

Combat Archery 201 (Intermediate)

Revised February 12, 2011

Disclaimer: The information in this handout is only basic information and does not reflect the entire standards that are to be used. For full information please check the Society and Midrealm Marshals handbook and THE 35-FOOT SPEAR: Combat Archery Resources site located <http://www.havenholde.net/35footspear/>

Combat Archery Rules

It is your responsibility to find and read all rules and standards that apply to combat archery.

YOU MUST KNOW THE BASICS

Equipment

Bows

- a. Bows must be powered by the flex of the limbs.
- b. Can be a laminated modern recurve, longbow, Mongolian, or other historical style in good repair. No compound bows are allowed. No non-period sights, spring/flipper rests, plunger buttons, stabilizers, clickers, or modern string release aids may be used.
- c. Poundage should be marked on the bow by the manufacturer. If not, the draw should be checked with the appropriate draw testing equipment and by a qualified Marshal.
- d. Handbow's power is measured at 28 inches (71 cm). If the bow is not made for 28 inches (71 cm) draw, then it cannot be used in SCA combat. You can't use a bow that was made for 26 inch draw and overdraw it to 28 inches and consider that a 28 inch draw and legal to use.
- e. Bows shooting sil-o-flex or equivalent (tubular) shafts must be a minimum of 35 lbs. to a maximum of 50 lbs. of pull at 28 inches of draw and are considered Heavy bows.
- f. All Heavy bows must have the top limb marked with 6 inches of red material (red duct tape, bright red leather piece etc.) to show them as a "Heavy Bow". This is very important when both light and heavy bows are in the same battle.

Crossbows

- a. Crossbows must be powered by the flex of the limbs.
- b. Must be soundly constructed traditional, non-compound style in good repair and may not have a modern pistol grip.
- c. Only a qualified marshal should check the poundage using the proper testing equipment.
- d. A heavy crossbow must not exceed 1000 inch-pounds and no less than 600 inch-pounds.

- e. Crossbows are measured by inch-pounds, which is calculated by taking the poundage of the bow measured at the lock, multiplied by the distance (in inches) from the front of the string at rest, to the front of the string when in cocked position).
- f. All Heavy crossbows must have the right prod marked with 6 inches of red material (red duct tape, bright red leather piece etc.) to show them as a "Heavy Crossbow". This is very important when both light and heavy bows are in the same battle.

In-Kingdom allowable combat archery ammunition:

Tubular Construction Standards

Shafts

- The shafts of combat arrows and bolts must be constructed of 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.
- 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 or plugs **MAY NOT** be installed or used.
- 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. Past history has shown crossbow bolts around 14 inches fly well and work on most crossbows.

Tips

There are only two approved tips for use on tubular (Sil-o-flex or equivalent) combat shafts in the Middle Kingdom.

- 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.
 - It is suggested to use the white / off white rubber stoppers that are gum rubber because they are softer and compress better than the neoprene.

- 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.
- Baldar Blunts may be modified by separating / cutting the fins from the outer collar, but the collar must remain intact.

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.

Securing the head on / in the shaft

- Rubber Stopper - There is only one preferred method of securing the rubber stopper into the Sil-o-flex (or equivalent) shaft or the modified Baldar blunt over the shaft. This method utilizes 1-inch fiberglass-reinforced (strapping) tape to secure the stopper or modified Baldar blunt to the shaft. You must follow the construction standard to utilize this method. I would suggest all future new ammunition be made utilizing this construction method.

Note: The traditional method of using cord to lace the stopper into the shaft is no longer recommended and there are no construction standards on this site.

Taping Method for rubber stoppers or modified Baldar Blunts

- The rubber stopper must be inserted 1/2 inch into the tubular (Sil-o-flex or equivalent) shaft.
- The Modified Baldar must be slipped 1/2 inch over the tubular (Sil-o-flex or equivalent) shaft.
- The rubber stopper or modified Baldar is secured with two pieces of 1-inch fiberglass-reinforced (strapping) tape that will cross each other on the top of the tip in an "X" pattern. Each piece must start from at least 1 inch down the shaft (measured from the intersection of the tip and shaft), go up over the head and then back down the other side of the shaft at least 1 inch.
- The intersection where the head meets the tubular (Sil-o-flex or equivalent) shaft must also be secured with a piece of 1-inch fiberglass-reinforced (strapping) tape wrapped around the joining point.

Foam

Resilient foam: The Society Definition is: dense, plastic, closed-cell foam such as ethyl polymer. Both rubber stopper and Baldar Blunt heads must have resilient padding secured on the tip. Rubber stopper heads must also have a side wrap of foam while the modified Baldar blunt does not.

Let's talk about foam. I will not tell you what to buy, but it is time to tell you what not to buy and why.

The blue camp pad foam from Wal Mart and K Mart does NOT hold up well because it is a low density, small cell foam. You will end up having to rework your ammo more often than you want. Most of the foam related problems with combat archery ammunition failing inspection had the blue foam.

The self adhesive foam that several vendors are selling for use on the required side wrap does not hold up. The thin craft foam also is not going to hold up and has caused problems. Many of the problems with the side wrap being too soft and going through a inspection gauge and failing have been these types of foam. A heavy crossbow can be up to 1,000 inch pounds and may be fired at point blank range. The side wrap is very important to help ensure the foam and head do not go more than 1/2 inch into a legal face grill.

I use and have found that the military or military type sleeping pads work best overall for construction and the ability to hold up. They are 3/8 inch thick. One piece works well as the required side wrap (1 3/4 inch by 5 inch) on the rubber stoppers. I use the same pad for my foam disks for the rubber stopper head (two 1/4 inch disks are needed)

The modified Baldar blunt has to be padded and I use two of the disks (one 1 1/2 inches, the other 1 3/4 inch) made from the military sleeping pad foam.

Tip padding for Rubber Stopper and Modified Baldar Blunt

- 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.
- The **resilient foam is secured on top of the rubber stopper** with two pieces of 1-inch fiberglass-reinforced (strapping) tape that will cross each other on the top of the tip in an "X" pattern. Each piece must start from at least 1 inch down the shaft (measured from the intersection of the tip and shaft), go up over the head and then back down the other side of the shaft at least 1 inch.
- The intersection where the foam meets the rubber stopper or modified Baldar blunt must be secured with a piece of fiberglass-reinforced (strapping) tape wrapped around the joining point. This adds strength to the edge of the foam.
- The **resilient foam is secured on top of the modified Baldar Blunt** 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. Each piece must start from at

least 1 inch down the shaft (measured from the intersection of the tip and shaft), go up over the head and then back down the other side of the shaft at least 1 inch.

Side Wrap Required for Rubber Stopper

No side wrap required for Modified Baldar Blunt

- The 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.
- The side wrap of resilient foam must be wrapped around the padding/stopper/shaft so that the ends of the foam meet without a gap.
- At least 3 pieces of 1- inch fiberglass-reinforced (strapping) tape, or more as needed, must be wrapped around the side wrap to hold it together without a gap (one piece around the middle of the side wrap, one piece around at the bottom edge, and one piece around at the tip edge).
- The side wrap must be secured to the tubular (Sil-o-flex or equivalent) shaft with several pieces of fiberglass-reinforced (strapping) tape that will cross each other on the top of the Resilient foam. Each piece must start from at least 1 inch down the shaft (measured from the bottom edge of the side wrap), go up over the head and then back down the other side of the shaft at least 1 inch. The entire head must be covered with fiberglass-reinforced (strapping) tape when finished.
- The ends of the cross-over pieces must be secured with a wrap of fiberglass-reinforced (strapping) tape around the shaft at that point.
- **The total diameter of the final head assembly must be at least 1/2 inch.**
- **It shall not be possible to force the head of any combat archery ammunition more than 1/2 inch into a legal face guard.**

Head Marking

- The heads of all combat arrows and bolts must be covered with red duct tape.

Ammunition Marking

- All combat archery ammunition must have the owner's name and Kingdom displayed clearly on it in English. If it is group ammunition, the group name must be used as the owner's name.
- Ammunition may be marked with colored tape on the shaft to help identify your ammunition. This is a form of "cresting" used to help distinguish your ammunition from others more quickly.

Nocks

- A nock may be cut into the tail end, but may be no deeper than 1/2 inch.
- Wooden nocks or plugs are not legal to be used with tubular (Sil-o-flex / equivalent) ammunition.

Fletching

- Fletches are considered optional but **I no longer recommend their use and suggest that no new ammunition be made using them.** Fletches used to make a difference in the flight of the ammunition but the new Society rule states "All fletches on any arrows, bolts, or thrown weapons can project no further than 1/2" from the shaft, or must be 1.5" thick." This reduced the width of the fin to the point that it no longer enhances the flight characteristics as before.
- With the reduction in width of the fin it can cause a safety issue. If the finned ammunition is stepped on, it can cause the 1/2 inch of foam to pull inside. This removes some of the structural strength allowing the shaft end to crush more easily and collapse under the required size needed to avoid going into a legal helm face piece.
- If you do decide to make combat archery ammunition using fins or already have some, the fins **MUST** meet the construction rules that they were first approved under at Society level.
- The tail end of the Sil-o-flex, or equivalent, must be left solid for at least 1 inch. Cuts no longer than 2 1/2 inches may be made beyond that in order to install fletches but must have 3/16 inch holes drilled at the ends of each cut (stop holes) to keep the cut from spreading.

Construction Methods, Techniques & Tips

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Construction Summary:

1. Insert stopper into shaft ½” . or
2. Insert modified Baldar blunt over the shaft ½ “
3. Tape head in place (use strapping tape).
4. Tape foam disk(s) onto end of head (use strapping tape).
5. Tape side wrap of foam around end of tube & tip (use strapping tape)
for rubber stopper
6. Cover head completely with red duct tape.
7. Tape Label with name and kingdom securely in place.

Preparation:

Shafts – Cut the Sil-o-flex or equivalent tubing to length.

Mark the shafts to the desired length (a sliver sharpie marker works great)

How to cut

Best Method is to use a PVC HoseCutter 1 6/16 capacity. Use 1” wood insert

Pipe Cutter – use 1” wood insert

Hacksaw

Chop or Band Saw – make fixture

Smooth as needed - reamer, knife, sandpaper

Mark the shafts again at 1 ½ “ and 1 “. These reference lines will be useful.

Cut Foam disks and side wraps

Size of foam disks & rectangles will depend on foam used

Suggested sizes:

Use a 1 ½ inch hole saw (after removing the drill bit) to get 1 ¼ inch disks. You need two 3/8-of-an-inch disks made from a military sleeping pad. These are for the rubber stopper heads. Clamp a board to the drill press table for support, then use high rpm and go through slowly. Hold the foam firmly, and make sure you leave at least ¼” of material between holes, or it can get ripped out of your hand (and pull your hand into the blade)... the outside edges of a hole saw can do some serious hand damage. A few rough edges on the disks are easy to trim off with scissors.

If you can find/make a tube with a 1¼” interior diameter and a sharpened edge, that gives really clean disks. Just set the foam on an appropriate surface and tap the tube through with a mallet.

Mark and cut a piece of foam (I use a pair of 12 ¾ inch tin snips) 1 ¾ “ by 5 “ by 3/8” thick made from the military sleeping pad to be used for the side wrap.

Mark stoppers at ½” from one end (the black sharpie works great here)

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.

- Dispenser
- Scissor modification
- Cutting Board
 - Heads
 - How to modify Baldars - hole saw, sharp knife or chisel
 - How to insert rubber stoppers
 - How to straighten
 - Coil Sil-o-flex- shaft insert, heat gun and cooling
 - Repair damaged shafts

Different Standards

- Gulf Wars – Heads & crossbow poundage
- Calontir - Only one way

Out-of-Kingdom allowable combat archery ammo

- When combatants who are authorized in combat archery in the Middle Kingdom are attending events in other kingdoms they may use missiles made from material other than sil-o-flex. It is the responsibility of the combat archer to know the particular rules, construction and inspection methods plus rules of engagement for the type of non-sil-o-flex ammo they are using.

Other Useful Tools:

Sharpie-type markers to mark materials (black/color & silver work well)

Measuring device(s)

Cutter for Sil-o-flex tubing

Scissors and a candle

Jigs for marking stoppers & tubing

Reference Sources:

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