

Combat Archery Inspection Standards: Middle Kingdom March 15, 2012 revision

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Reference Sources:

Society for Creative Anachronism Marshal's Handbook revision date 2 Nov. 2008

Middle Kingdom Armored Combat Fighter & Marshal Handbook date May 2009

The 35-Foot Spear: Combat Archery Resources <http://www.havenholde.net/35footspear/>

Combat Archery Inspections - tips

The 35 - foot spear (<http://www.havenholde.net/35footspear/index.html>) will attempt to have the most current information possible involving combat archery in the Middle Kingdom. Spend some time looking around the site to not only figure out the best way to do things but also the approved and legal way.

Inspection of fighters to get them onto the field is not only required but also a very important step in the safety process. At times the armor inspection process is perhaps not done with as much attention to detail as it could be. The goal is to insure that the inspection gets done as quickly as possible and that the fighters are able to get out and fight.

The inspection process for Combat Archery equipment and ammunition takes more time than any other heavy weapons form. Inspection must be given the proper time to ensure the equipment is safe to use and the ammunition is safe to shoot at other fighters.

I strongly suggest that armor inspection be a separate step in the inspection process of the combat archery equipment and ammunition process. Have the fighter get their armor inspected and have a separate area for the combat archery inspection.

Each and every piece of combat archery ammunition must be given the necessary time for inspection. Even when you become comfortable and experienced with checking ammunition it takes time to look for multiple items on each piece.

To check a combat archery bow or crossbow takes a certain level of skill along with additional equipment to measure draw length.

YOU MUST allow sufficient time to do a proper and thorough inspection involving combat archery equipment and ammo.

You should be familiar with the Society Combat Archery Rules, have a printed copy of the rules in a three ring binder and have this binder present during inspection.

- Be familiar with the Middle Kingdom Combat Archery Rules, Construction Standards & Inspection Standards, have a printed copy of these in a three ring binder and have this binder present during inspection.
- Useful items for inspections (as applicable): tape measure, bow scale/gauge, calculator, etc; string to simulate pressure on release mechanism; helm or gauge with similar 1 inch opening; examples of partially-built ammo. A rubber-tipped arrow or small wood dowel with arrow nock that has a mark at 28 inches is handy for measuring bow draw and using with the bow scale/gauge. For certain events, you will also need inspection stickers and / or paint to mark the combat arrows and bolts. Note: bow scales/gauges may need calibrated on a regular basis.

Who is qualified to inspect

One of the questions that I hear most often is, "Who can inspect combat archery equipment?"

Any heavy weapons marshal may inspect any heavy style weapon. Combat Archery is a heavy weapons style, so by default, any heavy weapons marshal may inspect combat archery equipment and ammo.

Having said that, not every heavy weapons marshal feels comfortable inspecting combat archery equipment due to a variety of reasons. They may not be up on the latest current combat archery rules, have limited experience with this style fighting or may not feel they have the necessary experience to inspect combat archery equipment.

This problem of not enough heavy weapons marshals feeling comfortable or current with combat archery information to inspect is being discussed and evaluated for a solution.

You should only inspect the items for which you feel qualified to inspect. The areas to inspect are:

- a. Combat Archery Ammunition: Arrows for Bows and Bolts for Crossbows
- b. Combat Archery Equipment (everything except poundage): Bows and Crossbows
- c. Poundage of Combat Archery Equipment (using a bow scale/gauge): Bows and Crossbows

To become more familiar to inspect combat archery stuff you can brush up by:

1. Refreshing your knowledge of:
 - a. Society rules for Combat Archery
 - b. Middle Kingdom rules for Combat Archery
 - c. Middle Kingdom combat archery ammunition construction standards
 - d. Middle Kingdom combat archery inspection standards for ammunition
 - e. Middle Kingdom Inspection procedures for Combat bows and crossbows
2. Demonstrate hands-on familiarity with inspecting combat archery ammunition and/or equipment.

If you have a particular question or want clarification about combat archery ammunition and/or equipment, please contact the DEM for Combat Archery (that would be me) and I will gladly try and answer your questions.

Bow / Crossbow Inspection

The below info on bows and crossbows (both heavy & light) are the main differences in inspection of each. The rest remains pretty much the same.

Poundage

Comment: Due to the slight variance that there may be in bow poundage gauges, use some discretion. The poundage can be a little under, but not a little over.

LIGHT BOWS & CROSSBOWS for shooting fiberglass shaft ammunition

Light handbows measure a minimum of 20 pounds to a maximum of 30 pounds at 28 inch draw. Light handbows may shoot fiberglass shafted arrows or tubular shafted ammo.

Light crossbows measure a minimum of 400 inch pounds to a maximum of 600 inch pounds. Light crossbows may shoot fiberglass shafted bolts or tubular bolts.

HEAVY BOWS & CROSSBOWS for shooting tubular shaft ammunition

Heavy handbows measure a minimum of 20 pounds to a maximum of 50 pounds at 28 inch draw. Heavy bows may only shoot tubular shafted ammo.

Heavy crossbows measure a minimum of 400 inch pounds to a maximum of 1,000 inch pounds. Heavy crossbows may only shoot tubular shafted bolts.

Limb Marking: This applies only to heavy bows and crossbows.

Check to see the crossbow right prod has a wrap of at least 4 inches of red material (tape, cloth, etc.) to show that it is a heavy bow and only shoots tubular ammunition, never fiberglass shaft ammunition.

Check to see that the bow upper limb has a wrap of at least 4 inches of red material (tape, cloth, etc.) to show that it is a heavy bow and only shoots tubular ammunition, never fiberglass shaft ammunition.

Check to see that the bow or crossbow meets the standards for the type of ammo being used.

If a person brings a bow for inspection that isn't strung: inspect the bow unstrung, then ask the person string it, and then inspect the bow again. If a person brings a bow that is strung, inspect the bow as it is.

Parts of the bow

Hold the bow by the handle in a shooting position. The upper limb is the part above the handle, and the lower limb is the part below the handle.

Draw Length

A bow that will be used in Combat Archery must be designed/constructed to draw 28 inches or it cannot be used in SCA combat. Check the limb to see if the bow specifications are marked there. If the draw length is marked, move on to check the poundage. If not, measure the draw weight of the bow with a bow scale/gauge to ensure it is within appropriate specs. Pull the bow back to 26 inches and use a visual

reference check to see if it looks like the bow is at full draw. If the bow does look like it is at full draw at 26 inches, fail the bow. If the bow looks like it is NOT at full draw, then continue to pull slowly back to 28 inches to see if that seems to be the proper draw length for the bow.

Comment: Using a bow that is not designed/constructed to be drawn to 28 inches is not only against the rules, it can be dangerous. For example, a bow with a 26 inch draw length could fail catastrophically if over drawn to 28 inches.

Condition of the Bow

Start at the tip of the upper limb and work your way down to the handle, checking each surface. Look at the front side of the limb, and then repeat with the backside, and then each edge. Turn the bow over and repeat the inspection process on the lower limb, working your way from tip to handle on each surface.

You are looking for any cracks or stress cracks in the limbs of the bow. Wood Bows: Small chips or scrapes in the finish are not a problem if they do not affect the wood. Fiberglass Bows: Very small chips or scrapes must be judged on a case-by-case basis. Fiberglass usually has no finish, and the marks may affect the fiberglass.

Condition of the Bow String

1. Check bow string length: If the string is too long, the bow isn't bent enough; if the string is too short, the bow is bent too much. Of the two problems, too short is more dangerous. The manufacturer often marks the string length on the limb. If the string length is not marked, then the "rule of thumb" will give a good approximation.

Comment: The "rule of thumb" is not a precise or entirely 100 percent accurate way of measuring the string. The "rule of thumb" is a field method for measuring brace height / proper string length.. The brace height is the distance from the string to the belly of the bow. To check that this height is correct, place the side of your fist up against the belly of the bow with your thumb extending towards the string. The string should be about at the tip of your thumb.

2. Check the condition of the string: Start at the tip on the upper limb, and work your way down the string to the other end.
 - a. End loops: Is the loop binding on the bowstring unwrapping at the limb tip ends? If either end is in bad enough condition, then the bow should be failed.
 - b. Broken strands: If only one strand of the bowstring is broken, you should inform the combat archer, but use your judgment as to whether or not to fail the bow. If two or more strands of the string are broken, then the bow should be failed.

- c. Frayed string or serving: If the string or the serving where the arrow nocks on the string is fuzzy or frayed, you should inform the combat archer, but the bow does not automatically fail. If there is significant fraying of the string, or the string is exposed through the serving, or the serving hangs away from the string, then the bow fails.
- d. Dry String: A very dry bowstring is not a reason to fail the bow, but suggest to the combat archer that they may want to put some wax on their string. A dry string will deteriorate quicker than one that is kept waxed.
- e. Knots: If the bowstring has any knots, then the bow fails.
- f. Metal: If the bowstring has any metal other than nocking points, then the bow fails.

Check limbs for limb twist

Stand behind the archer to watch for limb twist. Ask the combat archer to pull the bow back as if to shoot, hold that position for a few moments, and then slowly return the string to its at rest position. Watch to see if the string pulls off center at either tip end (check both upper and lower limb ends). If the string does not stay centered when the bow is pulled, then there is a limb twist, and you need to check further to see if the bow is safe.

Put the bottom tip on the ground and hold the top tip with your thumb to check the top limb. Sighting down the string at the backside of the limb, line up the string with the sight window or the center of the bow (as appropriate). The string should line up with the center of the top limb from the tip all the way down the limb. Turn the bow around and repeat on the other limb. If the string does not line up with the center of a limb, then there is a twist in that limb. If the alignment is only off a little, the bow probably can be used. If there is significant limb twist, then the bow is unsafe, and the bow fails.

If there is significant limb twist during any of the tests, then the bow is unsafe.

Feel free to get a second opinion from another qualified Target archery marshal or the marshal in charge of combat archery.

Crossbow Inspections

Check to see that it meets the standards for the type of ammo being used.

Crossbows should always be strung when presented for inspection.

If you are unfamiliar with the crossbow style, either get assistance from another qualified Marshal with more knowledge of the crossbow style (if possible) or ask the combat archer to describe/explain its features.

Parts of the crossbow

Hold the crossbow in a shooting position. The left part of the prod is to the left of the stock, and the right part of the prod is to the right of the stock. The prod is sometimes referred to as the bow. The tips of the prod are the nock ends.

Condition of the string

Start at the left prod tip and work your way across to the right prod tip.

1. End loops: Check for any fraying of the bowstring loops. If any parts are in bad enough condition, the crossbow fails.
2. Broken strands: If only one strand of the crossbow string is broken, you should inform the combat archer, but use your judgment as to whether or not to fail the crossbow. If two or more strands of the string are broken, then the crossbow fails.
3. Frayed string or serving: If the string or the serving where the bolt goes against the string is fuzzy or frayed, you should inform the combat archer, but the crossbow does not automatically fail. If there is significant fraying of the string, the string is exposed through the serving, or the serving hangs away from the string, then the crossbow fails.
4. Dry String: A very dry crossbow string is not a reason to fail the crossbow, but suggest to the combat archer they may want to put some wax to put on their string. A dry string will deteriorate quicker than one that is kept waxed.
5. Knots: If the crossbow string has any knots, then the crossbow fails
6. Metal: If the crossbow string has any metal, then the crossbow fails.

Condition of the Crossbow

- General: The safe condition of crossbows is critical because of the stored energy in a cocked crossbow.
- Lock Mechanism: Check that it releases smoothly under simulated pressure. Check that the mechanism is solid and will not fire accidentally. If the mechanism will permit the crossbow to fire unintentionally, then the crossbow fails.
- Stock: Examine the stock closely on all sides. You are looking for cracks in the wood, especially between the prod and the lock. Check also for loose hardware, stripped screws, and other structural unsoundness. If you find any significant problems, the crossbow fails.
- Prod twist: Check for prod twist. Watch to see that the string is centered on the tips when at rest, and stays centered on the tips when pulled back. If there is significant prod twist, then the crossbow is unsafe and the crossbow fails.
- Security of the Prod: Check that the prod is securely attached to the stock. Holding the stock firmly, grip the prod and gently attempt to move it. The prod as a whole should not slide back and forth, and should not move or wiggle much

in its bindings. If the prod can be moved excessively, then the crossbow fails.

- All Prods: Closely examine the nock ends of the prod to determine any stress damage, and check the entire prod for cracks or gouges. If the prod is not wrapped, examine the actual surface material of the prod.
- Metal Prods: Check for parallel cracks in metal prods that may indicate possible metal fatigue.
- Fiberglass Prods: Fiberglass prods should be checked for discoloration and cracks. When fiberglass separates just under the surface, the thinner top layer becomes more translucent (lighter in color). These conditions are cause for concern.

If there is any visible damage to the prod, then the crossbow fails.

Ammunition Inspection

Tubular Shaft

Each combat arrow or bolt must be inspected. For smaller events, inspection will occur before use on that day. For larger or multi-day events, inspection may be required each day or before each battle. When gleaning, the combat archer must inspect every gleaned arrow or bolt before using it.

Check to see that the shaft is Sil-o-flex (or approved equivalent) tubing with the following specifications: 100 PSI pressure rating and either 1.25 inches exterior diameter or 1 inch interior diameter.

WARNING ! Check to ensure that the proper PSI Sil-o-flex or equivalent is used. People buy the 160 PSI because it comes in straight pieces. Both have the same inside diameter but the outside diameter is different. The 160 is noticeably thicker and may not be used for combat archery applications.

If a Sil-o-flex equivalent is used, you need to see a copy of the manufacturer's specifications sheet and a sample of the shaft with all the specifications printed on it.

Check the shaft for signs of cracking or other failure.

Check all combat archery ammunition for have a **printed label** (not hand written) with owner's name & Kingdom, in English, affixed to it. This label must be completely covered with clear wrapping / shipping tape.

Check for one of the only two approved heads for use on tubular shaft ammo:

Rubber Stopper

- A rubber stopper, size 6.5 with a 1/4 inch hole in the center.
- The stopper must be inserted 1/2 inch into the shaft.
- Resilient foam approximately the diameter of the rubber stopper must be secured to the tip so that there is at least 1/2 inch and at most 1 1/4 inches

thickness of foam after taping with fiberglass-reinforced (strapping) tape.

- A side wrap of resilient foam must extend from the tip of the padding to at least 1/2 inch over the tubular (Sil-o-flex or equivalent shaft and be secured with fiberglass-reinforced (strapping) tape. The diameter of the head must be at least 1 1/2 inches after taping.

Modified Baldar Blunts

- Any classic style of Baldar Blunt can be used in this manner, whether 1 or 2 piece mold or designed for fiberglass or wood.
 - Older or newer style "egg" shaped Baldar Blunts are not approved for use on tubular (Sil-o-flex or equivalent) combat shafts.
- The modified Baldar Blunt must be slipped 1/2 inch over the tubular (Sil-o-flex or equivalent) shaft.
- The resilient foam is secured on top of the **modified Baldar Blunt** so that at least 1/2 inch and at most 1 1/4 inches thickness of foam after taping with fiberglass-reinforced (strapping) tape with two or more pieces of 1-inch fiberglass-reinforced (strapping) tape that will cross each other on the top of the tip in an "X" pattern
- Modified Baldar Blunts do not require a side wrap.

Tape

1-inch Fiberglass-reinforced (strapping) tape is the only material approved for securing the Modified Baldar Blunts onto the shaft and for securing the rubber stopper into the shaft. You may **NOT** use electrical tape.

Check to ensure the head is covered with red duct tape.

IMPORTANT: Check that the top edges of the head are firm, and that the tip cannot be forced more than 1/2 inch into a legal face guard.

IMPORTANT: The total diameter of the final head assembly must be at least 1 1/2 inches.

Measure all applicable dimensions.

Crossbow Bolts

The maximum length of a tubular (sil-o-flex or equivalent) combat crossbow bolt is 28 inches as measured from where the prod string touches the bolt to the base of the approved tip. There is no minimum length for a crossbow bolt.

Arrows

A tubular (sil-o-flex or equivalent) combat arrow has a maximum length of 28 inches. This is measured from where the bow string touches the nock to the base of the approved tip. The 28 inches length is the maximum length, a shorter length may be used for those having a shorter draw length. A nock may be cut into the tail end, but may be no deeper than 1/2 inch. Wooden knocks MAY NOT be installed or used.

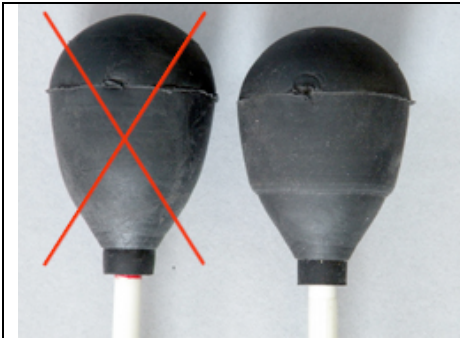
Ammunition Inspection for Approved Shafted Ammunition

Light Combat Archery Ammunition - Fiberglass Shaft

- You need to be familiar with the construction standards for the type of fiberglass shafted combat arrows / bolts. This will make inspection much easier to perform.

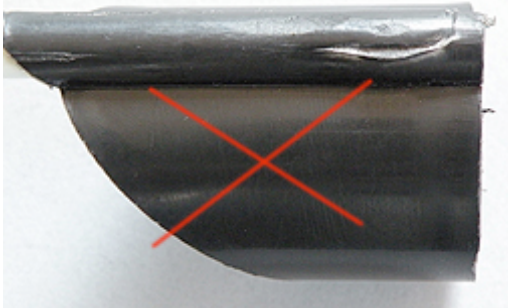
Tips & APDs (Anti Penetration Devices)

- The new Fathead Blunt produced by Baldar is the only Midrealm approved tip for use on fiberglass combat shafts.
- The Asgard APDs (Anti Penetration Devices) produced by Baldar is the only Midrealm approved (Anti Penetration Devices) for use on fiberglass combat shafts.
- The only adhesive approved for securing either the Fathead Blunt or the Asgard APD onto the fiberglass shaft is either Plumbing GOOP or Marine GOOP adhesive.



WARNING ! Check to ensure the blunt is the approved "Fathead (the photo to the right) and not the earlier prototype is the photo to the left and NOT legal. The prototype is two pieces while the approved "Fathead" is three pieces, bottom, center and top.

Updated May 16, 2010



This picture shows a properly seated fiberglass shaft into the ASGARD opening.

WARNING ! Check the ASGARD APD (Anti-Penetration Device) to insure the shaft opening that the fiberglass shaft goes into has not cracked or split out.

The below photo shows the ASGARD that has split and cracked.

Updated May 16, 2010



WARNING ! This photo shows an illegal modification to the ASGARD APD. This modification was made to enable use on a roller nut release crossbow. While the fiberglass shaft is less than one half an inch beyond the back of the ASGARD it is illegal because the Society Rules only permit three modifications to the ASGARD and this is not one of them.

Updated May 16, 2010

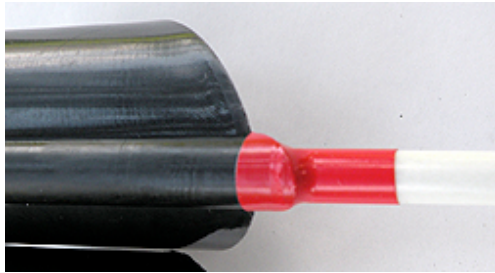
Shafts

- The shafts of light combat arrows and bolts must be constructed of quarter-inch diameter solid pultruded fiberglass.
- Arrows - A fiberglass shaft combat arrow has a maximum length of 28 inches. This is measured from where the bowstring touches the nock to the base of the approved tip. The 28 inches length is the maximum length; a shorter length may be used for those having a shorter draw length.
- Crossbow Bolts - The maximum length of a fiberglass shaft combat crossbow bolt is 28 inches as measured from where the prod string touches the bolt to the base of the approved tip. There is no minimum length for a crossbow bolt. Past history has shown crossbow bolts around 14 inches fly well and work on most crossbows.

How to INSPECT fiberglass shaft ammunition:

Remember, all fiberglass shaft combat archery ammunition are single shot / use. The ammunition is inspected and then shot ONCE. It **may not** be gleaned, inspected by the combat archer and re-shot. After being shot the ammunition must be re-inspected by a qualified marshal before it may be reused. This inspection is done after the battle.

- You are to inspect the ammunition to ensure that it passes inspection guide lines. The ammunition is shot once then re-inspected to ensure that it still meets the guidelines.
- There are some differences you need to be aware of to better understand the inspection standards. For this shafted ammo, (fiberglass shafts with approved Asgard APD and Fathead Blunt the) the "NO MOVEMENT" standard will be used.
- The following is the standard for checking for movement. The idea is **NOT** to break the head or APD loose from the shaft. Let me repeat that, the idea is **NOT** to break the heard or APD loose from the shaft. The inspection is to see **IF** the head or APD is **ALREADY LOOSE** on the shaft.
- Hold the blunt or APD with your thumb and two fingers to check for movement. This will help you avoid over torquing the blunt and APD while doing the inspection.
- To inspect for movement you take the Fathead blunt in one hand and the Asgard APD in the other. You do a gentle tug (not a hard yank) in opposite directions, to see if either the APD or Flathead has any movement off the shaft (laterally on the shaft). Any movement is a fail.
- Next, still holding the Fathead blunt in one hand and the Asgard APD you do a gentle twisting motion to see if either is all ready loose on the shaft. Any movement is a fail. Your inspection is NOT to see if you can break the tape or glue loose causing movement. You inspection is ONLY to see if they are all ready loose.



- **New inspection check: 06-07-2010** When you do your gentle twisting motion to see if the ASGARD is loose on the shaft it may seem to move. This is because The ASGARD is made of flexible material. Turn it over and look at the angled point of the ASGARD and the shaft. The electrical tape should be form fitting around the point. When you gently twist and the point does not move the formed tape, it is fine. If the point moves under the tape you know it is loose.

The following inspection check list is the minimum (but not maximum)

- Using a bow gauge check the poundage for the bow or crossbow to ensure it is within the minimum and maximum.
- Comment: Due to the slight variance that there may be in bow poundage gauges, use some discretion on checking poundage. A little under is less of a concern and O.K. while a little over is more of a concern and not O.K.
- No movement of the Fathead blunt or Asgard APD using approved testing method described above.
- The entire length and width of the fiberglass shaft must be covered from behind the blunt, to the front of the Anti-Penetration Device (APD), with fiberglass-reinforced tape (strapping tape). Electrical tape is NOT to be used for this application.
- The combat archery ammunition must have the owner's name and Kingdom displayed clearly on a printed label about 1 inch down from the APD on the top of fiberglass shaft. The label must be covered with clear tape that wraps completely around the shaft to protect the label.. If it is group ammunition, the group name must be used as the owner's name.
- Check the 3/4 inch RED electrical tape securing the Fathead Baldar to the shaft.
 - Ensure there are there **two** pieces of tape crisscrossing the head of the Fathead Blunt in an "X" pattern.
 - If more than 1/2 of the width of any piece of electrical tape is cracked or broken that piece of ammo is to be failed. Once retaped it can be re-inspected.

Ensure there a tight and secure wrap of electrical tape around the shaft at the junction of the shaft and the Fathead collar. One half of the tape is on the collar and the other half is on the shaft.

If you have ANY questions involving combat archery please contact me.

Master Erik Erikson the Scout
 Deputy Earl Marshal for Combat Archery
 Middle Kingdom