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Headspace Gauges And How To Use Them

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Autoloading, pump and lever action rifles, with rotating bolts or bolt heads

These rifles can present some problems to the gunsmith when checking headspace. There is generally no way to “feel” resistance to the bolt’s closing when a “NO-GO” gauge is being used. In many instances, you can turn the action upside down, and with the magazine out, watch the bolt head’s rotation into its locking recess(es) with the chamber empty. You should be able to see the bolt head rotating as the bolt body (or carrier) moves forward. Using a permanent marking pen, Dykem Blue layout fluid, or a grease pencil, mark the bolt and the bolt carrier with the bolt in the closed, locked position and the chamber empty.



Headspace Gauge

If possible, strip the bolt of the extractor, ejector and firing pin. In the case of rifles with extractors riveted in place, strip the bolt as far as possible. Remove the action spring from the action. Open the action and place the “GO” gauge in the chamber. In the case of bolts with riveted or non-removable extractors, engage the rim of the gauge with the extractor and start the gauge into the chamber. SLOWLY and carefully close the bolt (Do Not force it closed with a headspace gauge in the chamber!) and observe the marks you made on the bolt head and bolt body (carrier). They should be the same as when the chamber was empty. Now, remove the “GO” gauge, and replace it with the “NO-GO” gauge. Again, slowly and carefully close the bolt and observe the marks.

They should not line up, as the longer gauge prevents the bolt from rotating fully to the locked position. This tells you that the headspace on this rifle is within normal tolerances.

Autoloading, pump & lever action rifles with tipping bolts or vertically sliding locking lugs:

This type of action presents different problems to the gunsmith when checking headspace. Again, start with the bolt stripped as far as practical, and strip the action (in the case of autoloading guns) to remove the action spring. Lever action rifles (like the Winchester '94) should be stripped so the bolt and locking block will be hand operated, not lever operated. Make sure the chamber, action, bolt and gauges are clean. Examine the action with the chamber empty and lock the bolt

into the “in battery” position. How far does the bolt go into its locking recess? If a separate locking block is used, how high does it come up in the action to lock the bolt? Next, try to close and lock the bolt using the “GO” gauge in the chamber. It should lock up as if the chamber was empty. With a “NO-GO” gauge in the chamber, the bolt (or the locking block) should not go fully into the locked position with only light finger pressure.

Single shot falling, rolling, and tipping block rifles:

Most actions of these types have very little camming force built into their breech locking systems. Breechblocks should be stripped of the firing pin, and the extractor should be removed. After thoroughly cleaning the action, the “GO” gauge is placed in the chamber, and the breechblock closed using direct pressure on the block, not the lever. The breechblock should go fully into the closed position. Next, try the “NO-GO” gauge in the chamber. The breechblock may start to close, but should not fully seat as high as if the chamber were empty.



Small step at arrow shows amount of headspace (+.005”) with a Clymer GO gauge placed in the chamber of a .45 ACP, 1911 Auto barrel

In the case of Remington Rolling Block-type rifles, the hammer rotating under the breechblock locks it closed. Remove the mainspring and the extractor from the action, and close the breechblock on the gauge. Rotate the hammer to the fired position under the rear of the breechblock, first with the chamber empty, and then with the “GO” gauge in the chamber. The hammer should go forward fully to touch the firing pin. With the “NO-GO” gauge in the chamber, the hammer will either not go fully forward, or may even catch on the back edge of the breechblock. This indicates that the headspace is not excessive.

Autoloading Pistols:

Most locked breech autoloading pistols can be easily checked. First, unload and strip the slide assembly off the frame. Remove the recoil spring assembly. With the barrel locked into the slide, use feeler gauges between the barrel hood (at the extreme top rear of the barrel) and the breech face to determine how much space (if any) exists at that point. Remove the barrel from the slide, and slip the “GO” gauge into the chamber. The rear of the gauge should be at or below the level of the barrel hood. If it extends above the hood, use a dial caliper or depth micrometer to measure how much extension the gauge has. If the “GO” gauge extends above the breech face more than the feeler gauge thickness, the chamber has too little headspace, and may not accept maximum case length ammunition. Next, place the “NO-GO” gauge in the chamber and measure how far above the barrel hood it extends. It should extend above the barrel hood by more than the feeler gauge thickness.

Tech Tip

SIG Grip Screws

We received this information from Jim Behanna at SIG.

SIG Model 226 with serial numbers above 144000 use a metric grip screw with M4 threads. Brownells currently stocks this grip screw. Early production Model 226's with serial numbers below 144000 have M3 metric thread grip screws which Brownells does not inventory or have available from another source. The serial number cut off on the Model 226 grip screw is not definite. All SIG Model 220 grip screws are metric M5 which Brownells does have in stock.