The Case for and Against the Remington 700 –updated 12 OCT 2010

As many of you know, the Remington 700 has become ubiquitous among precision rifles. From military sniper rifles to custom built tack-drivers to just plain hunting rifles, the 700 has been the action of choice for millions of shooters. It obviously has some very desirable qualities, but it's not without its undesirable qualities either. In this article, we will attempt a basic look at the pros and cons of the 700 action itself (not the factory supplied stocks or barrels).

First, an overview of the Remington 700, for those intimately familiar, feel free to skip this section. The 700 came about in 1962 as an evolution of the 725, which itself was an evolution, and so on. The 700 is cut from round steel bar stock steel, of 1.35" approximate diameter. Its bolt design necessitates broached raceways for the lugs. The tenon threads are 1 1/16" x 16 TPI, with a tenon length of about .700". The bolt is made from multiple parts; the head is cut separately from the body and brazed on, along with the cast handle. A plunger ejector is used, and a unique clip-in extractor is necessitated by the bolt nose actually entering a counter bore in the barrel. This counter bore is what gives rise to Remington's "3 Rings of steel" claim. The base of the cartridge is surrounded by the bolt, which is then recessed into the barrel counter bore, and everything is enclosed by the receiver. There are two action screws, one in the breech area and one at the tang. The recoil lug is large steel plate sandwiched between the action and the barrel. Most of the receivers are drilled and tapped for a scope base, though the front and rear mounting points are at different height planes and of two different radii. The trigger is single stage and adjustable, and is generally highly regarded. For a more detailed analysis, read Stuart Otteson's book, "The Bolt Action."

The Pros:

There are many, these are listed in some semblance of order of importance to precision shooting.

-It is universal: There are hundreds of thousands of these actions out there. Just about every gunsmith can work on a 700, spare parts are easily obtained, and upgrades like triggers, extractors, recoil lugs, and stocks are plentiful and varied.

-Breech strength: The 700 has a large amount of lug bearing area, and the counter bored nose helps to make a very strong lockup.

-Inexpensive: 700's are relatively inexpensive, even for a heavy barreled model. Unfortunately the base models come with flimsy stocks and a pot-metal like floorplates.

-Good factory trigger: The factory trigger is tunable by an ambitious user to yield performance acceptable to a great many shooters, but it won't go down into the benchrest range.

-Feeds smoothly from box mag or aftermarket AICS mags: The AICS magazine was developed for the 700, and feeding is generally very good from it as well as the standard internal box magazine.

-Ease of modification: The round design makes truing up an action, or other similar upgrades, slightly easier than others.

-Ease of bolt lift/cocking/extraction: A 90 degree cam rotation means the force required to unlock the bolt, cock the firing pin, and perform primary extraction, is minimal.

-Fast lock time: Lock time is the time from when the sear releases the firing pin until the time the firing pin strikes the primer cup. On the 700, it is under 3ms which is acceptable for precision use.

-Large recoil lug: A 700 owner will never see the issues common with some rifles with small lugs, like lug compression or damage. The lug can be pinned in place if the user wishes to build a switch-barrel rig.

-Generous loading port: When feeding into the factory box magazine, loading rounds is quite easy due to the large size of the loading/ejection port.

-Plunger ejector yields greater bold head integrity: A fixed ejector requires a slot cut into the bolt, even through the bolt face and sometimes a locking lug. The 700 design eliminates that cut, instead utilizing a round hole drilled into the bolt face.

The Cons: These ones are in no particular order

-Short tenon length: The tenon length of roughly .700" is considered by many too short to support the heavy barrels common to precision shooting. Most custom actions have a tenon of around a full inch or more to support long heavy barrels. (Note that the 700 has a longer tenon than many other factory offerings)

-Weak action body: The heavy cuts to the action reduce the structural integrity, the large loading/ejection port, coupled with the bolt raceways and magazine well, contribute to a very thin cross section for the 700. There is an action analysis (which I can't seem to find right now) which describes the 700 as the weakest of those examined. That's not to say it's too weak, however. People have been hanging heavy target barrels off the 700 for many years.

-Truing required for highest accuracy: Mass production is difficult and mass producing something to very tight tolerances is basically impossible. 700 actions end up a little out of whack here and there, and some machining is required to true them up and really wring out all the accuracy. The amount of work to be done depends on the fullness of your wallet.

-Brazed on bolt handle breaks off: I have seen this first hand. There is a reason why a cottage industry has cropped up to fix this problem. The bolt handle will break off if you apply too much force.

-Non-ergonomic bolt handle: Using the factory bolt handle/knob, it is extremely easy to hit your knuckles up against your optic when unlocking the bolt. Additionally the small handle is harder to grasp than some of the more optimum designs such as the AI AW rifle. Another cottage industry has developed to cut off the existing knob and replace it with a better one.

-Plunger Ejector can jam and may affect accuracy: Again I have seen this first hand, a little bit of brass can get in the ejector hole and jam the ejector in the "down" position, effectively eliminating the ejection function. Note that this is a possibility with all rifles with a plunger ejector. As far as accuracy, basically when a round is chambered, there exists an off axis force pushing the cartridge to one side. This is simply the nature of a plunger ejector, you compress the plunger back into the bolt as you chamber a round, and the plunger spring resists this compression. It's the same force that ejects the empty case after firing.

-Extractor issues: This is a lively debate, but a quick search will turn up scores of testimonials that the extractor fails and is difficult to replace (newer rifles have a rivetless extractor that is easier to replace). An equal amount will swear that their sixteen rifles have all been trouble free.

-Bolt stop/release issues: The bolt stop/release acts directly against the face of the locking lug, which over time could lead to wear or deformation of the locking lug. The bigger problem I have seen is that the bolt release button is difficult to actuate. On my Mk 13, it was impossible to use without a tool to provide extra force. My personal rifles give similar, though less extreme, results. Other users report that their bolt stop gets stuck in the open position, potentially allowing one to run the bolt back into their face under excited use.

-Attaching scope bases: The two mounting points, front and rear, for a scope base are different heights and of different radii. This makes it very hard on scope base manufacturers, and some people end up having to epoxy bed their scope base onto the action to get good contact.

-90 degree bolt throw is too much: This is somewhat subjective, but anyone who has used a rifle with a 60 degree bolt throw seems to favor the quicker action, as long as the unlock force is not too high. (Note that most of the actions on the market, custom or otherwise, are two lug actions with 90 degree bolt throw)

-Bolt raceways are perfect hideouts for brass cases: The lug raceways on the 700 seem to attract certain sized cases, and when the case goes in there, it's difficult to get them out unless you have slender fingers or turn the rifle upside down.

-Magazine well limits cartridge OAL: In the short action calibers, users are limited on the OAL to which they can load their ammo. In fact, the AICS magazines have a restrictor plate for this exact problem. To take full advantage of the AICS magazine, a shooter must mill out part of the feed ramp on the 700 action.

-Bolt binding: This is a recent phenomenon in my experience, but the bolt can bind easily if you apply too much force off the bore axis when the bolt is at the rearward-most position.

The above list is not by any means comprehensive. Some people may think the lines of the 700 are beautiful and its best asset, there is a debate on whether a round bottom action is best or worst for epoxy bedding into a stock, there was at one time a raging debate on the effectiveness of the 700 safety, a number of people were injured when their rifles fired as they actuated the safety, lawsuits commenced and some people were awarded damages in the millions of dollars (see links below). This issue is now at this time the focus of a brand new "investigation" by the media.

If there is a feature of the 700 that you hold in high regard or which you strongly dislike that is not included, please let us know.

Links:
http://cyber.law.harvard.edu/digitaldiscovery/library/spoliation/lewy.html
http://www.mail-archive.com/cybershooters@compuserve.com/msg02199.html
(Note that post 2006 700's come with an X-mark trigger which apparently has been redesigned in some way)