

Sweet Spot is history

By Johan Smit

For a long time finding the sweet spot was the way of getting accurate loads for a rifle. This usually took some twenty odd rounds using the OCW or ladder test.

Then Chris Long gave us a better understanding of the physics involved, and started the OBТ (Optimal Barrel Time) revolution. The next major step was the publication of Gordons Reloading Tool (GRT) freely on the internet. That was the end of the sweet spot method and the beginning of much cheaper and faster load development.

Here is how to do load development using three shots only. Rifle accuracy is based on consistency of the loads, therefore at the start, prepare something like twenty similar cartridge cases, because after the load development, one needs more ammo to zero the load and check the longer distance drop. Similarly, ensure you have sufficient amount of primers, bullets and propellant, all totally similar.

GRT (Gordons Reloading Tool) appears complicated at first sight. Therefore it is advisable to read Cassie Nienaber's excellent 'OBТ in GRT' first.

If you have no data on any component and don't know where to start, no problem. GRT has an extensive database.

There are some measurements you must take at start, and enter into GRT as described in 'OBТ in GRT'.

Now load three rounds for your rifle.

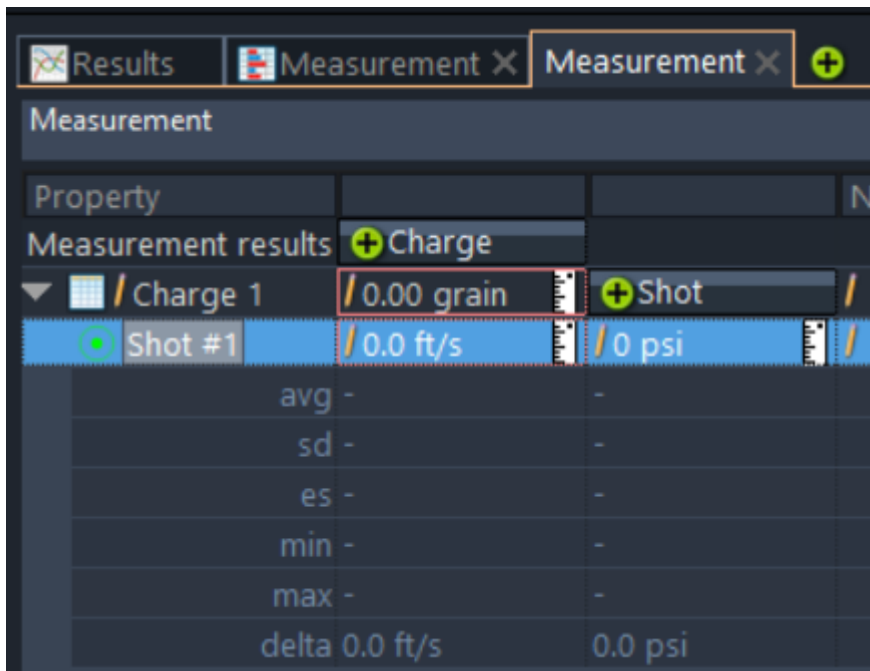
Cartridge length is not critical, but load all three to the same length and record that length. Presumably you have an idea of the total cartridge length that will work in your rifle. The requirements are that it will fit in the chamber and magazine, will feed, and will not touch the rifling. For hunting purposes, stay safely away from the lands.

Propellant weight is not critical, but load all three with the same load and record the weight. If at all possible, load somewhere in the middle of the pressure range. If you have no idea for that propellant load, no problem. Simply enter a load mass into GRT, and check the pressure curve in GRT. Ensure that the curve does not enter into the colored range. If it does, reduce the load mass. Alter the load mass until the pressure curve maximizes just below the colored range.

Now you should have three identical rounds and have everything about those rounds recorded. Record also the distance from the muzzle to the centre of the chronograph if appropriate. Shoot those three rounds and record the velocities. Unless your extreme spread is unacceptable, your three shots should give you a good average velocity.

With everything necessary about the load entered into GRT, add the measurement results. Do not forget the powder temperature under the powder area if the temperature is not the normal 21 degrees Celsius.

Add the charge once and the shot velocity results three times. You can then read the avg, sd, es and more off the screen.

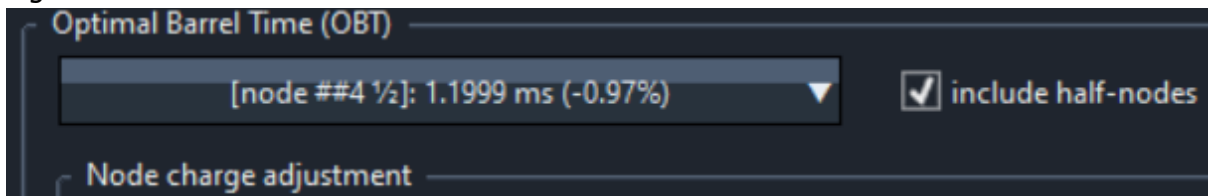


Now go to OBT as described in 'OBT in GRT'. Ensure barrel length and distance to chronograph is entered. Click on

Compute OBT & Charge adjustment (autom. calibration)

and you get the obt screen

with a pressure curve and more information. Ensure the pressure curve stays below the red region. You can now click on



Here you can change the node. Remember to always click on 'Compute node adjustment' whenever you changed the node. When you are satisfied, click on 'Create grt load file'

You can now click on Results again to create a report if you wish.

You are done, you have a load, and you can safely load as many rounds you like with your new load. Make sure you only change the propellant load, all else stays the same as your original three rounds. If anything else is changed, everything changes, and you have to repeat from scratch.

Yes, this is not easy to initially believe, but try, and you will be convinced. Of course, one must be realistic. This procedure gives you the optimum load for your rifle using those components only. Other factors may distract from your accuracy.