

MEASURING PRESSURE

By Norman Johnson

There are two approaches to practical pressure measurements (really comparisons, since most of us have no real measurement facilities) that have been used by the ordinary reloader.

The first is to measure the case in the web area (or the belt, in the case of belted magnums) before and after firing. Maximum pressure allowed is generally agreed to have been reached when the web area measures .001" greater than that measured after first firing of the factory loaded ammo. This is the method that I used in the years before I became familiar with the writings of Ken Waters.

The web method, while satisfactory in some aspects, is not ideal for the reloader who uses his cases for a number of reloads. Measurement of the web most often requires a micrometer with a blade anvil since the web on most cases is narrow enough that the barrel anvil of standard micrometers is too wide to make that measurement - the rim and the enlarged pressure ring get in the way. I spent over a hundred dollars on one of these micrometers that I used in my pre-Waters years.

Since dies do not size the web back to spec, once the .001" maximum web expansion is reached, these cases may not be used for further pressure comparison testing. In addition, cases (webs) tend to grow gradually over a number of firings with loads that are at or near maximum so false indications may be encountered.

The above method also suffers from the possibility that when pressures are great enough to expand the web, some old firearms may be damaged or destroyed. I used this method only for modern, high pressure equipment.

The second method is that advanced by Ken Waters and that which I have touted here too many times to count. It uses the pressure ring, that area immediately ahead of the web. This pressure ring is swaged back to near its factory specs each time it is resized; and that is true even for those of us who only partially (say 90%) resize as long as a full length die (as opposed to a neck sizer) is used. It is also less dependent on brass hardness because the brass is so thin in the pressure ring area.

This method is usable for any firearm with which I am familiar. Allowed (maximum) expansion of the pressure ring depends on the cartridge and the gun in which it is fired. Ken Waters gives his guidelines for this judgment in his excellent pressure article "Developing Pet Loads, Ken Waters' Methods for Judging Pressure", a reprint from the

September 1982 issue of Handloader magazine, available from Wolfe Publishing, 6471 Airpark Drive, Prescott, AZ 86301 (602) 445-7810 It is also reproduced in his collected series, "Pet Loads". Same address for Handloader and Rifle Magazines

His article is a thorough dissertation on pressure comparison and control. It is invaluable for developing loads in that it covers the signs to watch for in order to stay out of trouble and dispels some old wives tales that seem to persist.

I have not gone to the range in more than 20 years without my micrometer.

God Bless!

Norm