

JROTC Standard Operating Procedures (SOP) For Air Rifle Safety and Air Rifle Range Management

Revised: 2Feb09

Item	Standard	Notes
1.0 Air Rifle Range Layout		
1.1 Range Walls, Safety Barriers or Perimeter	The sides and front walls (as you look downrange) of the room/space used as a range must be secure or capable of being secured from inside the range. Exposed windows must be covered or made of a type of glass that will not allow pellets to exit the range area. Openings that might allow a stray pellet to exit the range must be covered. Any doors forward of the firing line must be locked from the inside or otherwise blocked so than entry from the outside is not possible.	<i>No one should be able to enter the downrange part of the range area from outside the range during firing under any circumstances. Windows or glass surfaces in the safety walls or barriers are not a safety concern as long as they can prevent accidental stray shots from exiting the range.</i>
1.2 Target Holders	A frame made of wood or other material should be utilized to hold targets at the required heights (20 in. for prone, 55 in. for standing, 32 in. for kneeling, as measured at the center of the target). The target frame must have a pellet catcher or backstop if the range itself does not have a backstop.	<i>A key feature of the target holder is that it be made of a material that does not cause pellets to bounce back if the frame is struck. Hard plywood, for example, will sometimes cause pellet bounce-back.</i>
1.3 Target Backstops	Target backstops must be capable of capturing and retaining 100% of the pellets fired at targets mounted on the target holders in front of the backstops. Any backstop material that effectively captures all fired pellets may be used. The backstop should be constructed so that fired pellets and pellet fragments are retained within the target box. A backdrop or curtain (optional, not required) made of ballistic nylon or other similar material may be hung at the rear of the target backstops to prevent pellets fired off of the target backstops from damaging the wall behind the backstops.	<i>If steel is used as a backstop, it must be hard enough that frequent shots in the same location will not dent or crater it. 1/8 in. galvanized or 14-16 gauge steel is recommended. Commercial pellet traps are suitable. In an emergency a cardboard box filled with old newspapers will suffice.</i>
1.4 Firing Line	The firing line must be visibly marked with a tape or paint stripe that is a contrasting color with the floor. Firing points or lanes corresponding with the target spacing should be marked with a tape or stripe of a different color. The recommended width of each firing point is 1.25 meters (49.2 in.) wide. Firing point width should not be less than 1 meter (40 in.) wide. A space of 6.0 – 8.0 feet behind the firing line should be allocated for the firing point area (firing point depth).	<i>The firing line designates an absolute limit to the forward movement any person may make while firing takes place. Wider firing points are particularly desirable to facilitate instruction and control safety. Firing points should be sufficiently deep to allow firers to assume the prone position without interference.</i>

1.5 Range Officer Stand/Table/ Location	A Range Officer stand, table or working space should be located immediately to the rear of the firing points, approximately 10 feet to the rear of the firing line. The Range Officer should have clear visibility of all firers from this point.	<i>There must be an area at the rear of the firing line where the Range Officer can move freely to control the firing activities on the range and assure safety.</i>
1.6 Ready Line and Ready Area	If sufficient space is available, an area behind the firing points and Range Officer stand or location should be designated for cadets to assemble prior to moving to the firing line. This area may also have chairs or seating for spectators. A ready line tape or stripe should be placed on the floor to designate this area.	<i>Ready areas are not required, but where space permits, the designation of a ready area is recommended. Spectators are to be encouraged during shooting sports activities when sufficient space is available. All spectators must remain behind the ready line.</i>
1.7 Outdoor Ranges	When an indoor location is not available, an outdoor range may be approved as a JROTC air range. Outdoor ranges that do not have a baffle and backstop or other system to contain all pellets fired within the range area must be able to control the downrange impact area (safety fan) for a distance of 300 yards either by using a physical barrier such as a fence or by using observers (2) who can warn the Range Officer if anyone is approaching the impact area.	<i>The 300 yard impact area or safety fan is determined by the maximum range of air rifles used in the JROTC program. The maximum range of an air rifle firing a pellet at 580-600 fps is 280 yards.</i>
2.0 Safety Instruction		
2.1 Preliminary Safety Instruction	A prescribed basic, introductory lesson in air rifle safety and range firing procedures must be taught to all cadets before they are permitted to handle air rifles or do dry firing or live firing exercises on an air rifle range. Safety instruction for cadets should use or correspond with the safety instruction in Section V, Air Rifle Safety and Range Procedures that is included in the JROTC Marksmanship Instructor Course (JMIC) .	<i>All JROTC Instructors who are trained and certified through JMIC are provided with CDs that include Sec. V and are encouraged to use Sec. V slides and text for this instruction. The Junior Shooters Guide to Air Rifle Safety is recommended as a student text for providing safety instruction to JROTC cadets. Copies may be requested free of charge from the CMP.</i>
2.2 Cadet Safety Exam	All cadets must successfully complete a prescribed safety exam prior to any marksmanship activity.	<i>The JROTC Air Rifle Marksmanship Cadet Safety Examination (25 questions, dated 18Jun08) is the recommended cadet safety exam. JROTC units must maintain a file with completed safety examinations.</i>
2.3 Cadet Safety Pledge	All cadets must sign the JROTC Cadet Individual Safety Pledge prior to any marksmanship activity.	<i>JROTC units must maintain a file with the signed safety pledges.</i>

<p>2.4 Regular Safety Briefings</p>	<p>All firing exercises should be preceded by short safety briefings that remind cadets of the safe gun handling rules.</p>	<p><i>If there have been any recent lapses in safety focus or discipline, it is important to use safety briefings to reinforce safety rules that were not properly observed.</i></p>
<p>3.0 Range Supervision and Live Fire Conduct</p>		
<p>3.1 Range Supervision</p>	<p>All dry firing or live firing exercises involving the handling of air rifles on a JROTC unit range must be supervised by a JROTC Instructor who has completed either the JROTC Marksmanship Instructor Course (JMIC) or the Rifle Coach Training Course. AJROTC instructors must also satisfactorily complete ACC Distance Learning air rifle safety course. Cadets who fire on other ranges will fire under the control of the Range Officer appointed for that range.</p>	<p><i>Certified JROTC Instructors may appoint Volunteer Range Officers or Assistant Range Officers to conduct or assist in conducting range firing, but a certified Instructor must be present on JROTC unit ranges to supervise the firing activity. Volunteer coaches must also be certified by completing the required training.</i></p>
<p>3.2 Range Officers</p>	<p>The Range Officer is in charge of firing on the range and is responsible for giving instructions and commands to the shooters. Only one person is designated to give range commands and instructions. One Range Officer should be responsible for supervising no more than ten firing points with ten individual shooters. If there are more than ten firing points, additional Assistant Range Officers must be appointed.</p>	<p><i>The Air Rifle Range Officer Operating Procedures document (provided with JMIC course documents) is available for Range Officers to use as a script and guidelines in conducting range-firing exercises.</i></p>
<p>3.3 Assistant Range Officers</p>	<p>One Range Officer should supervise a maximum of ten firing points with ten individual shooters. For beginning shooters, additional Assistant Range Officers must be appointed who will each assist and control the activities of groups of one, two or more firers under the supervision of the Range Officer. Cadets who are experienced in rifle marksmanship may be appointed as Assistant Range Officers if a JROTC Instructor is in charge of firing and supervises the Cadet AROs.</p>	<p><i>If there are not sufficient AROs available, the number of firers on a range should be limited to the number that the Range Officer can effectively and safely control. It is especially important to use additional AROs when working with beginning shooters.</i></p>
<p>3.4 Range Commands</p>	<p>All range firing exercises must be controlled by proper range commands. The formal range commands are: LOAD, START, STOP, UNLOAD. In addition to these commands, other instructions are given to control the activities of the persons who are firing.</p>	<p><i>The international range commands, LOAD, START, STOP, UNLOAD are used for air rifle range activities because they are universally understood by everyone, regardless of language skills.</i></p>

<p>3.5 CBIs, Clear Barrel Indicators</p>	<p>CBIs (Clear Barrel Indicators) must be inserted in all air rifles that are brought to the range to verify that they are unloaded with actions open. CBIs may only be removed when rifles are on the firing line and the Range Officer gives instructions to begin preparation for firing. CBIs must be reinserted as soon as each cadet completes a prescribed firing activity.</p>	<p><i>CBIs are made from orange or red monofilament grass trimmer or similar cord (.065"-.095" dia.). CBIs should be cut so that when inserted in the air rifle, approximately 3-4" of cord protrudes from both the breech and muzzle ends of the air rifle barrel.</i></p>
<p>3.6 Unloaded Rifle</p>	<p>An unloaded air rifle is an air rifle with 1) its bolt/action open and 2) with no pellet in the barrel. CBIs inserted in air rifle barrels verify that they are unloaded.</p>	<p><i>No rifle may be moved from the storage area to the range or back to the storage area unless it is in an unloaded condition, with a CBI inserted.</i></p>
<p>3.7 Completion of Firing</p>	<p>Upon the completion of a firing exercise, the shooter must 1) immediately open his/her rifle action, 2) place the rifle on the ground/floor/mat/bench and 3) insert a CBI in the barrel. The Range Officer must verify that air rifles are unloaded by checking for grounded rifles with CBIs properly inserted. Individual shooters are responsible for informing the Range Officer if an air rifle is still loaded after the command STOP, UNLOAD is given.</p>	<p><i>No rifle may be removed from the firing line unless it is unloaded, with a CBI inserted. If a shooter reports a "LOADED RIFLE" after the completion of firing, the Range Officer must give that shooter instructions for discharging the loaded rifle into the backstop on into a Pellet Discharge Container (PDC).</i></p>
<p>3.8 Grounded Rifle</p>	<p>A grounded air rifle must 1) be unloaded with the action open, 2) be placed on the floor, shooting mat or bench with the muzzle lying ahead of the firing line, 3) have a CBI inserted and 4) not be handled by anyone.</p>	<p><i>Rifles must be grounded after firing is completed and must be checked by the Range Officer for proper CBI insertion. Rifles must be grounded before anyone can move forward of the firing line.</i></p>
<p>3.9 Line is Hot</p>	<p>This statement by the Range Officer means that the Range Officer has determined that all personnel are behind the firing line and ready for the start of a firing exercise.</p>	<p><i>After declaring that a range is "hot," the Range Officer may give instructions to the shooters to handle their rifles, remove the CBIs and begin preparation for a firing exercise.</i></p>
<p>3.10 Line is Clear</p>	<p>This statement by the Range Officer means that all rifles have been grounded with CBIs inserted and checked by the Range Officer and that it is safe for personnel to go forward of the firing line.</p>	<p><i>After declaring that a range is "clear," the Range Officer may give instructions to the shooters or other personnel to go forward of the firing line to retrieve or hand targets.</i></p>
<p>3.11 Target Placement or Retrieval</p>	<p>On most ranges, it is necessary for personnel to go downrange to hang, change or retrieve targets. Designated personnel or cadets may go downrange for this purpose. No one may go downrange until all air rifles are unloaded, grounded and checked. After all air rifles are grounded, the Range Officer declares the "Line is Clear" and instructs cadets to go downrange to hang, change or retrieve</p>	<p><i>No one is permitted to handle an air rifle for any reason while someone is downrange.</i></p>

	<p>targets. After everyone returns from downrange and is behind the firing line, the Range Officer declares the “Line is Hot” and gives instructions to begin the next firing exercise.</p>	
<p>3.12 Giving Corrections or Instructions</p>	<p>Whenever it is necessary to give corrections or instructions to an individual shooter, those instructions or corrections should never be given while the firer is attempting to fire a shot unless a serious safety hazard is involved. Instead, wait until the shot is fired, then approach the shooter to give the instructions or corrections in such a way as to not disturb or distract other firers. If the corrections or instructions involve several shooters on the firing line, it is best to give the command STOP and to instruct all shooters to open the actions on their rifles before giving the corrections or instructions.</p>	<p><i>By approaching close to an individual who is being given instructions or corrections that might involve changing a firing position, the Range Officer is also close enough to the firer to monitor and control how the firer handles his/ her rifle muzzle while making the change. When deciding whether to command STOP for all shooters before giving instructions, the Range Officer must exercise judgment as to what is the safest way to give those instructions.</i></p>
<p>3.13 Emergency STOP</p>	<p>A STOP command may be called for a safety emergency or another special situation (when a firing exercise is not complete). To do this, the Range Officer commands STOP-STOP-STOP (three times). Shooters must immediately stop attempting to fire a shot (remove finger from the trigger) and await instructions. The Range Officer must then instruct shooters to OPEN YOUR ACTIONS and give other instructions as appropriate. If the Range Officer does not immediately observe a safety emergency, anyone may command STOP.</p>	<p><i>The repetition of the STOP command three times is done to be sure to get the attention of all shooters and to emphasize that the situation is an emergency. Appropriate Range Officer instructions could be to keep muzzles pointed downrange or to ground rifles without inserting CBIs. JROTC units should practice emergency STOPs so that cadets will know how to respond to this command.</i></p>
<p>3.14 Malfunctions</p>	<p>A malfunction occurs when an air rifle fails to fire or does not operate properly. Malfunctions must be cleared before the air rifle can be used for additional firing. If a malfunction cannot be cleared, the action must be opened and the pellet removed from the barrel and a CBI inserted before the air rifle can be safely removed from the firing line. A .177 cal. cleaning rod or dowel rod should be used to clear the pellet from the barrel. The clearing of the malfunction or removal of the air rifle from the firing line must be done by the Range Officer or Instructor.</p>	<p><i>With the action remaining open, a pellet may be safely removed by inserting a cleaning rod from the muzzle end of the barrel. Under no conditions should a loaded air rifle be removed from the firing line without rendering it impossible for the rifle to fire (open action, discharging gas, pellet removal).</i></p>
<p>3.15 Going Downrange</p>	<p>No one may be authorized to move forward of the firing line until all air rifles are unloaded, grounded with CBIs inserted and checked by the Range Officer.</p>	<p><i>No one remaining on the firing line may handle air rifles when personnel are downrange.</i></p>

3.16 Removing Air Rifle From Range	When all range firing exercises are completed and air rifles are to be removed from the range and placed in storage, the Range Officer must confirm that they are unloaded by checking to be sure each rifle has a CBI properly inserted. The Range Officer can then give instructions to remove the rifles from the range and place them in storage.	<i>CBIs must remain inserted in the air rifles until they reach the storage area or are placed in a gun case. Then the CBIs may be removed, the actions closed and triggers released so that the hammer springs will not remain under tension while stored for long periods of time.</i>
4.0 Air Rifle Storage		
4.1 Storage Container	All JROTC unit air rifles must be securely stored in gun cases or gun racks when not in use. A room that can be locked must be designated as an air rifle storage area.	
4.2 Security	Stored air rifles should be secured with at least two locks. This may include a lock on the storage container. JROTC Instructors should retain control of all keys or lock combinations.	<i>JROTC cadets and other students should not have access to air rifle storage.</i>
4.3 Care & Cleaning	Air rifles should be free of moisture and lightly oiled before storage. Air rifle barrels should be cleaned after each 1000-2000 shots.	<i>Air rifle barrel cleaning is done by using a cleaning rod or pull-through, a non-petroleum-based solvent, brass brush and cleaning patches.</i>
4.4 Storage Condition	Air rifles must be stored only in an unloaded condition. It is proper to remove CBIs, close air rifle actions and release triggers prior to storage.	<i>When actions are closed and triggers released for storage, it is very important to make sure all rifle actions are opened and CBIs inserted as soon as they come out of the storage area or gun case for transportation to the range.</i>
4.5 Gun Cases	Air rifles may be stored and brought to the range in gun cases. If gun cases are used, the gun case should be placed on the firing line with the air rifle muzzle pointed downrange before the gun case is opened. As soon as the gun case is opened, the air rifle action must be opened and a CBI inserted. Then the air rifle can be grounded on the firing line. When an air rifle is returned to its case, the case should be brought back to the firing point. After the air rifle is replaced in its case, the CBI may be removed, the action closed and the trigger released.	<i>Gun cases should be removed from the firing line during all firing activities. Gun cases should not be opened behind the firing line. It is a good idea to make gun cases to indicate which direction air rifle muzzles are pointing in the case.</i>
5.0 Health and Hygiene		
5.1 Food	No food items are permitted on an air rifle range.	<i>Eating food while handling lead pellets could cause lead ingestion.</i>
5.2 Beverages	Water or other beverage items may be brought to a range, but only if the beverage container is closed (screw-top bottle, etc.)	<i>Open beverage containers should not be left on the range.</i>

5.3 After Firing	All personnel who handle air rifle pellets must wash their hands immediately after firing and before doing any other activity.	<i>Hands should preferably be washed in cold water.</i>
5.4 Pellet Trap Cleaning	Only Instructors or other designated adults may handle spent air rifle pellets and remove them from the pellet traps or the range.	<i>Cadets should not be used to clean pellet traps.</i>
5.5 Range Floor Cleaning	Air rifle range floors should be periodically cleaned with an industrial or shop vacuum and wet mopping.	<i>Using a solution of tri-sodium phosphate for mopping can enhance the effectiveness of wet mopping.</i>
6.0 Air Rifle Gas/Air Cylinders		
6.1 Air Rifle Cylinders	Some air rifles used in JROTC marksmanship activities utilize compressed air or CO ₂ cylinders as a means of propulsion. Charged air cylinders can cause serious injury if handled improperly. Caution must be taken to prevent cylinders from striking the floor or any hard surface.	<i>The careless handling or tossing of cylinders is strictly prohibited. Air rifle cylinders, nevertheless, are safe if handled properly and periodically inspected.</i>
6.2 Inserting Cylinders	When screwing pre-compressed air cylinders into air rifles, care must be taken to only hand-tighten the cylinders. Removable replaceable CO ₂ cylinders require wrench tightening, but care must be taken to not over-torque them. When inserting cylinders, always stand to the side of the air rifle, never directly in line with the end of the cylinder.	<i>Do not use wrenches or tools to tighten or over-tighten the cylinders.</i>
6.3 Filling Cylinders	Cylinders must be filled from a larger, master tank. When attaching cylinders to the master tank by using an adapter, always stand to the side of the cylinder; do not allow its end or base to point at you or another person. Tighten the cylinder only tight enough to prevent any gas leakage.	<i>It is recommended that instructors or range officers refill air rifle cylinders. Be sure all personnel who refill air or CO₂ cylinders have been trained in proper procedures. These procedures are covered in Sec. IV of the JMJC course.</i>
6.4 Inspections	Manufacturers have established standards for the periodic inspection of older compressed air or CO ₂ cylinders. These inspection requirements must be followed.	<i>Check the air rifle owners manuals for inspection requirements.</i>
6.5 Refill Tanks	Scuba tanks used as refill tanks for compressed air rifles and the CO ₂ storage tanks used as refill tanks for CO ₂ cylinders must be securely fastened to a wall or other solid feature to prevent them from accidentally being tipped over.	<i>Compressed air and gas cylinders hold gas under very high pressure and can explode with dangerous force if accidentally knocked over.</i>

