

## FACTORY AMMUNITION STUDY

**OBJECTIVE:** Determine potential causes of factory ammunition inaccuracy.

**CONCLUSION:** My opinion is that most of the factory ammunition inaccuracy is due to the long jump, inconsistent Ogive, and poor concentricity tolerances.

### RESULTS:

|              | OAL<br>(inches) | Ogive<br>(inches) | Powder<br>(grains) | Bullet<br>Wt.<br>(grains) | Concentricity<br>Error<br>Bullet / Neck<br>(1/1000") | Case<br>Wt.<br>(grains) | Case<br>Length<br>(inches) | Neck<br>Thick<br>Error<br>(1/1000") | Shoulder<br>(1/1000") |
|--------------|-----------------|-------------------|--------------------|---------------------------|--|-------------------------|----------------------------|-------------------------------------|-----------------------|
| Min          | 3.305           | 2.749             | 69.1               | 180.3                     |  | 241.6                   | 2.608                      |                                     |                       |
| Max          | 3.323           | 2.763             | 69.8               | 181.7                     | 15 / 9   | 243.8                   | 2.614                      | 4                                   | 3                     |
| Max<br>Diff. | .018            | 0.014             | 0.7                | 1.4                       |  | 2.2                     | .006                       |                                     |                       |

### DISCUSSION:

On February 12, I went to the range to continue breaking-in my new rifle. It was all cold bores, and I shot a large group. I didn't measure it, but it was much larger than what I was use to seeing. Finally, I got 20 rounds through it; and I moved up to 3 shot groups. Again, I was disgusted with the group size. I almost cased the beast and went home. I loaded a few 200 grain hand loads earlier that week and decided to try them out. My hand load first group size was 1/2", second group size was 3/8", third group size was 5/16". These 3 shot groups were one cold bore and two follow-ups each. I went back to factory loads and my spread on my first two shots was about 1" spread. After that, I packed my baby and went home a happy man; but I was determined to find out why the factory ammunition shot poorly.

I grabbed a box of Remington Core-Lokt, 300 Win Mag, 180 grain SPT off my ammunition shelf. I'm not trying to pick on Remington. In fact, Remington is my brand of choice for factory ammunition. I've dropped several deer with them, but this is not a deer. This is a piece of paper at the range – a place where your reputation is your group size.

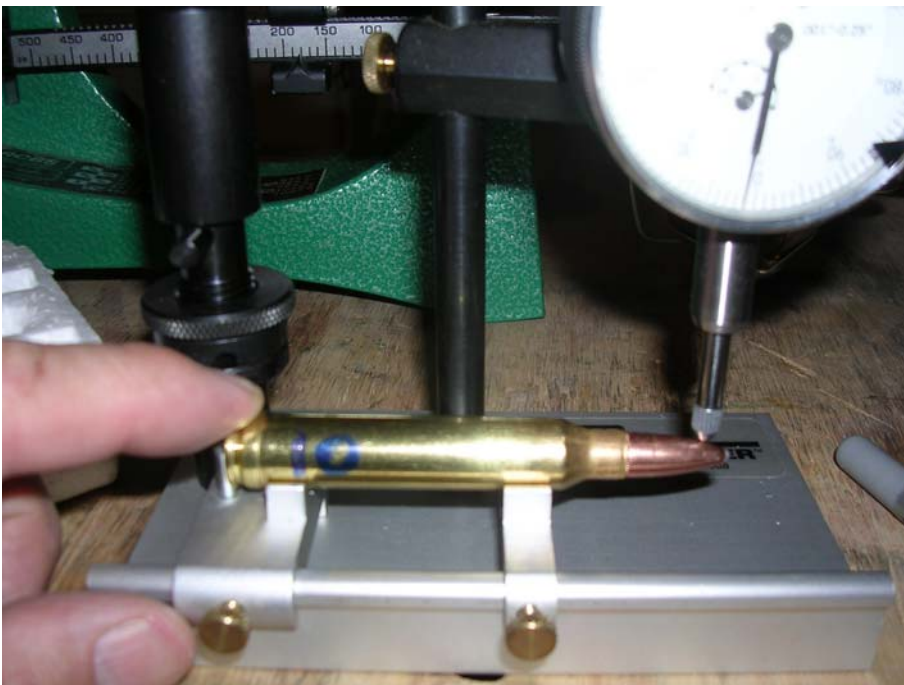


I took ten bullets out of the box, numbered them and started looking for imperfections.

The first imperfection that I noticed was the tips. They were of different shapes, diameters, and angles.



After noticing the tips, I measured the overall length, ogive, shoulder length, and concentricity. I then used a bullet puller and pulled the bullets. I weighed the powder charges and cases. I measured the case length and neck thickness. The results can be found in the table below. Draw your own conclusions.



### Factory Ammunition Data

Remington 300 Win Mag, 180 Gr. Core-Lokt  
Measurements taken 2/14/06

| Specimen            | OAL<br>(inches) | Ogive<br>(inches) | Powder<br>(grains) | Bullet WT<br>(grains) | Concentricity Error |                   | Case WT<br>(grains) | Case Length<br>(inches) | Neck Thick<br>Error<br>(1/1000") | Shoulder<br>(1/1000") |
|---------------------|-----------------|-------------------|--------------------|-----------------------|---------------------|-------------------|---------------------|-------------------------|----------------------------------|-----------------------|
|                     |                 |                   |                    |                       | Bullet<br>(1/1000") | Neck<br>(1/1000") |                     |                         |                                  |                       |
| 1                   | 3.313           | 2.755             | 69.6               | 180.3                 | (Note 1)            | (Note 1)          | 243.2               | 2.613                   | 1.0                              | -12                   |
| 2                   | 3.323           | 2.762             | 69.1               | 181.5                 | (Note 1)            | (Note 1)          | 242.7               | 2.611                   | 1.0                              | -13                   |
| 3                   | 3.317           | 2.763             | 69.7               | 180.6                 | (Note 1)            | (Note 1)          | 242.8               | 2.609                   | 1.0                              | -12                   |
| 4                   | 3.315           | 2.758             | 69.3               | 180.4                 | 14                  | 2                 | 243.1               | 2.608                   | 1.0                              | -15                   |
| 5                   | 3.314           | 2.758             | 69.8               | 180.9                 | 7                   | 2                 | 243.7               | 2.611                   | 1.5                              | -14                   |
| 6                   | 3.317           | 2.760             | 69.7               | 180.6                 | 12                  | 1                 | 243.8               | 2.614                   | 2.0                              | -14                   |
| 7                   | 3.314           | 2.757             | 69.5               | 180.6                 | 10                  | 9                 | 241.7               | 2.610                   | 0.0                              | -15                   |
| 8                   | 3.314           | 2.757             | 69.7               | 180.6                 | 11                  | 4                 | 241.6               | 2.613                   | 0.5                              | -15                   |
| 9                   | 3.305           | 2.749             | 69.4               | 180.3                 | 15                  | 8                 | 242.6               | 2.611                   | 4.0                              | -15                   |
| 10                  | 3.315           | 2.758             | 69.4               | 181.7                 | 15                  | 5                 | 243.2               | 2.613                   | 2.0                              | -14                   |
| Minimum             | 3.305           | 2.749             | 69.1               | 180.3                 |                     |                   | 241.6               | 2.608                   | 0                                | -15                   |
| Maximum             | 3.323           | 2.763             | 69.8               | 181.7                 | 15                  | 9                 | 243.8               | 2.614                   | 4                                | -12                   |
| Greatest Difference | 0.018           | 0.014             | 0.7                | 1.4                   |                     |                   | 2.2                 | 0.006                   | 4                                | 3                     |

Note 1.

I pulled the bullets from 1 - 3 before I realized that I still had to measured concentricity.