

# Lake Island Junior Rifle Club Intermediate Booklet

08 April 2017

## 1. Purpose:

The purpose of this booklet is to prepare the shooter to operate the rifle sights, the rifle sling, and a spotting scope correctly.

**Beginner shooters** are to read and understand "Target Basics" Section and "Using the rifle sights" Section of this booklet for their second evening of shooting. These sections are required to know how to center the shots on the bullseye and why this is important. You may read the other sections, however the topics may not be understood until your experience increases.

**Intermediate shooters** using the sling should read and understand the entire booklet.

ALL SHOOTERS SHOULD ASK A COACH ANY QUESTIONS THEY MAY HAVE ON THE INFORMATION PRESENTED IN THIS BOOKLET.

## 2. Safety Review:

Lake Island Junior Rifle Club (LIJRC) takes safety above all other activities. You never fool around or play with firearms. Firearms are dangerous when they are not handled properly and can easily injure or kill you and those around you. There are no second chances with a firearm. The rules for safe gun handling must always be followed to avoid accidents. NO EXCEPTIONS!

**Remember: DO NOT BE AFRAID TO ASK QUESTIONS**

**If you see an unsafe condition tell a coach!**

1. Always treat the gun as if it is loaded.
2. Always keep the gun pointed in a safe direction.
3. Always keep your finger straight to the side of the stock and off the trigger until you are ready to shoot.
4. Always keep the gun unloaded until you are ready to use it.
5. Never point the gun at anyone (ever) or anything you don't intend to destroy.
6. Be sure of your target and what is beyond it.
7. Learn the mechanical and handling characteristics of the gun you are using.
8. Always use proper Ammunition. (**Use club supplied ammunition only**)
9. Be sure the barrel is clear of obstructions before loading and shooting.
10. If your gun fails to fire when the trigger is pulled, hold your shooting position for several seconds; then with the muzzle pointed in a safe direction, raise your hand and get a coach to unload the rifle for you.
11. Never rely on the gun's safety to keep it from firing.
12. Be aware of your surroundings when handling guns so you don't trip or lose your balance and accidentally point and/or fire the gun at anyone or anything. No Running!
13. Use an Empty Chamber Indicator (ECI) in all rifles when not firing at the target.

Sample of an Empty Chamber Indicator (ECI), which is required for safe handling of rifles:



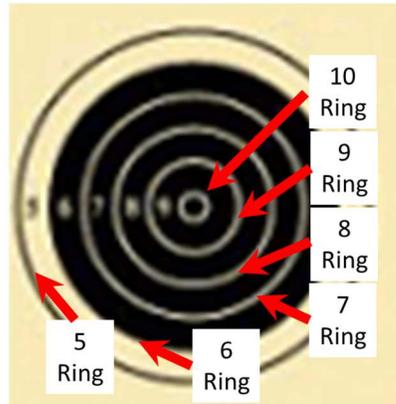
### 3. Target scoring and award basics:

The target below is used at the club to earn various junior NRA awards. This target is called the “A-17” target. It is made to be used for small-bore rifle shooting at a distance of 50-foot. The scores shot using the A-17 target is recognized by the NRA for their award system.



Looking closer at the A-17 target bullseye (below) we see the scoring method used by the NRA. The most center scoring ring is worth 10-points. The next largest scoring ring is worth 9-points and so on. The lowest ring value is 5-points. The shooter earns the point-value of the ring the shot touches. The shot does not have to be within the ring. The shot just needs to touch the outermost part of the ring to receive the value.

This target does not have scoring rings for 1, 2, 3, and 4 point values. Therefore, a shot not touching at least the 5-ring is considered a miss. The shooter gets a score of zero (0) for that shot.



The shooter's skill advancement is measured by the amount of points the shooter can "collect" for each 5-shot sequence (sequence means a group of shots that were shot in order, one shot right after another). This means a maximum of 50-points can be received for a single scoring sequence. The table on the next page shows the 4-Position award program that the NRA provides to its junior members to promote rifle practice (go to website shown below for greater details or ask a coach at the club). Remember, these NRA awards can only be earned when the shooter is using a rifle sling. Scores collected while shooting off of the rifle rest (also known as "sand-bag") does not count towards the NRA awards.

<https://mqp.nra.org/media/4195/4-position-rifle.pdf>

Here are examples of awards that are available through the NRA for different skill levels. The Distinguished Expert is the highest level you can earn.



### 4-Position Stage Skill Course

Rating	Position	Shots Per Bullseye	Number of Bullseyes	Minimum Score Per Bullseye Using AR-4, A-17, A-23, TQ-1 or TQ-40 Target
For Pro-Marksman through Expert ratings: 10 bullseyes (set of concentric scoring rings) must be fired for each rating. Each bullseye must contain five shots and the total score for the five shots must meet or exceed the required score. The 10 bullseyes do not have to be fired consecutively or in the same session. (Option: the number of shots per bullseye may be reduced if scoring becomes difficult. Example: three shots on one bullseye and two shots on another.)				
Basic Practical This rating is achieved by completing the practical exercise conducted during an NRA Basic Rifle Course				
Pro-Marksman	Any of the 5 pos.	5	10	20
Marksman	Any of the 5 pos.	5	10	25
Marksman 1st Class	Any of the 5 pos.	5	10	30
Sharpshooter	Any of the 5 pos.	5	10	35
While developing position skills (Bars 1 - 9), shooters should NOT concentrate on the development of just one position; they should begin to earn qualifying targets in all positions concurrently. Position bars may be obtained as they are earned without regard to numeric sequence.				
Bar 1	Prone	5	10	40
Bar 2	Sitting	5	10	30
Bar 3	Sitting	5	10	35
Bar 4	Sitting	5	10	40
Bar 5	Kneeling	5	10	30
Bar 6	Kneeling	5	10	35
Bar 7	Kneeling	5	10	40
Bar 8	Standing	5	10	30
Bar 9	Standing	5	10	35
Expert	Standing	5	10	40
For the Distinguished Expert rating: 10 strings, consisting of five bullseyes in each string, are required for each position. Two shots are fired on each bullseye. Each five-bull string must be fired as a complete unit and each bullseye in the string must meet or exceed the required score or the entire string must be refired. You may also attain this rating by achieving 372/400 or better in two NRA sanctioned 4-position competitions. (See Witness Requirements, page 3.)				
Distinguished Expert	Prone	2	10	18
	Sitting	2	10	18
	Kneeling	2	10	16
	Standing	2	10	16

The following is an explanation of this chart:

A new shooter is unlikely to score 50-points in a sequence. A more typical beginning shooter may only get a score of, say, 18-points out of a sequence of 5-shots. In this example the shooter in the sling may have shot three (3) 6-point value shots and two (2) missed shots. Therefore the total score is  $6+6+6+0+0 = 18$ -points. Looking at the Pro-marksman row (in the chart outlined in red above) shows the minimum score for this skill level is 20-points. Therefore the shooter's skill is not at a level to receive credit for that award.

As the shooter practices and gains experience, the 5-shot score would rise quickly to, maybe 21-points. For example let the shots be  $6+5+5+5+0 = 21$ -points. Shooting this high of a score allows this sequence of shots to count for one (1) Pro-marksman score. According to the chart, once the shooter collects ten (10) scores of "20-points or better", the Pro-marksman award is achieved. The shooter's next goal is to gain a skill level of a "Marksman" which is has a minimum score of 25-points. The shooter needs ten (10) scores above 25-points for a 5-shot sequence to collect that award. Any score higher than the minimum for an award will count toward that award.

This process may seem complicated, but it will make sense over time. Remember to ask a coach to find out your progress toward each of these awards. With the coach's help the shooter will gain experience,

have fun and have a sense of accomplishment winning each skill level. Below is an example of the three (3) types of awards shooter would get when the Pro-marksman award is earned. The shooter will receive a certificate, medal, and a “rocker” patch. These awards will be presented to the shooter for each award level in the chart above.



#### 4. Using the rifle sights to center the group:

The goal of the shooter is to work towards getting a score of 50-points for each 5-shot sequence. Consistency (doing the same thing exactly the same way over and over) is the goal of a shooter. Remember this is a “goal” which can only be achieved with hard work.

Before the shooter can use the rifle sights, they must understand what a shot group look like. The following bullseyes show two (2) different groups.

Beginner shooter 3-shot group:



Advanced shooter 3-shot group:



As expected, the three (3) shot pattern of the beginner shooter will not look like the more advanced shooter. The grouping of shots for the advanced is much tighter than the beginner’s group. The advanced shooter is therefore more “consistent” (skilled) in performing from shot to shot. The bullseyes shown above are considered to be good sighting shots because each shooter has at least three (3) shots

in a sequence that are close to each other. The “center” of the shot groups of each target is shown as a “red dot”. In this example, both centers are located in the same place on the bullseye and both shooters would move “their” group the same amount to center the bullseye.

The next bullseye is an example of what a group does not look like. One (1) of the shots are not consistent with the other two (2) shots. In this case the red dot does not indicate the center of a “group” because there is no group. The shooter in this case did not perform good shooting techniques for all three (3) shots. Therefore the shooter needs to shoot more sighting shots than the 3-shot minimum to find out where the center of their group really is located. How many extra shots depends on how the bullet pattern forms.



Once a group is determined, the shooter then turns to the rifle sights to move the shot pattern to the center of the bullseye. This will produce the highest numerical score for the shooter, regardless of the skill level. It is important to recognize your groups in order to adjust the sights properly.

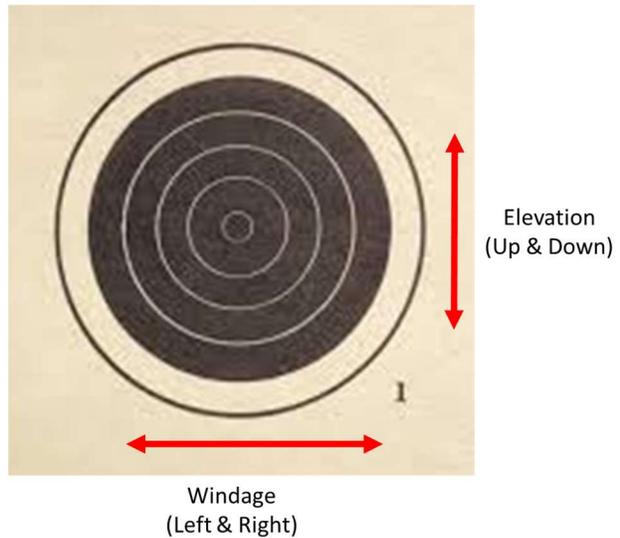
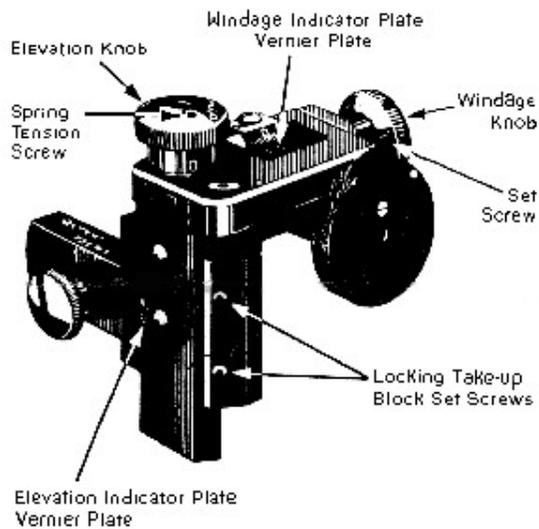
The following target shows a shooter with a very good shot group (5-shots in this example).



Clearly this is an advanced shooter. The problem is that the numerical score is not as high as their skill level. The shooter in this case would receive only 46-points for the bullseye shown. The score is  $10+9+9+9+9 = 46$ -points (assuming one shot of the group just “touched” the 10-ring). Imagine if the group was centered, the shooter would have received a perfect score of 50-points!



The rear rifle sight is used to move the impact location of the bullet on the bullseye. The pictures below shows the two (2) directions a bullet’s impact can be moved at the target and which knobs on the rear sight is used for each direction.

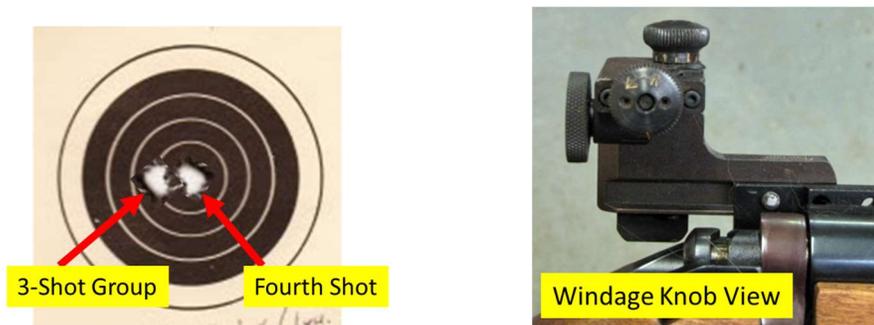


As you can see in the rifle pictures above, the “elevation” (up/down direction) has the word “UP” with an arrow written on it to make it easy to use. This indicates to the shooter the direction to turn the knob in order to move the shot’s location on the bullseye “UP”. The shooter will feel “clicks” when the knob is turned. The clicks give the shooter precise movement of the bullet’s impact.

As an example, the next picture below shows the advanced shooter's 3-shot group in a bullseye. It looks like a single shot group, but the skill level is high for this shooter. Once the 3-shots are fired, the shooter sees where the group is located on the bullseye. The shooter then decides to turn the "UP" knob six (6) "clicks". The shooter knows that to move a bullet one (1) ring on the A-17 target the elevation knob needs to be turned in the "UP" direction four (4) clicks. Since the first shot was centered on the nine (9) ring line, four (4) clicks would place the second shot centered on the 10-ring line. Granted this would give a score of 10-points, but will leave the shot a little below center of the bullseye. Center shots is always the goal of every shot. The extra two (2) clicks would raise the hit of the shot enough to be a center shot. Centering the shot allows for slight mistakes to still result in a 10-point shot. Once the rear sight is adjusted, the fourth shot is executed with the exact sight alignment, breath control, trigger squeeze, and follow through that was done for the first 3-shot group. This fourth shot hit the target dead center. Note that the knob is turned in the "counter-clockwise" direction to move the group up. If the first 3-shot group was "high" on the nine (9) ring in the bullseye, the shooter would turn the knob in the "clockwise" direction. This will move the bullet's impact down. Moving down one (1) ring is also four (4) clicks just like moving up. Notice what clockwise and counter-clockwise means when looking straight down on the knob being turned.



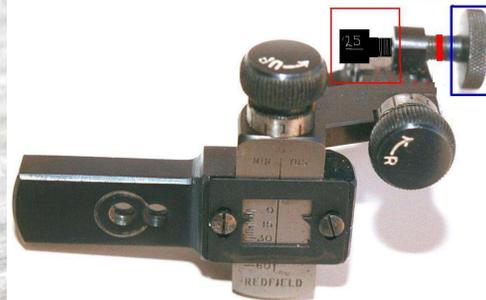
This next picture below shows what happens when the shooter turns the windage (left/right) adjustment knob "counter clockwise" six (6) clicks after the first 3-shot group. The windage is shown on the right side of the sights with an "R" arrow for moving the bullet impact location right. This knob also uses four (4) clicks per bullseye ring. Of course when the windage knob is turned in the opposite direction "clockwise", the bullet impact will move to the left.



The world is not perfect, however. Here are other rear rifle sight types the shooter may come across.

The following are pictures of other types of sights. The left picture is made in Germany so their "UP/DOWN" and "LEFT/RIGHT" words are spelt differently. The second picture has the windage knob on the left side of the rear sight and the arrow is pointing in the "clockwise" direction.

What's the shooter to do?



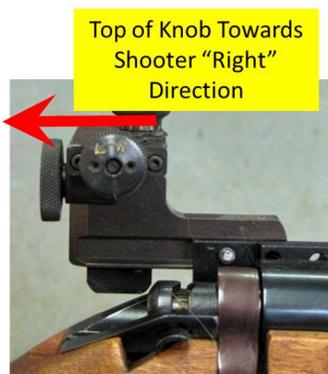
Regardless of which of these sights are used, the following will work to move the bullet's impact up and down:

**Bullet DOWN is "CLOCKWISE" and bullet UP is "COUNTER CLOCKWISE"**

Turning the "top" of the windage knob toward the shooter causes the shots impact to move to the right, regardless of which sight is used. Turning the top of the windage knob toward the target (away from the shooter) moves the bullet impact to the left:

**Bullet RIGHT is "TOP TO THE REAR" and bullet LEFT is "TOP TO THE TARGET"**

Right side windage sight:



Left side windage sight:



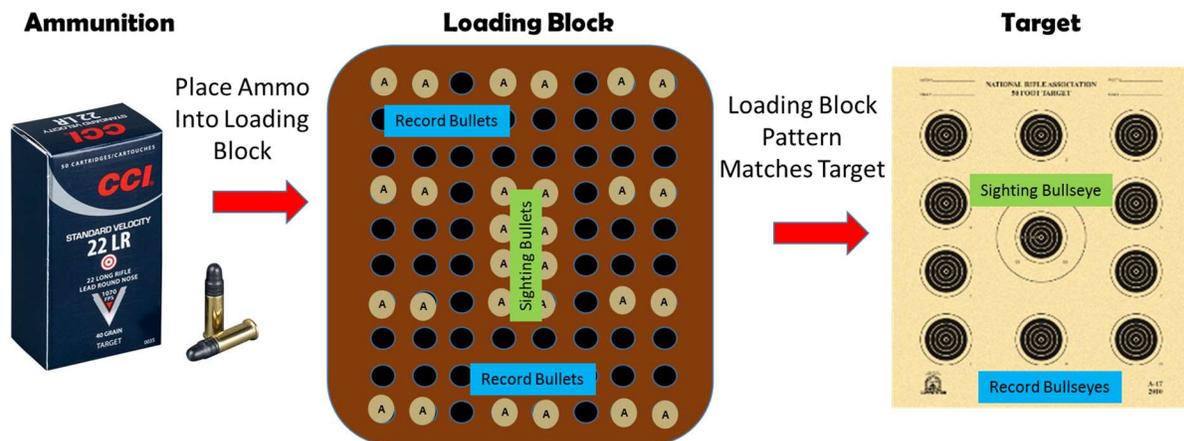
Remember to align the sights the same way each and every time!!!! The rifle sights will do their job.

## 5. Shooting the A-17 Target for score:

The center bull of the A-17 target with the letters “SS” is called the “sighter bullseye”. The sighter is used to shoot the groups discussed above. The rear rifle sight is then adjusted using the sighter bullseye results. The shots in this bullseye never count towards your record score as long as they stay within the larger black ring around the sighter bullseye. An unlimited amount of shots may be fired into this sighter bullseye.

The Ten (10) outer bullseyes are used for record scores. At this club on Wednesday night practice the shooter is to shoot two (2) shots per bullseye for a total of 20 shots for record. The shooter cannot shoot more than 20-shots for record per target. If there are more than 20-shots for record, the shooter will lose the highest score as a penalty for too many shots. There are no such a thing as “extra-credit” shots in the shooting sports.

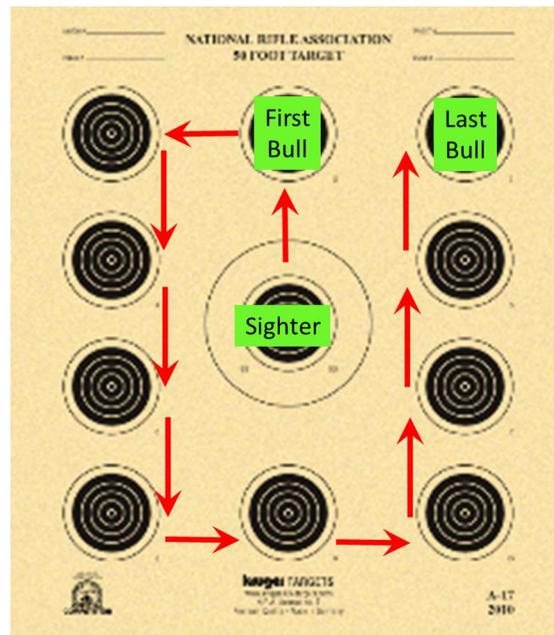
Remember to follow the loading block. Below is a reminder of what the loading block should look like. Always follow the loading block.



The target shooting steps we train at the club is as follows:

- 1) The shooter uses the 3-minute preparation period to get into their shooting position.
- 2) When the command to fire is given, the shooter is to fire three (3) shots into the sighter bullseye using proper sight alignment techniques. The goal of these shots is to create a 3-shot group in the sighter as was discussed.
- 3) The shooter then raises their hand and asks a coach “May I go for record?”.
- 4) The coach will say either of the following:
  - a. Tell the shooter to go for record. The shooter is to then finish the target by firing the 20 record shots (in the loading block) into each record bullseye.
  - b. Tell the shooter to shoot more sighter shots since the 3-shot pattern did not form a group. The shooter then repeats step 3) when the extra shots are complete.

- c. Tell the shooter how many clicks and in which direction to move the rear sight knobs. The coach may say to shot another sighter shot. When done, repeat step 3).
  - d. Tell the shooter how many clicks and in which direction to move the rear sight knobs. The coach may then tell the shooter to go for record. The shooter is to then finish the target by firing the 20 record shots in the loading block into each record bullseye.
- 5) The shooting pattern is important to learn. When going for record, the shooter starts at the top center bullseye with two (2) shots. The shooter then moves to the upper left bullseye and continues to shoot the target moving in a counter-clockwise direction around the target. The pattern is shown below. With 20-shots for record, the shooter will have four (4) 5-shot groups that will count for award score per target.



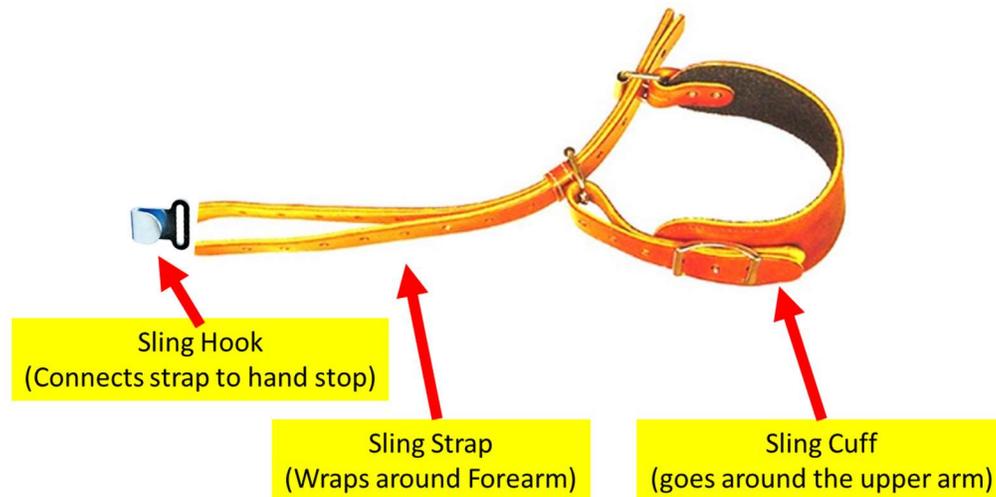
Note that the shooter is allowed to bring any number of these pictures to the firing line to remember these steps!

There is a time limit to finish the 20-shots for record. Once “commence fire” is commanded the relay clock counts down from 20 minutes to zero. Once the time counts to zero, the command “cease fire” is given and the relay (all shooting) is to stop. Any shots not fired for record will be considered a miss. To prevent the loss of these shots, the shooter is recommended to bring a personal timer to the line. Remember the range clock is the “official” time used by the line officer, not the shooter’s clock. The timer should be set for 20 minutes and start button is pressed when the command “commence fire” is given. This way the shooter can directly see about how much time is left and shoot as fast as required. A bad, rushed, shot hitting the bullseye is better than a zero score.

Remember, all electronics, like cell phones or tablets, are not allowed on the firing line except for a timer.

## 6. Using the rifle sling:

The picture below shows the sling and its components (parts):



The picture below is a hand stop example and its components (sling hook attachment is made to spin around):



The rifle has a "rail" to allow the hand stop attachment. The hand stop's bolt head slides into the groove of the rail. Twisting the grip like a screw will tighten the hand stop down onto the rail. This secures the hand stop to the rifle anywhere in the rail groove.



The picture below shows the hand stop location when attached to a rifle:



The next piece of equipment needed is a shooting coat.

Left handed shooter coat:



Right handed shooter coat:



The shooting coat is used to help the sling stay in the upper arm position and to support the shooter's upper body. The shooter should wear two (2) hoodless sweatshirts under the shooting coat. This provides some insulation between the shooter's heartbeat from being transferred to the rifle. A shooter's heartbeat will be the most significant movement seen at the rifle sights once the prone position is mastered. The shooter will "steady" other bodily operations over time, but the heartbeat will remain. The coat should fit snug across the shoulders when standing. This will transfer the sling forces to the shooter's back and steady the aim of the rifle. A loose fitting coat will not allow proper support and aiming accuracy will suffer. Notice that the left handed coat has a rubber shoulder patch on the left shoulder to help grip the butt plate. The right handed shooting coat has this rubber patch on the right shoulder. The arm opposite the shoulder patch has a rubber pad around the upper arm to help grip the sling cuff. This will help keep the sling up high on the arm.

Location of the sling cuff on the left arm is shown below. The cuff should be tight on the arm above the bicep. Placement at the upper arm is best to reduce the shooter's heartbeat from transferring to the rifle. Notice the sling hook hanging off the sling.

Left handed shooter:



Right handed shooter:



The sling should come from the center or outside of the upper arm (not the inside/chest area, where it is likely to pick up a pulse).

Getting into the prone position (see below):

Left hand shooter position:

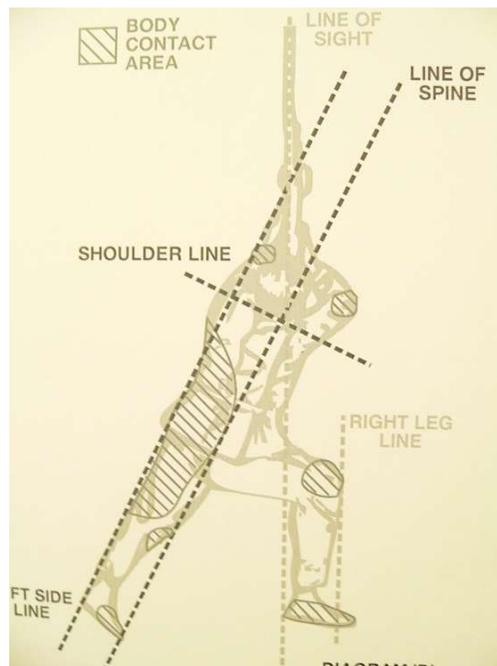


Right hand shooter position:



This is what a prone position looks like. A shooting glove is used to protect the sling hand from the hand stop. A left handed shooter will use a glove on the right hand. A right handed shooter will put a shooting glove on the left hand.

This picture shows more details on the prone position:



Remember, the shooter must always keep the rifle pointed towards down range or pointed up when getting in and out of position. The shooter starts getting into position by sitting on their feet and lower legs. Their knees should be pointed towards the target. The shooter will then bring their hand from the outside of the rifle and slide their four (4) fingers above the sling, but below the stock. Their hand is forced under the stock until their fingers are on the other side of the rifle. The shooter then pass the sling around the back of the wrist and hand without the strap edge cutting into the wrist. Put a ½ twist clockwise (for a right handed shooter) in the end of the sling before attaching it to the sling swivel. This will allow it to pass smoothly around the side of the wrist and back of the glove hand. See pictures below for both right and left handed shooters.

Left Handed Shooter:

Right Handed Shooter:



Keep a straight and comfortable wrist position. A twisted wrist will cause pain when pressure is applied. It is essential that the hand fit snugly against the hand stop. This helps you support the weight of the rifle without gripping the stock and keeps your position consistent. A glove is required for comfort. The sling should be pressing the whole hand against the bottom of the stock.

The shooter then tips their upper body towards the target and catches themselves from falling by using their free hand (the one without the sling and rifle). The shooter then pushes the sling arm's elbow toward the target as far as possible. The sling should be as smooth and natural against the arm as shown in the picture on the next page. The edge of the strap does not dig into the forearm or hand. If it does, the sling is not positioned properly.



The shooter then brings the rifle butt into their shoulder as shown below. The rifle is “swings in” from the side. It is placed as close to the neck as possible.

Left handed shooter:



Right handed shooter:



When in position the shooter should look like the following pictures:



Low position 1 – There is a small angle between the ground and the left forearm and the left hand under the stock is close to the front of the rifle



Low position 2 – Right elbow is bent to a large angle and the head is angled forwards to get the eye behind the rear sight



Low position 3 - The elbows are far apart and the torso close to the level of the mat



Low position 4 - Looking down from above, the low position is identifiable by the elbows being extended away from the sides of the body and the left hand positioned much further forward of the trigger than in the high position

For the first time in a sling, there will be many adjustments needed to get into a comfortable shooting position. It is not one size fits all. At first, if the rifle is too loose in the shoulder, the shooter needs to get out of position and move the hand stop away from the trigger. If the rifle cannot be put into the shoulder, the hand stop needs to move towards the trigger. How much movement is determined by trial and error. The shoulder should not be pushed forward or backward to fit the rifle. Move the hand stop to fit the shooter. The picture below shows which direction to adjust the hand stop for correct shoulder pressure.

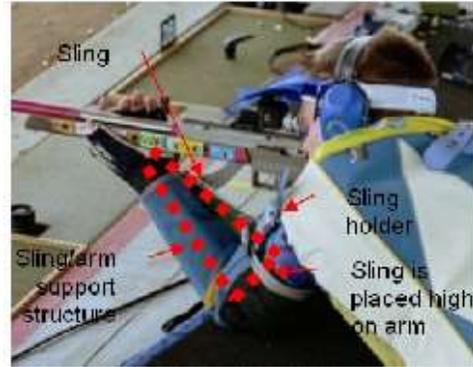
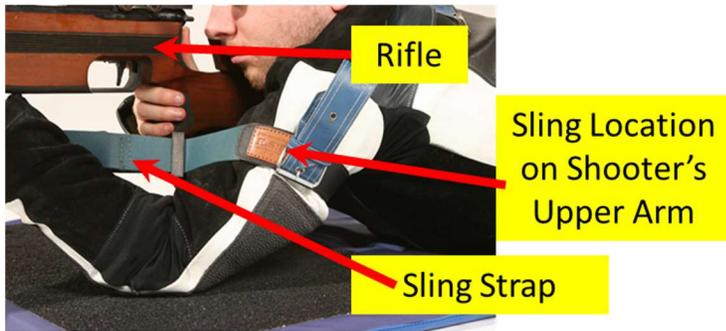


Adjusting the sling is similar to adjusting the tightness of the rifle in the shoulder. The proper sling forearm angle is 30° (degrees angle). This is because the NRA rule book dictates the shooter must have a position higher than 30°. This is to prevent a shooter from resting his forearm on the ground.

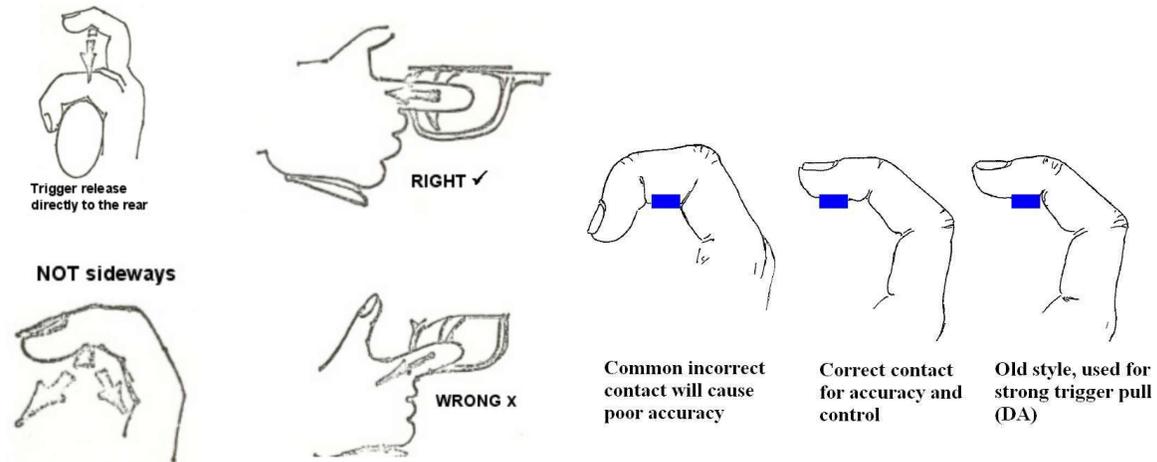


The shooter is in the proper position when no effort is being made to hold the rifle up (Right handed shooter shown). The weight of the rifle should be held by the sling, the bones of the shooter's arm and the shooting coat. The sights should be in line with the target.

Once the sling and hand stop is adjusted, the shooter will use no effort to hold the rifle on target. The red dots shown in the picture below right shows the support triangle (shoulder, hand and elbow).



The final key to the prone position is the trigger squeeze. The term trigger squeeze is used to indicate the whole hand should not move while the trigger is being pulled rearward. The shooter is not “pulling” the trigger, but also keeping sight alignment. The trigger needs to be squeezed straight back slowly. Any sideways, up, or down trigger movement will cause the sight alignment to move off center, causing a poor shot. Refer to the figures below for the proper trigger squeeze.



**The End**

