

THE WILSON CARTRIDGE CASE GAGE

This is a one-piece non-adjustable, cylinder type gage for checking fired and resized cartridge cases for cone-to-head and over-all length. These gages are not made with chambering reamers but with special reamers giving extra clearance both in front of and behind the shoulder so as to eliminate any possibility of contact except at the gaging point.

Through the years we have collected some horrible examples of resized cases. A customer will come in with a rifle that "won't always fire," or has a "weak mainspring" since it only slightly dents the primers. Usually his or some friend's "home brew" is the cause, the shoulder of the case having been pushed back so far, through screwing the die too far into the press, that only the extractor holds the case head near the firing pin. Some of these handloads will drop into the gage 1/16th inch or more below the lower step. Such an error is impossible with the type die we make but isn't hard to make with many of the common threaded dies.

DIRECTIONS

Wipe all grease from inside of gage and from gaging surfaces. Look into the gage to see that it is free of grease or foreign matter. Hold the gage in a horizontal position and insert a resized case about half way into the gage. With the forefinger push the case quickly into the gage so that it stops with a "plunk." Now hold the gage vertically and check position of the case head in relation to the gaging surfaces. The head should not be below the lower step nor above the upper step. Ideal length for a properly headspaced rifle should be half way between or slightly closer to the upper step. A narrow, straight instrument, like a steel scale, will be of assistance in checking cone-to-head length. Place the edge of the scale squarely on the case head and over the lower step. If there is clearance between edge of scale and lower step you are assured that the cone-to-head length is above the minimum required. With the edge of the scale resting on the upper steps, if there is clearance between scale and case head the cone-to-head length is below the maximum limit allowed.

One of the most important uses of this gage is in setting up full length-dies of the common threaded variety. In fact, the experience of a competitor in a match at Spokane over 50 years ago pretty much inspired the design and manufacture of this gage. This competitor had 18 out of 22 cases break off in the chamber of his rifle in one match, due to having pushed the shoulder back too far in his press. With this gage that error in adjusting the die in his press could have been spotted at once and a lot of trouble prevented later. To start, the resized case should be checked in the gage. If the headspace is over maximum, screw the die a little farther into the press, so the case will be pushed in farther, and resize again. Continue this until the case shoulder has been pushed back far enough to allow the head to drop below the upper step of the gage. If it pushes the shoulder back so far that the case head registers below the lower step, back up the die to correct it on the next case.

One variation in this procedure is advised because of a tendency we have noted the last twenty years of the firearms manufacturers to use larger chamber reamers and to chamber more deeply even for rimless cartridges. We have had fired cases from factory rifles which project well above the maximum step. Check your cases in as-fired condition. If the head projects above the upper step, adjust your die as above to where the resized case drops even with the upper step or a little below. The idea is still to push the shoulder back as little as possible to allow easy chambering. The resized case needs only to drop .002 to .003 below the fired case.

Trimming back to normal length with a WILSON CARTRIDGE CASE TRIMMER will prevent any tendency of the cases to bottom in the chamber, or in extreme examples, to be forced partly in the throat or ball seat, causing pressure variations and consequent inaccuracy. It is better to have them under minimum than over maximum. After cases have been resized to the proper headspace, their overall length can be checked. With the case inserted, stand the gage on a flat surface, head end down. The mouth of the case now should be between the upper and lower steps for proper overall length.

CAUTION: Don't hold gage in hands to check overall length. Head of case and end of gage must rest on same surface to indicate length correctly. If cases check above upper step they need trimming and should be trimmed so that they register flush with the lower step. You will find that they will stretch in firing and resizing and you can watch their growth with this gage. When they get close to or reach the upper step, trim them back.

THE WILSON ADJUSTABLE CARTRIDGE CASE GAGE FOR BELTED CALIBERS

In the making of rimless ammunition and in the chambering of rifles for the same, a close relationship should be maintained between the cone-to-head length of the cartridge and the same dimension (headspace) in the chamber. This is because uniform ignition depends on this fit, as the shoulder in the chamber supports the cartridge against the blow of the firing pin. In many rimless calibers the cone-to-head length of a new cartridge will be slightly greater than the cone-to-bolt face length (headspace) of a correctly chambered rifle. Thus there may be some "feel in closing the bolt on a new cartridge.

In belted calibers, proper ignition does not depend on the cone-to-head length of the cartridge relative to the chamber. Instead, the firing pin thrust is taken by the belt against its seat in the chamber. This means that cone-to-head length of belted cartridges is of no consequence as far as ignition is concerned and the factory can be, and in many cases is, quite tolerant regarding the fit of the cartridge beyond the belt recess. The factory is concerned only with the firing of the cartridge once and new brass will stand a lot of stretching. The reloader, however, is concerned with the fit of the cartridge beyond the belt and the less the brass is worked in reloading and firing the longer it will last.

After a great deal of time spent on this problem we have come up with a solution. This is the WILSON ADJUSTABLE CASE GAGE. Now the customer can readily adjust a case gage to fit his particular rifle and can then adjust his resizing die to correspond.

DIRECTIONS

Note correct position of insert in gage body. The cone is inside and the lettered end out. Loosen the small screws, which have fibre pads underneath, and push insert out of gage body. A soft instrument like a wood dowel will not damage the gaging surface of the insert. Remove all grease from insert and gage body. Check to see fibre pads are still in place, then push insert into gage body until outer end is about 1/8 inch inside. Tighten screws very lightly.

Drop one of your fired cases into the gage. The head should protrude. Next, push a decapped case into the gage, causing the insert to slip, until the head of the case is even with the high steps of the gage. A narrow, straight instrument, like a steel scale will do for this and will be fine for subsequent gaging. Hold the gage with one end of the groove toward you and with the scale at 90 degrees to the groove, use a slow rocking motion to force the case head and insert down so head of case is even with upper surfaces. Tighten screws. Check to see insert did not move when screws were tightened. With this adjustment completed you now have a case gage adjusted to your particular rifle.

Now adjust your full-length die to produce a cone-to-head length that will allow the case head to stop about halfway between upper and lower gaging surfaces. It should not be necessary to shorten the cone-to-head length to where the case head will register with the lower gage surface. A slight reduction in cone-to-head length, which will permit closing the bolt without undue effort, is all that is required.

It is suggested, after the gage is adjusted to your rifle, you drop in a new factory cartridge and not the location of the head. This will show how the brass will be unnecessarily overworked if brought back to new dimensions for reloading, and why the case will separate after a few firings.

With the gage adjusted for your own cases you can check over-all length by standing it, with a resized cartridge case inside, on a flat surface, head end down. If the case mouth checks above the upper step, or upper surface, of the gage the case is over length and should be trimmed back to the lower gaging surface. The over-all length of the gage body represents maximum case length. Don't allow your cases to become longer than the gage.

WILSON CARTRIDGE CASE GAGES FOR RIMMED CALIBERS

CARTRIDGE CASE GAGES are now available for most popular rimmed rifle cases. Like the belted Magnum cartridges, these rimmed calibers do not depend on their shoulder to position the cartridge and take the firing pin thrust. They are also subject to the same overworking of the brass at the shoulder when reloaded if the resizing die is set incorrectly. The use of a Wilson Cartridge Case Gage can extend the useful life of rimmed brass and indicate the need for trimming when they lengthen.

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