2010 15:38

[Hide Post](#)

RIP buddy, It is a lot of work the testing! But if we concentrate efforts, get a uniform mix between you, myself, and Mike, we may get far! And by all means we can play with some different strategy too, like the T'Rex I did the other day. I am going to complete T'Rex tests this week, with all the other .458 caliber solids we already tested, for giggles and see what happens.

But with the 3 of us, same mix and medium, we may be able to accomplish a lot. Will there be some inconsistency? Of course there will. But to what amount? A couple inches here and there is not a issue, if I test one and it's 50 inches, you test one and it's 75 inches, then there is an issue. If we test out at 50 and 53, there is no issue there.

I have a couple of 45/70 bullets I actually tested last week, I have not posted them, as I don't know exactly what to think of them? I am retesting this week for confirmation! So you see, one must use a little common sense before making a declaration of sorts! Not only that, but I might be strung up and hanged for this one! So I want to make sure, even though my results were absolutely consistent with these, I want to test again!

So far, with Mikes test in the 470 his results are slightly better than what I received, but sometimes I don't record total penetration, just straight line. Now, the total penetration he did get, is consistent with many many other round nose bullets I have tested in 416-458-500 and 510. As some know, I don't trust my Capsticks, I am not sure what sort of barrels Winchester put on them, and the 470 bullets I have are undersized to boot, both barnes and woodleigh measure from .472-.4725, not a good start for stability!

So we are on the right track, I am sure of it.

Your IWBB results are not far off some of mine. I think the wetpack is a little tougher.

Jim

Mike consulted me before he built his box. From what I have done, I suggested he build a 72 inch box as with my second box finding anything that truly did more than 65" was rare. Only a few will make it to the 72 inch mark I think?

Also thanks again, keeping an open eye for things I might pass or miss! Unfortunately sometimes I can be looking for the most efficient production! It's what I do.  
Keep me straight!

Glenn

Always, thanks for the support. Might have a good point on the meplat/SD issue! I agree, from what I have seen your traditional SD does not work here, comparisons easy between RN and FN show that! So while SD is always important, it's only a factor of many!

Mike

OK, I suppose the wood gave them some stress? Make sure, record everything keep the data. Excellent Job, your efforts are appreciated greatly, and I will also record your data with mine to add to a larger database.

Michael

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



**DWright**  
One of Us



posted 01 February 2010 19:20

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Ladies and Gentlemen. . . .  
ALF has left the building. . . .  
What the hell. . .



<http://www.mazamasportinggoods.com>

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



capoward  
One of Us



posted 01 February 2010 20:32

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quote:

Jim

Mike consulted me before he built his box. From what I have done, I suggested he build a 72 inch box as with my second box finding anything that truly did more than 65" was rare. Only a few will make it to the 72 inch mark I think?

Did you ever retest that 320gr 9,3mm Woodleight bullet in your double box? 😊

Jim 🤖

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

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



465H&H  
One of Us



posted 01 February 2010 21:13

[Hide Post](#)

Michael,

Can you do four solid FN bullets in your box with out them crossing paths. If so, I have a sampling methodology that will allow you to use the box even if the test media are slightly different between batches or if you can't quantify the differences between batches..

465H&H

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



someoldguy  
One of Us



posted 01 February 2010 22:15

[Hide Post](#)

quote:

Ladies and Gentlemen. . . .  
ALF has left the building. . . .  
What the hell. . . .  
bewildered

I noticed that also. And he's deleted most of his older posts even. I guess none of us passed the course. 🤖



quote:

Always, thanks for the support. Might have a good point on the meplat/SD issue! I agree, from what I have seen your traditional SD does not work here, comparisons easy between RN and FN show that! So while SD is always important, it's only a factor of many!

You're welcome. And many thanks for presenting your tests.

No, the point is there is no point! (Because we're talking about flat-nosed bullets.)



Okay, okay. I'll behave. 😊

-----  
Glenn

Posts: **942** | Location: **Alabama** | Registered: **16 July 2007**



boom stick  
One of Us



posted 01 February 2010 23:48

[Hide Post](#)

Alf is quite the experienced, knowledgeable and smart poster here. Even though I "Like" a faster twist than him his position and input is what makes AR so great.

Michael...

Have you ever paper patched the .500" bullets to fire out of .510" carts?

Paper patching could reduce the costs of shooting the .510 carts.

[577 BME 3"500 KILL ALL 358 GREMLIN 404-375](#)

\*we band of 45-70ers\* (Founder)  
Single Shot Shooters Society S.S.S. (Founder)

Posts: **27558** | Location: **Where tech companies are trying to control you and brainwash you.** | Registered: **29 April 2005**



**RIP**  
one of us



posted 02 February 2010 01:06

[Hide Post](#)

quote:

Originally posted by ALF:  
.

Alf took his ball and went home leaving only a trail of dots. ☹

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



**michael458**  
One of Us



posted 02 February 2010 01:11

[Hide Post](#)

Hey Guys

We have been on the range nearly all day, sorting one thing out, or another. No terminal tests today, just not enough time. Shooting, sighting in, test loads, all sorts of things.

I must catch up quickly and get back to it.

Jim

No, not yet, 320s still on hold, other projects, but coming soon. They will go the 72 I think. You noticed I said MOST.

Man, just on the phone with JD.

Back now. OK 465HH

4 is pushing it a bit. 3 I can do without a problem.

Boomy

I apologize for making Alf mad I suppose! Sorry Alf, I know damn well you are looking at this, don't be a putz and come on back! You must understand my sense of humor! It can get a little rough sometimes!

Anyway, no I have never paper patched! Sounds interesting I suppose? Especially using cheaper .500 bullets, say like the 400 Sierras or something, which actually is a very good bullet up to 2000 fps MAX. Beyond that it tends to separate. But Yes, I suppose one could try it! But for me I rather spend my time shooting the real .500s! While my 510 Wells is a nice gun, I would not give two hoots in hell for it to carry in the bush! Not only that, won't feed anything I want to feed it! 11 lbs of.....well, too much gun!

Just my opinion, and it's my gun, so I can say so!

Gotta go load, gotta get back on the range.  
M

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



**boom stick**  
One of Us



posted 02 February 2010 01:20

[Hide Post](#)

quote:

Not only that, won't feed anything I want to feed it! 11 lbs of.....well, too much gun!

You are saying too much as in weight right?

Slap a carbon fiber stock on that puppy or ar maybe sell it to fund all of your fabulous bullet testing or a good hunt =) Maybe use the funds to make a short action 577 🇺🇸

Feeding is a serious problem to have.

[577 BME 3"500 KILL ALL 358 GREMLIN 404-375](#)

\*we band of 45-70ers\* (Founder)  
Single Shot Shooters Society S.S.S. (Founder)

Posts: **27558** | Location: **Where tech companies are trying to control you and brainwash you.** | Registered: **29 April 2005**



capoward  
One of Us



posted 02 February 2010 01:43

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Michael,

I'm assuming your feeding issues relate to large metaplat FN solids; they're a real pita if the action has never been properly tweaked to feed and function with them. I don't recollect what action your 510 Wells is based off but I would think that Brian should be able to correct the feeding issues for you.

I agree that a 72in box will contain most bullets but looking at the hurt the 320 did on your wall I don't think an extra 10in will hold it in. When time permits prove me wrong!



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 02 February 2010 01:45

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Glenn:

quote:

Originally posted by someoldguy:

quote:

In addition, meplat and size of meplat make a big difference too, and can actually overcome some other issues, such as twist rate, and of course even sectional density!

Nothing overcomes sectional density except too much sectional density.

A roundnose can overcome twist.

But twist cannot overcome a roundnose.

Roundnoses veer off course no matter what the twist.

That's why I think you have to use the meplat diameter instead of the bullet diameter when you're looking for the sectional density relating to penetration. (For non-deforming bullets, of course.) The traditional sectional density calculation won't do. So it's bullet weight/7000/meplat/meplat (on your calculator.)

Is that not what Alf taught us about dynamic "sectional density" of the moving bullet with area being calculated as the "wetted area" of the nose (i.e., meplat diameter) with the bullet weight behind it creating some reality based units of pounds per square inch SD, as opposed to "static sectional density" of a bullet sitting on the shelf, where the cross sectional area is that of a square bullet, a measure with no real units but proportional to some aspect of reality? Of course that means a smaller meplat diameter would penetrate deeper, until it got so small as to lose the shoulder stabilization.

About the twist rate, I've got the half-baked hypothesis that a faster twist rate increases the momentum by a certain amount. Not a great amount, but also by an amount that can't be ignored.

That last paragraph from Glenn may have been the last straw for Alf!

Yes, spin of the bullet has angular momentum, which produces a gyroscopic force to prevent turning of the bullet off the straight line forward.

But it adds nothing to linear momentum forward.

But I still think that twist deserves more credit than it gets. Better more than enough than just barely enough twist for any bullet you want to use ...

Unless you want to paper patch some .500-caliber bullets to use in a .510-caliber rifle, then you probably should be using soft lead bullet and the slowest twist you can get by with, like in boom stick's "50-70-700 Boom Sharps."

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



boom stick  
One of Us



posted 02 February 2010 01:54

[Hide Post](#)

If the front of a bullet is deformed other than 100% perfectly uniform no matter the shape would not a faster twist keep it running more true? Lets say a flat nose solid was deformed or bent say 10 degrees off perpendicular to the axis the faster the twist the truer the path right?

[577 BME 3"500 KILL ALL 358 GREMLIN 404-375](#)

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Posts: **27558** | Location: **Where tech companies are trying to control you and brainwash you.** | Registered: **29 April 2005**





capoward  
One of Us



posted 02 February 2010 02:20

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quote:

Originally posted by RIP:

quote:

Originally posted by someoldguy:

About the twist rate, I've got the half-baked hypothesis that a faster twist rate increases the momentum by a certain amount. Not a great amount, but also by an amount that can't be ignored.

Yes, spin of the bullet has angular momentum, which produces a gyroscopic force to prevent turning of the bullet off the straight line forward.  
But it adds nothing to linear momentum forward.

Well said Rip. I believe your inference to be correct as well as the best phraseology of what many of us have been attempting to state regarding twist rate and the straight-line penetration of a bullet. Again well said!

quote:

Originally posted by RIP:

But I still think that twist deserves more credit than it gets. Better more than enough than just barely enough twist for any bullet you want to use ...

I too believe this proposition.



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

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



someoldguy  
One of Us



posted 02 February 2010 02:42

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quote:

Is that not what Alf taught us about dynamic "sectional density" of the moving bullet with area being calculated as the "wetted area" of the nose (i.e., meplat diameter) with the bullet weight behind it creating some reality based units of pounds per square inch SD, as opposed to "static sectional density" of a bullet sitting on the shelf, where the cross sectional area is that of a square bullet, a measure with no real units but proportional to some aspect of reality? Of course that means a smaller meplat diameter would penetrate deeper, until it got so small as to lose the shoulder stabilization.

Yes, it probably is the same thing. But honestly I've known about this for some time, before I joined this discussion. I also know that the meplat can be too small so that this general principle doesn't always hold true. I think it may be true when the meplat is within a certain optimal percentage of the bullet diameter.

quote:

That last paragraph from Glenn may have been the last straw for Alf!  
Yes, spin of the bullet has angular momentum, which produces a gyroscopic force to prevent turning of the bullet off the straight line forward.  
But it adds nothing to linear momentum forward

I'm not always very serious with any of the theories and hypotheses that I present. I'm guessing most of you suspected as much anyway. Sometimes I just throw stuff out there to let others shoot it down. I'm not trying to educate anybody, just stimulate the discussion for the sake of discussion. I don't mind hearing that what I've said is wrong. Most of the time I know it is wrong anyway. 🤖

-----  
Glenn

Posts: **942** | Location: **Alabama** | Registered: **16 July 2007**



RIP  
one of us



posted 02 February 2010 02:53

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I am really suspicious of 465h&h's hearing now.  
Talked to michael458 on the phone today.  
About the .458 B&M.  
Michael458 has no more southern drawl than Mike Huckabee.  
465h&h must be a righthand shooter and had the phone at his left/muzzle ear. He should hold the phone to the right ear next time!  
Letter Rip

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



**boom stick**  
One of Us



posted 02 February 2010 03:10

[Hide Post](#)

Michael's accent is something to be proud of and much preferred to the Huck.

Now back on topic...

No response to the increased bullet revolutions increasing a truer path with a deformed bullet?

quote:

Originally posted by RIP:  
I am really suspicious of 465h&h's hearing now.  
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465h&h must be a righthand shooter and had the phone at his left/muzzle ear. He should hold the phone to the right ear next time!  
Letter Rip

[577 BME 3"500 KILL ALL 358 GREMLIN 404-375](#)

\*we band of 45-70ers\* (Founder)  
Single Shot Shooters Society S.S.S.S. (Founder)

Posts: **27558** | Location: **Where tech companies are trying to control you and brainwash you.** | Registered: **29 April 2005**



**RIP**  
one of us



posted 02 February 2010 04:26

[Hide Post](#)

boom stick,  
deformed bullet has eccentric cg, so faster twist give more wobble,  
not much of a factor at that point of penetration

i whistle dixie or the battle hymn of the republic  
depending on what's coming across on the ferry

michael sounds like me and most of my family  
we could all read the news for fox

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



**RIP**  
one of us



posted 02 February 2010 04:32

[Hide Post](#)

does alf have one of those british accents or afrikaner?

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



**someoldguy**  
One of Us



posted 02 February 2010 13:40

[Hide Post](#)

What I'm doing here seriously is learning instead of teaching. I am a student. All of you are vastly more knowledgeable than I because you perform these tests, and measure and report the results. You also probably understand them to a greater extent than I. My hat is off to all of you, especially Michael, for your work (which sounds like a hell of a lot of fun! 🇺🇸)  
But I do have some observations, based on my own somewhat imperfect understanding of physics and science. ALF is much more knowledgeable, without any doubt. Maybe he thought he was addressing a bunch of fools, I don't know. (I honestly don't care either.) I may be a fool compared to him, but I know I'm not a dumbass either. I know I'm certainly unconventional. And I have ideas about the matter at hand. These are what I will share, in earnest from now on.

Here is one of my basic assumptions:

I consider a penetrating bullet to be a machine, somewhat like a drill. With a drill, you have to consider the forward momentum but you also have to consider the angular momentum. Otherwise the drill wouldn't work as it should and you would essentially have to push the bit through whatever you're trying to penetrate. So, yes, I don't see how you can avoid taking into consideration the angular momentum also. Mainly because it's most of the entire surface of the bullet, not just the front part, that is penetrating. About twist, here is what I meant. If you take an iron rod and push it into the ground, it stops at a certain depth. How do you get it to go further? You twist it, right?  
And this is what I was referring to with my "half-baked" hypotheses.

In my opinion, another thing that we've not taken into consideration is bullet length. According to Newton, this was the only consideration in his rough approximation of penetration for high-speed projectiles:

Impact depth = projectile length x projectile density / target density

(Source: [http://en.wikipedia.org/wiki/Impact\\_depth](http://en.wikipedia.org/wiki/Impact_depth) yeah, yeah...I know it's Wikipedia, and there is at least one inconsistency in the article.)

And that's it. No velocity, no sectional density, none of the things we usually consider about penetration. Do I think this an accurate predictor of penetration? Of course not. It's much too simple. But I think it might be a start.

-----  
Glenn

Posts: **942** | Location: **Alabama** | Registered: **16 July 2007**



**michael458**  
One of Us



posted 02 February 2010 13:42

[Hide Post](#)

Boom and Jim

Concerning the 510 Wells it's a big Ruger Mag rifle. It was 416 Rigby, did not shoot all that well, also way way too big for any 416. So figured to turn it into something worthwhile, 510 Wells. I don't know what it is, Rugers kick like mules, thing weighs 11 lbs, 24 inch barrel, and so on. No, won't feed anything worth shooting, and the fact is I lost interest in it because it is so big and bulky. Really could care less if it feeds or not, it will never go to the field. Nice looking gun, nice wood, barrel band front. But big big big! Anyway, if I need to shoot some .510s I have the tool to do it with.

""for the SAKE of discussion"" Someone mention Sake?

We were hunting bears one time in Alaska. Was in camp with a gentleman from Massachusetts. Nice fellow, but had that very serious "Boston" accent. Well nothing would do but for him to poke a little fun at my "Southern Accent", of course I was laying it on a little thick to go along with the plot. Not 5 minutes later the conversation somehow turned to "Yads". Our "Boston" guest asked "How many "Yads" concerning something I don't remember, I turned to the others and asked "Can anyone tell me exactly what a "Yad" is?" Maybe something like a "yak" or similar? Do they have horns? Yads? What the f\*%& is a Yad? That pretty much shut up the "Southern Accent" discussion for the remainder of my time there! HEH. Yad?

""i whistle dixie or the battle hymn of the republic depending on what's coming across on the ferry ""

Been Watching too much Josey Wales!

Alf? Afrikaner, quite sure of it!

Did not get much done yesterday it seems! Did get to shoot some of the 416 330 brass NonCons out of my buddies Wrong Handed 416 B&M. At 2540 fps and 50 yds it's a 1 hole deal, extremely accurate. Sighting his rifle in for him and getting it ready. I hope to get back on track today with some load tests on some things, and maybe some terminal tests. I have a half box of some chewed material, might do some T'Rex tests with it. Consistency with that test is out the window anyway, but just curious if I can break a solid, bend it, something! We have at least one that will pass the T'Rex Test, if they all pass, then it's too easy, if some fail, maybe about right? Who knows? Just curious, and a good thing to do with half a box of chewed stuff!

But either way making a plan to be on the range most of the day, in and out.

Michael

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

The New Word is "Non-Conventional", add "Conventional" to the Endangered Species List!  
Live Outside The Box of "Conventional Wisdom"

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.

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



**RIP**  
one of us



posted 02 February 2010 17:34

[Hide Post](#)

**G'dye mites** (Australian for "good day mates"),

After I **pak my caa in the yad** (Bostonian for "park my car in the yard")  
will call Brian at SSK and ask about the .458 B&M.

Thinking about doing a 12" twister with 20" barrel on a 300 WSM action,  
and a 10" twister on a 300 RUM action for use with long VLD bullets in the magazine box, throated to handle anything with long nose loadings of 500 and greater weight, Whisper style.  
Thus, possibly two .458 B&Ms, a light weight hunter and a shop mule whisperer.

I have also lived in Missouri, am a mule whisperer, much to the disdain of Kentucky horse whisperers.  
Letter Rip

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



**465H&H**  
One of Us



posted 02 February 2010 20:53

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I don't know if "you all" (that's for you southerners) have heard of Bob Hagel. he wrote several books, one of which was on handloading for American hunting. He used a stop box for comparing soft nose bullets. His media was a mixture of fine sand and saw dust that was wetted to a thick mud consistency. He felt that this medium duplicated both penetration and expansion seen with various bullets in game. Have any of you tried it?

465H&H

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



RIP  
one of us



posted 02 February 2010 21:24

[Hide Post](#)

465H&H,


Can you hear me? 😊

I have Bob's books and a journal article file on him, sounds familiar, but back when reading those, I didn't pay much attention to stop boxes.

That sure sounds easy, possibly consistent and repeatable, with a standardized sand and a standardized sawdust, and distilled water. 😊

Rake the bullet out and soak it and pat it down and shoot again ...

Sounds like just making it twice as deep would serve for solids too, however the abrasive sand could mutilate the finer features of "bullet reading."

But so can bone in a game critter. 

One coffin-sized load of "Hagel Media" would last long, reusable, if water content could be measured and controlled for evaporative losses, until the sawdust rotted away.

Sawdust, sand, and water ... One part each, volumetrically, shaken not stirred?

I'll bet roundnose solids are squirrely in Hagel Media too.

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



michael458  
One of Us



posted 02 February 2010 21:32

[Hide Post](#)

465HH

It's not "you all"!!! Man! It's "ya'll" Pronounced as 1 word, not two! I know you are part yankee now! Do you say "yous guys"?

Now don't get mad, just funning with you! I don't want you to leave like Alf!

I have Bobs book, but would have to review it, seems I recall something like that, but old timers is catching up with me. No, I have not tried it.

I can pick up on the Australian easy, but can't abide by that "Boston" yads!

RIP, let me know what Brian says!

OK, a long RUM action for long long 458 BTs! OK, seated way out, extremely long, might be just about right. I have seen and have some samples of the 416s VLD, even shot buffalo with them as test! That would be a hoot!

Hey, played with T'Rex today! Just for fun and giggles, report coming to a town near you , soon!

Michael

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

The New Word is "Non-Conventional", add "Conventional" to the Endangered Species List! Live Outside The Box of "Conventional Wisdom"

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



RIP  
one of us



posted 02 February 2010 22:08

[Hide Post](#)

It is "y'all" a contraction of "you all."

Let's get the apostrophe in the right place! 😊

Brian Alberts at SSK can do it.

IIRCC, once upon a time, 465H&H stirred up a bit of interest in a short and light .458 proposed for elephant hunting, to deliver 450NE/.458WinMag ballistics.

I was thinking of a .458 Ruger M70 "Winchester Wasilla" back then.

A .458 B&M will do it even better.

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





**Whitworth**  
Moderator



posted 02 February 2010 22:39

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quote:

Originally posted by RIP:  
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Thank you, RIP, you beat me to it! 🇺🇸

"Ignorance you can correct, you can't fix stupid." JWP

If stupidity hurt, a lot of people would be walking around screaming.

Semper Fidelis

"Building Carpal Tunnel one round at a time"

Posts: **13440** | Location: **Virginia** | Registered: **10 July 2003**



**465H&H**  
One of Us



posted 02 February 2010 23:05

[Hide Post](#)

See I told y'all that I couldn't speak southern. That's why I suggested an interpreter!

465H&H

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



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