

COMPRESSED AIR/CO₂ SAFETY

Handling of compressed air and CO₂, just like the handling of guns, requires training and adult supervision. The amount of energy stored in a typical Self Contained Underwater Breathing Apparatus (SCUBA) tank is enough to lift a 20-ton truck off the ground! Without adequate training and appropriate supervision, shooters can become complacent in their use of compressed gas. As we know from the first lesson on safety, when people become careless or don't know the proper precautions, that's when accidents happen.

For our discussion below, a tank is the large bulk source, and the cylinder is the storage vessel that is mounted on the gun. Make sure all tanks are inspected and certified in accordance with industry standards. Never allow untrained individuals to operate SCUBA air or CO₂ tanks. Check cylinders for damage and undue wear. Remove them from service if you suspect that they are damaged.

Dive shops that refill SCUBA tanks fill them to a pressure of 200 bar (about 2900 psi). Yes, you can get 300 bar (about 4350 psi) air. This system is more commonly found in fire department Self Contained Breathing Apparatus (SCBA). You will get fewer shots than if you use a 300 bar system, but many compressed air gun cylinders are only rated for 200 bar, and those guns that are certified to use 300 bar air work just fine when using 200 bar refills. Therefore, you should use a 200 bar SCUBA air system for compressed air. It just makes it easier and safer for all concerned.

Definitions

psi—pounds per square inch, a more common unit of pressure. Most car tires are inflated to about 32 psi.

bar—a unit of pressure. One bar equals 14.504 psi.

K-valve—this is the most common type of SCUBA valve in the US, rated for 3000 pounds per square inch (psi), using a D-shaped yoke to clamp over the valve head. Unfortunately, all the European air guns use a different type of fitting called DIN.

Yoke—a D-shaped clamp that interfaces between a K-valve and an air gun cylinder adapter.

DIN fitting—these are the European SCUBA fittings, as opposed to the American system referred to as yokes and K-valves. “DIN” is a German acronym for *Deutsches Institut für Normung*, a body that sets standards. It is similar to the CGA (Compressed Gas Association) in the United States.

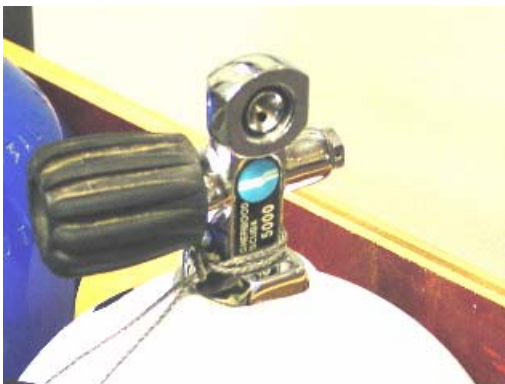
200 DIN fitting—a SCUBA connection fitting rated for 200 bar (or 2900 psi). It is the

most common type of DIN fitting used by air gun manufacturers. It is the LEAST common available in U.S. dive shops.

300 DIN fitting—these are more common in the U.S. diving industry, although still not common in comparison to K-valves. These are rated for 300 bar of pressure (4350 psi). Because of the higher pressures involved, the 300 DIN “fill side” (the female threads on the tank) will not seal to 200 DIN adapters.

Safety Guidelines for Using Compressed Air

- SCUBA tanks should be set up for 200 DIN and only filled at certified dive shops.
- Air tanks should be secured to a wall or cart to prevent tipping over. Damage to a valve system could result in a dangerous missile! A full tank contains about 80 cubic feet of air at 3,000 psi.
- When transporting air tanks, secure them to prevent damage to valve system or tank body in case of sudden stops or direction changes.
- Never use petroleum-based solvents or lubricants anywhere near airflow connections, *e.g.*, valves, cylinder connection points, or breach of the air gun.
- Never carry air tanks on your shoulder.
- If the SCUBA tank is equipped with a K-valve, a specially designed D-shaped yoke must be used.



SCUBA tank with K-valve



D-yoke with air cylinder adapter

AIR GUN SHOOTING SPORTS SAFETY GUIDE



D-yoke and adapter installed on a SCUBA tank with a K-valve



Filling Compressed Air Gun Cylinders

- Check that brass adapter and air tank valve assembly are compatible (200 DIN).
- Inspect threads on the cylinder, tank valve, and adapters for burrs, dirt, oil, etc. Either clean or do not use them.
- Most cylinders are designed for hand tightening only. Using a wrench/pliers may damage the cylinder or adapter.
- Follow ALL manufacturers' current guidelines for filling cylinders. Example:



- Screw the adapter onto the tank.

- Screw the compressed air cylinder onto the adapter.



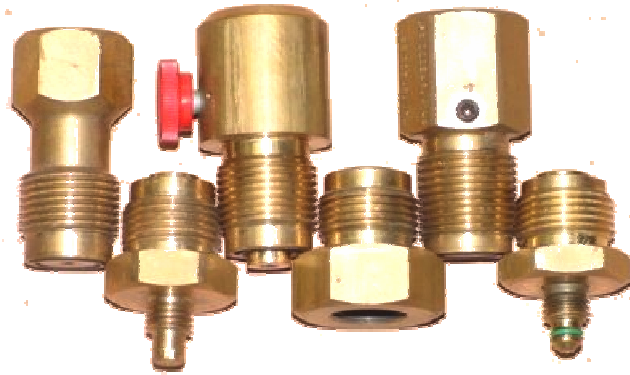
- Open the valve of the tank very slowly.
- Close the valve of the air tank after about 30 seconds for air rifle cylinders to allow the cylinder to cool and the pressure to equilibrate.



- Release blow-off valve.



- Remove the cylinder and hand-tighten it on the gun.
- Once the cylinder is safely attached to air tank valve system, **SLOWLY** open tank valve and fill cylinder. If opened quickly, the increase of pressure in the cylinder will generate a lot of heat, which will lead to premature failure of the rubber O-rings and cylinder wall. If you hold the air cylinder in one hand and open the tank valve with the other, you can feel the cylinder get warm. Control the amount of air entering the cylinder.
- When filling, point the cylinder in a safe direction.
- Never look directly at the manometer (gauge) when filling.
- If the valve adapter is equipped with a small blow-off port, release air pressure after closing the main air tank valve, but before attempting to remove the cylinder.



Various manufacturer adapters.
Top row: 300 bar adapters.
Bottom row: 200 bar adapters.

Two-Tank Filling or Cascading

Many clubs and teams use a two-tank or cascading compressed air cylinders filling system. This allows shooters to get the most air pressure into their air cylinder without the club having to refill tanks as frequently. Make sure everyone follows all the safety guidelines for filling air cylinders. Unless a club has a special setup of several tanks, most two-tank filling is done following these steps:

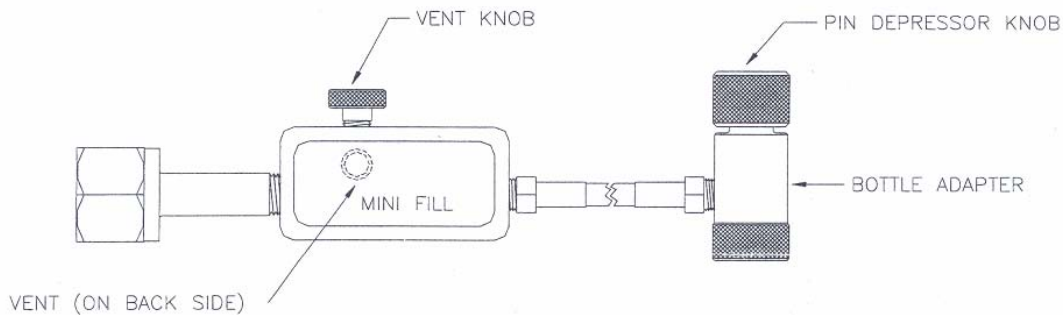
1. One tank will be identified as the “Fill” or “First” tank. This tank usually has a lower pressure than the other tank.
2. A second tank will be identified as the “Top-off” or “Second” tank. This tank should contain higher pressure air than the fill tank.
3. Since the air cylinder from the gun is near empty, bulk fill the cylinder from the Fill tank. This is strictly a volume fill and the shooter should not be too concerned how high the air pressure reads on the manometer.
4. Connect the cylinder to the Top-off or second tank and allow air from the tank into the cylinder. This fill is not a large volume of air, but rather for increasing air pressure.
5. The air cylinder is now ready to be attached to the gun.

When the first tank gets too low it can be refilled and become the Top-off tank, while the second tank becomes the Fill tank. This method of filling air cylinders and rotation allows a club to get the best use of tanks and the most air out of tanks.

Safety Guidelines for Using Carbon Dioxide (CO₂)

- At room temperature (70°F), a CO₂ tank with liquid in the tank is at 855 psi.
- The pressure of CO₂ varies depending on temperature (at 60°F = 750 psi, at 90°F = 1100 psi)
- CO₂ tanks should be stored in a ventilated area.
- Transfer valve assemblies should be inspected regularly. Tanks should have a standard CGA 320 fitting on the input side. Tanks and cylinders should be inspected regularly for external corrosion, dents, cuts, gouges, bulges, and thread damage.
- Every CO₂ filling station should have a small scale to weigh each cylinder.
- CO₂ tanks should be secured to a wall or cart to prevent tipping over. Damage to a valve system could result in a dangerous missile!

- When transporting CO₂ tanks, they should be secured to prevent damage to the valve system or tank body in case of sudden stops or direction changes.
- CO₂ can cause severe frostbite and protective gloves should be worn when filling CO₂ cylinders.
- CO₂ is filled by weight and not pressure. CO₂, when compressed, is a liquid. As long as there is liquid CO₂ in a tank or cylinder, the same pressure of gas is given off. Know the weight of an empty cylinder and a full cylinder. [For example: Daisy 888 CO₂ tank weight empty = 402.5 grams (14.2 oz.), full = 473.5 grams (16.7 oz)]. The weight may be stamped by the manufacturer on the cylinder body.
- Never use petroleum-based solvents or lubricants anywhere near connections, *e.g.*, valves, cylinder connection points, or breach of the air gun.
- CO₂ tanks will either be a siphon-type or gas supply type (most common type).
 - Gas supply type tanks must be inverted to properly fill air gun CO₂ cylinders. Invert the tank using a safe inverting rack.
 - Siphon or dip tube type tanks must remain upright to fill properly. When refilling Siphon tanks, make certain you tell the vendor that your tank has an internal eductor tube.



Filling CO₂ Cylinders

- Check that the adapter and CO₂ tank valve assembly are compatible (standard connection CGA320). Make sure a sealing washer is also used.
- Inspect threads on the cylinder, tank valve, and adapters for burrs, dirt, oil, etc. Either clean or do not use them.
- Most cylinders are designed for hand tightening only. Using a wrench or pliers may damage the cylinder or adapter.
- Always wear eye protection to protect eyes from venting gas and gloves to protect hands from extreme cold.
- If possible, chill cylinder in a freezer or ice cooler for at least 10 minutes before filling. If that is not possible, chill the cylinder using the gas chilling method (see note on gas chilling below).



AIR GUN SHOOTING SPORTS SAFETY GUIDE

- Attach the cylinder to the fill adapter. Once the cylinder is attached, turn the pin depressor knob (also called the blow-down valve) clockwise to depress the pin that opens the cylinder valve.



- Vent cylinder by opening the vent knob until no more gas comes out.



- Close vent knob.

- Slowly open tank valve.



- When the frost (ice) disappears from the cylinder, close the tank valve. This usually takes about ten seconds for the system to equilibrate.

- Turn the pin depressor knob on the bottle adapter counterclockwise to allow the pin valve in the cylinder to close.



- Vent any CO₂ in hose lines by opening the vent knob, and then disconnect cylinder from the CO₂ valve assembly.



- Never store CO₂ cylinders where they would be exposed to high temperatures (over 80 F).
- After filling, make certain that it contains the correct amount of liquid CO₂. If it weighs too much, bleed-off some CO₂ until it weighs the correct amount.



Gas chilling the Cylinder

If you cannot cool the cylinder in a freezer, or if you need to fill it immediately without waiting the appropriate time to cool the cylinder for efficient transfer of gas from the tank to the cylinder, you can gas chill the cylinder by rapidly releasing some of the contained

AIR GUN SHOOTING SPORTS SAFETY GUIDE

gas. This action has the effect of cooling the cylinder. Be extremely careful and wear appropriate protective gloves when releasing the gas. The temperature of the cylinder can drop to well below 0°F in only a few seconds. Frostbite can result!

1. Attach the cylinder to the fill adapter. Once the cylinder is attached, turn the pin depressor knob (also called the blow-down valve) clockwise to depress the pin that opens the cylinder valve.
2. Vent cylinder by opening the vent knob until no more gas comes out.
3. Close vent knob.
4. Open tank valve and allow liquid to transfer for a few seconds,
5. Close tank valve and then open pin depressor knob valve quickly.
6. Usually one cycle will chill the cylinder sufficiently to allow efficient transfer of liquid CO₂ from the tank to the cylinder.

References:

- Pilkington Competition Equipment—Article: *A Guide to Compressed Air Usage* – <http://www.pilkguns.com/scuba.htm>.
- Compasseco Inc.—Article: *Warning about Compressed Air Guns* <http://www.compassco.com/technical.html>.
- PADI Americas, 30151 Tomas Street, Rancho Santa Margarita, CA 92688-2125 <http://www.padi.com/english/default.asp?o=am>.
- Compressed Gas Association, Inc. 4221 Walney Road, 5th Floor, Chantilly, VA 20151, phone (703)-788-2700—Publication: CGA G-6.8---2004, *Transfilling and Safe Handling of Small Carbon Dioxide Cylinders, First Edition*.
- Pilkington Competition Equipment—Article: *Shooting CO₂ Match Pistols*—<http://www.pilkguns.com/coach/co2.htm>.
- Daisy Outdoor Products, Rogers, AR.

Internet sources valid as of November 15, 2005

SAFE RANGE CONSTRUCTION AND OPERATION

Constructing an Air Gun Range

Some things to consider when constructing an air gun range are discussed below:

Location

Safety is the primary consideration when establishing a site for any shooting sports activity. Any air gun range, either formal or informal, should provide sufficient space for the activities planned or anticipated, have controlled and limited access, and be located away from regular activity areas.

On indoor ranges, ensure that any door or access forward of the firing line is blocked and posted with warning signs and alternate points of entry. Cover any windows. Make certain no one can approach the range between the firing line and the target line, or from the downrange area around or over the backstop/impact area. Ensure that no one can wander into the area without meeting warning signs or safety barriers alerting them to the danger zone—the more warnings, the better.

Access to the range should be limited to one controlled point of entry.

Distance requirements

Ten-meter air rifle ranges need 10 meters (32 feet, 9¾ inches) from the edge of the firing line closest to the shooter to the target line. Additional space must be allocated behind the firing line for the firing points and a walkway. Additional space will also be necessary behind the target line for the primary backstop (and secondary backstop, if needed).

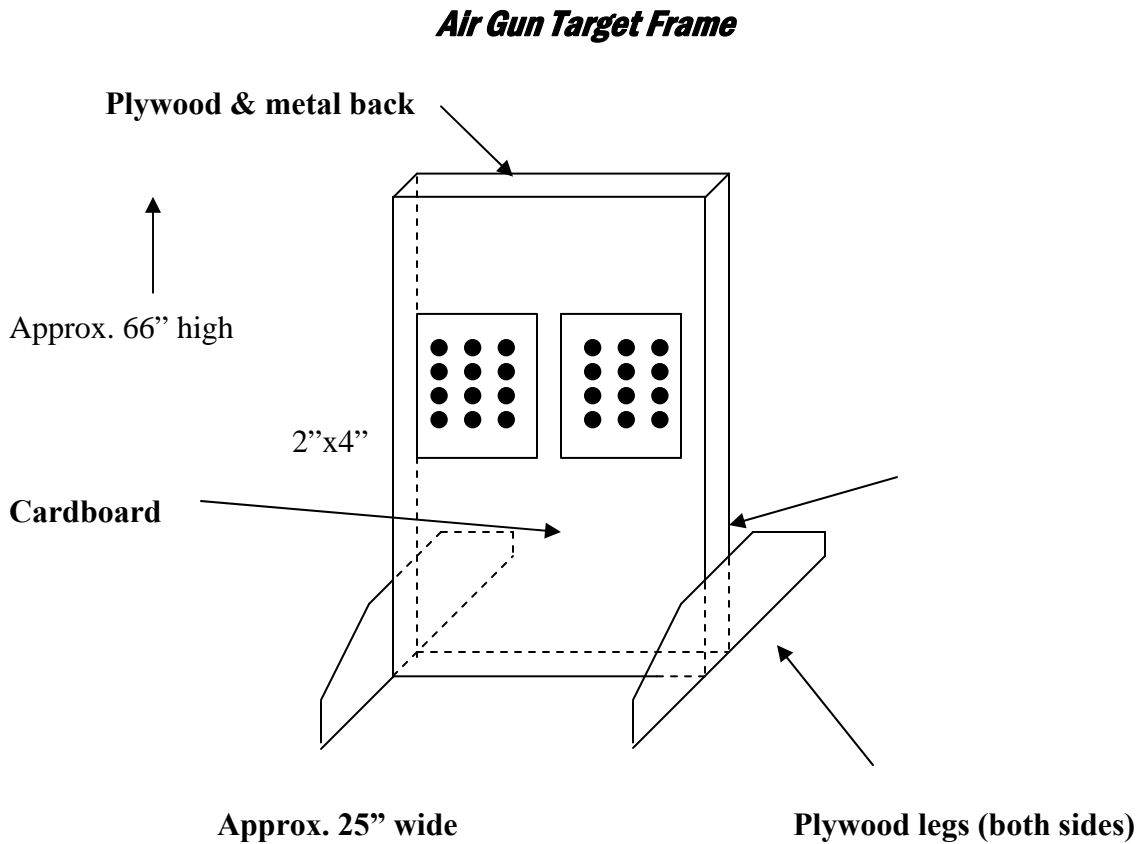
Backstops

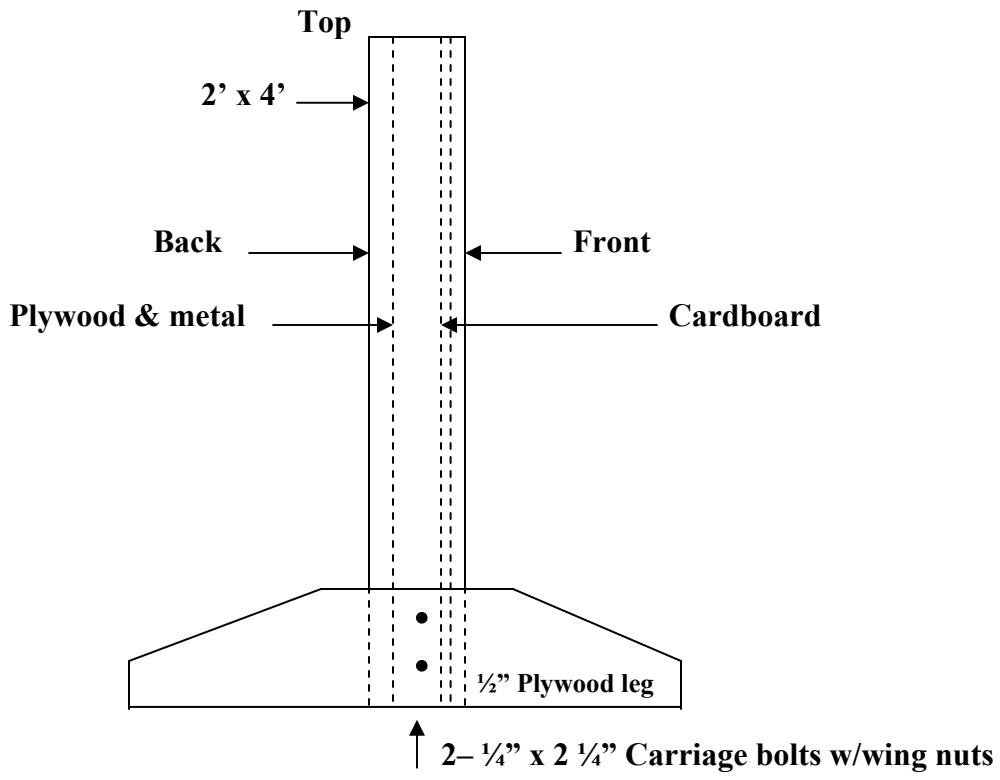
The primary backstop for air gun shooting needs to stop the pellet, hold the target, and be durable. The quickest way to set up an air gun range is to use commercially available pellet traps. They are lightweight, easy to use, and capture the fired pellets inside the trap for easy cleanup. Pellet traps can be placed on top of a stack of milk crates or lightweight wooden boxes for quick and easy target height adjustments.

AIR GUN SHOOTING SPORTS SAFETY GUIDE

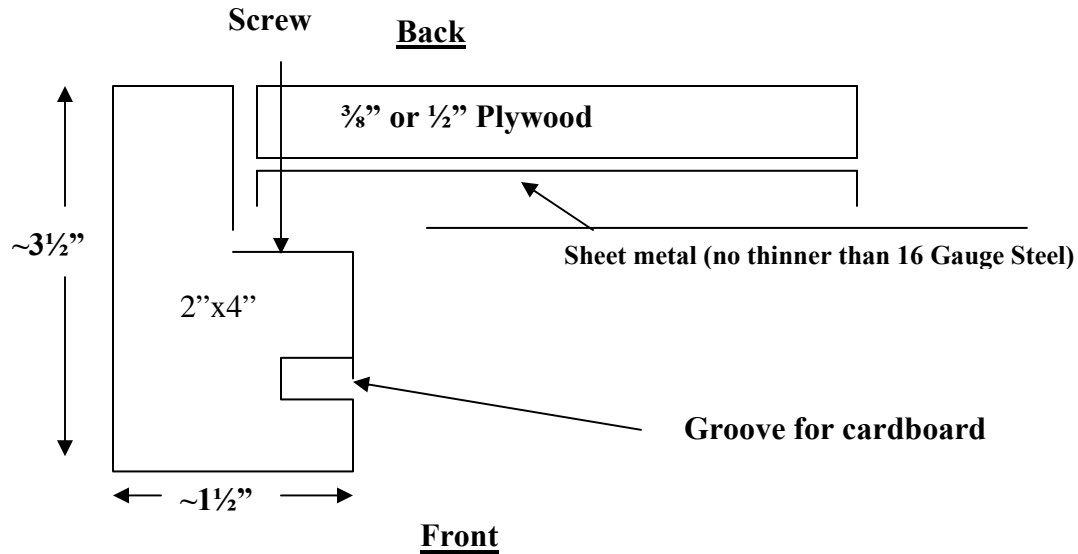
Metal pellet traps can also be purchased as part of a target retrieval system using single bull targets. While they eliminate the need for shooters to go downrange and change targets, they require a fixed mounting position on the wall, thus sacrificing flexibility in target height adjustment.

Target frames should be wide enough to mount two targets side-by-side.





AIR GUN SHOOTING SPORTS SAFETY GUIDE



A secondary backstop may be required to further protect areas, walls, or buildings against pellets that miss the primary backstop. The secondary backstop can be constructed by hanging tarpaulin, canvas, carpet, or multiple layers of strong cloth behind the pellet traps. Take care to ensure that the material hangs loosely so the energy of the pellet is absorbed instead of bouncing back toward the firing line.

Single shot target changers/pellet catchers

Air pistols require a very similar range as air rifles. Distance requirements, backstops, and traps are the same. Because many shooters use single bull air pistol targets (B-40) a smaller trap area can be used once the shooter has become proficient with the air pistol. The air gun target frame shown on pages 45-47 can be used for air pistol targets and can accommodate two rows of 3 B-40 targets. Many ranges with a primary use of air pistol will use single bull target carrier systems such as the one pictured below. Other ranges use a simple metal pellet trap.



In normal international style competition, the target is placed so that the center of the target is 1.4 meters (about 55 inches) off the floor. A table or bench should also be

provided at the firing line. A table between 2.3 ft to 2.6 ft tall and wide enough to hold the shooter's equipment is ideal. At least one meter (39.4 inches) wide firing point should be allowed for each shooter.

If you are participating in the Progressive Position Pistol Program, the seated positions should have targets placed at 36 inches above the floor. The standing positions would use the 55-inch height for the target. Range commands are the same for Air Rifle as Air Pistol. Time limits are at least 1.5 minutes per record shot with all sighting shots taken before the first record shot. **Special care must be taken by the shooters and range officers during the firing process to make sure that the pistol muzzles are always pointed in a safe direction.**

The strength required to cock a spring piston or single/multi-pump pistol may be more than a young shooter can handle easily and may lead to the pistol being pointed in an unsafe direction as the shooter struggles to cock it. The coach/range staff must be ever vigilant for these unsafe actions and identify those shooters who will need adult help in cocking the pistol or provide the shooter with a PCP/CO2 pistol that does not require the large cocking force to use.

Traffic Patterns

Efficient ranges are designed with efficient traffic patterns that complete a flow from entry to exit without retracing steps.

The firing line is a distinct two- or three-inch wide line (either painted or tape) established across the range, encompassing all of the firing points.

Firing Points

The number of firing points in a given area will be defined by the amount of space you want to have for each firing point. Firing points should be sized to hold the shooter in the various shooting positions, his or her equipment, and the instructor or coach. Four feet wide and six feet long is ideal. In order to have a few more firing points in a given space, some rulebooks for competitive shooting allow a width of 40 inches.

Walkway

Immediately behind the firing points, there should be a walkway to accommodate instructors and range personnel when firing is in progress.

Ready Line/Ready Area

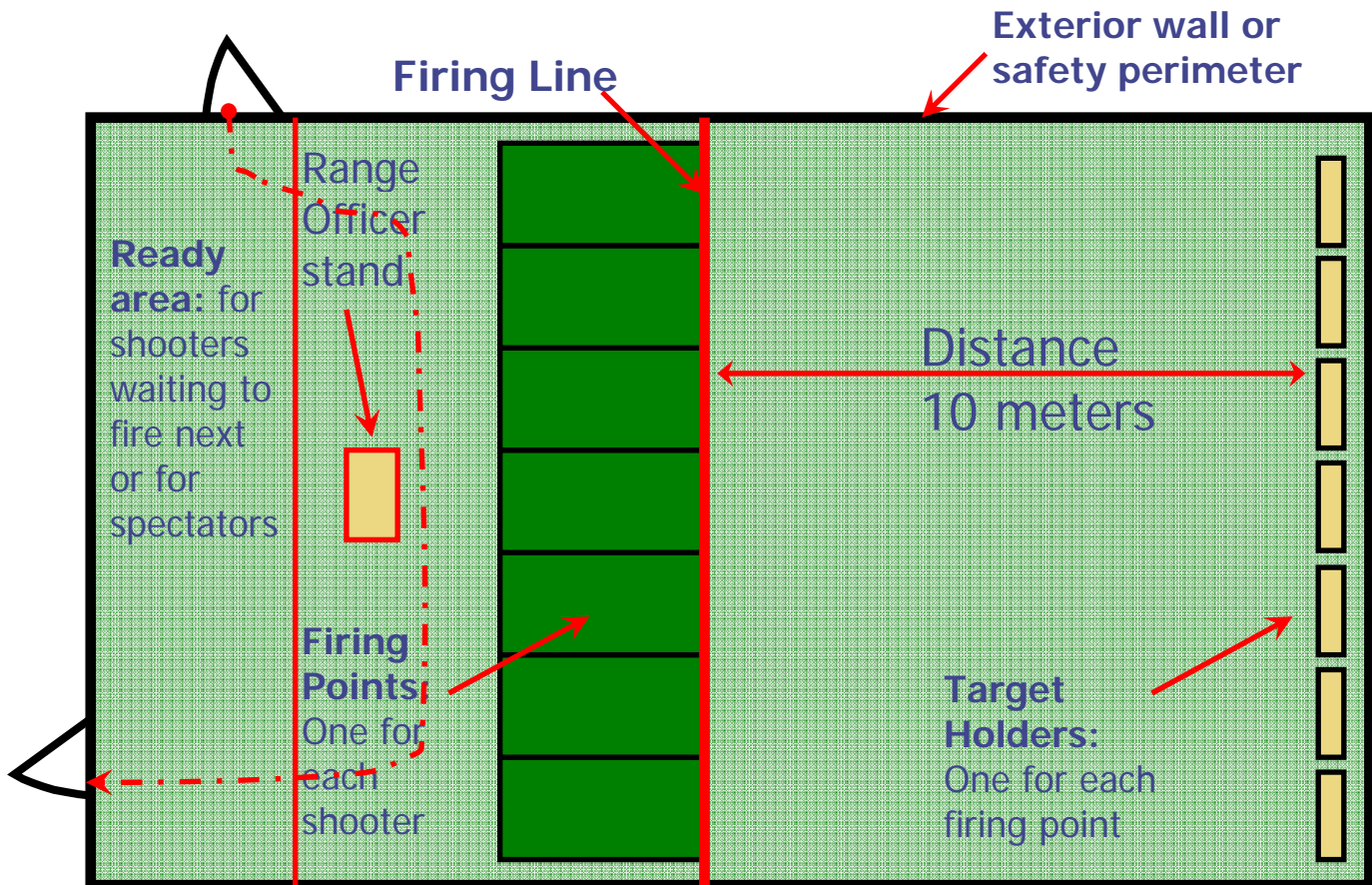
The ready line is an established line located approximately six to eight feet behind the firing points. This distance is arbitrary, but represents ample room to maintain a non-congested thoroughfare behind the firing points. The immediate area behind the ready

AIR GUN SHOOTING SPORTS SAFETY GUIDE

line is designated the ready area. The ready area is designed to keep non-firing personnel away from the firing line while they wait their turn to shoot.

Spectator Area

The spectator area is a designated space away from the main traffic thoroughfare that is reserved for guests and spectators visiting the range. If space is limited, spectators can share the ready area with the waiting shooters.



Firing Point and Target Identification

Each firing point and corresponding target should be clearly identified to keep accidental cross-firing to a minimum. Large number boards with contrasting colors are customary. For example, black numbers on white background and then white numbers on black background.

Lighting

Even illumination across the target line is required. There are several options available to accomplish this lighting depending on your budget and the type of target system in use.

Range Officer

A range officer is the person in charge of firing on every range. All commands and instructions given by the range officer must be obeyed. Range officers must check all rifles brought onto the range to make certain that the actions are open and the guns are unloaded. Likewise, when shooting is finished, range officers must check rifles to be sure that the guns are again unloaded and the actions are open before anyone moves forward of the firing line or rifles are removed from the range. The range officer should be a different person than the coach. When a coach is working with a shooter, all of his or her attention is focused on the shooter, not the rest of the range. Assign a responsible person (who may be a shooter on another relay) to be the range officer. Their only responsibility must be the safe conduct of the range. Line officers are the assistants to the range officer on large ranges. The most targets that a line officer would be responsible for is 10.

A range checklist can be found at Appendix 1.

Range Commands

Be sure you know the range commands that you use on your range, and train your shooters so they understand exactly what each command means. The common range commands used today have developed over a century of both military and civilian shooting. They are relatively simple, but there are a few hard and fast rules concerning actions taken by the shooter and the commands given by the range officer. No shooter may load a rifle until after the command “**Load**” or “**Start**” is given. No shooting may begin until after the command “**Start!**” or “**Commence Firing!**” is given. When the command “**Stop!**” or “**Cease Firing!**” is given, the rifle must be taken down immediately and the action opened. No further attempt to fire a shot is to be made. If a pellet remains in the rifle, or if the rifle is charged with air or CO₂, the shooter will immediately notify the range officer who will determine how best to unload the gun or make it safe.

Loading

All rifles must remain pointed downrange or up toward the ceiling whenever the rifle is cocked and loaded. **Special care must be taken during cocking and loading to ensure that the rifle muzzle is always pointed in a safe direction and never pointed at a neighboring shooter or behind the firing line.**

Going Downrange

Before anyone goes downrange to hang or retrieve targets, or for any other purpose, all rifles must be in Condition 2 or equivalent and laid on the floor or shooting bench. No one may go downrange until authorized by the range officer after ensuring the guns are unloaded and actions are open. Rifles must never be handled if anyone is downrange. Allow equal time for preparation for all relays, especially when running ranges for

AIR GUN SHOOTING SPORTS SAFETY GUIDE

competition. Usually the first relay gets the opportunity to get ready at a more relaxed pace than subsequent relays.

Command	Meaning or Action
“Relay No. ___, Match No. ___ (or naming the match), on the firing line.”	Shooters are to move to their firing points. Rifles may be handled.
“The preparation period starts now.”	Shooters may occupy their firing points, prepare, and dry fire at the targets. This period generally lasts three minutes for competition shooting. Rifles may be handled.
“The preparation period has ended.”	The end of the preparation period.
“Is the line ready?”	Is announced by the Range Officer so that a shooter who experiences a problem may raise an arm and call “Not ready on target ___” (In the event of a “not ready” signal, the Range Officer would announce “The line is not ready,” investigate and assist the shooter, or remove the shooter from the firing line.)
“The line is ready.”	Is announced when the Range Officer observes that the line is ready, or after a difficulty has been corrected.
“Load.”	Shooters are allowed to load the rifle and prepare for the shooting event.
“Commence firing!” or “Start!”	Is announced after “Load” and informs shooters that they may begin shooting. This command is usually signaled verbally, but may also be signaled by a whistle or horn blast, or by moving the targets into view.
“Cease firing!” or “Stop!”	Is announced by the Range Officer when time expires or at any other time that firing is to cease. The Range Officer notifies shooters to stop firing immediately, remain in position, and await further instructions. “Cease firing!” or “Stop!” may be signaled verbally, by a whistle or horn blast, or by moving the targets out of view. Additional commands to unload, open the action, and bench or ground the air rifle may follow. During range safety briefings, the Range Officer should emphasize that “Cease firing!” or “Stop!” can be announced by anyone observing an unsafe condition.

“Unload!” “Make the line safe”	Directs the shooter to unload the air rifle and to ensure the rifle is in a safe.
“Is the line clear on the right?”; “Is the line clear on the left?”	Signals that the Range Officer or the line officers check that all air rifles are unloaded with the actions open and chambers empty. Upon verifying (or receiving signals) that all air rifles are unloaded, the Range Officer announces: “The line is clear!” Additional commands may follow.
“Go forward, and change targets” or “Go forward, and retrieve targets.”	Shooters must go forward of the line to change targets. The Range Officer ensures all air rifles are unloaded and grounded or benched before allowing anyone to go forward of the firing line. While shooters are changing targets, no air rifles are handled. When all shooters have returned and no personnel are downrange, the Range Officer states: “Range is clear, you may handle your rifles.” This statement informs shooters that they may prepare for the next course of fire or get ready to depart the firing line.
“Move out of position and remove your equipment from the firing line.”	Authorizes shooters to remove their gear from the firing line.
“Police your firing point.”	Shooters should clean their firing points of discarded items and place them in the appropriate containers. The Range Officer and shooters must follow the SOPs because indoor ranges often have specific policies on handling pellets and cleaning firing points.
Other Range Commands	
“Ready on the right!”...“Ready on the left!”...“Ready on the firing line!”	On large ranges, you may need to check both halves of the range. This sequence of preparatory commands, announced by the Range Officer with a three-second interval between commands, gives shooters their last chance to signal “Not ready.” “Ready on the firing line!” means that the range is ready.
“As you were.”	Disregard the command just given.
“Carry on.”	Proceed with whatever was being done before an interruption occurred.

AIR GUN SHOOTING SPORTS SAFETY GUIDE

LEAD CONTAMINATION

Personal Hygiene During and After Shooting

Although there have only been a few authenticated cases of lead poisoning from air rifle firing, all air rifle marksmen should take precautions to reduce any potential for lead contamination. Firearms that use cartridges generate most of the lead contamination found on shooting ranges as a result of burning propellants and primers. Obviously, this is not a consideration in the air gun disciplines. However, each time someone handles pellets, a small trace of lead is left on their hands and can be transferred to other parts of their body or to food. Over time, this contact could increase lead levels in the body. It is therefore recommended that hands be washed thoroughly with cold water and soap following any contact with pellets. A Range Officer, who spends more time on the range may be more susceptible to increased blood lead levels and need to be monitored periodically.

Tell shooters and spectators to wash with cold water after leaving the range/cleaning area before eating, drinking and etc. The use of cold water minimizes the possibility of lead compounds entering the skin through enlarged pores that warm or hot water might cause.

Hygiene guidelines are intended to minimize users' exposure to airborne particulate lead and cleaning product residues. Everybody should follow these guidelines at the range or cleaning area, even if he or she did not participate in the shooting session. Range Officers should inform/remind range users of these guidelines prior to and immediately after occupying the range or cleaning area.

Airborne particulates landing on your skin will transmit only minute amounts of foreign substances into your blood stream. The areas of the body that let in the most germs and foreign substances are the nose and mouth. The foreign substances in larger amounts are transmitted to the face by the hand that contacted contaminated surfaces. That is why refraining from eating, drinking, smoking, applying makeup, or placing your hands in proximity to your mouth or nose while on the range or cleaning guns is highly recommended.

In addition to following the hygiene guidelines, range users should read and follow manufacturers' guidelines when using cleaning products. Manufacturers of cleaning products often suggest using eye protection, avoiding contact with the skin, and using

AIR GUN SHOOTING SPORTS SAFETY GUIDE

well-ventilated areas. Shooters should always follow the directions specified on their cleaning products.

Pregnant women should follow their physician's guidance concerning exposure to lead and their presence on shooting ranges. Likewise, parents of children under age seven should follow their pediatrician's guidance concerning their children's presence on shooting ranges. Physicians may have concerns about exposure to airborne particulate lead and other factors in young children.

Disposal of Lead

Spent pellets may be regarded as hazardous waste depending upon your location, and must be disposed of in accordance with local regulations.

Generally speaking, airborne lead particulate is created when the primer and powder in the shell of a powder firearm is ignited. Further, when the lead bullet from a powder firearm strikes the bullet trap, some particulate can become airborne. Ranges where powder firearms are used employ an air ventilation system that moves the particulate downrange, away from the shooter and through a filtering system that removes the particulate from the air.

Since air guns do not use powders or primers to propel pellets and the pellets strike the traps with much lower energy than do powder-driven firearm bullets, the concern for airborne lead particulate is not a concern. Pellets do create some lead pieces of varying sizes, and periodic cleaning of traps and floor areas at the backstop require either wet vacuum or a damping of materials before removal. Gloves should be worn during cleanup and transfer of spent pellets from the traps to a larger storage container with a lid.

Pellets recovered from the traps are recyclable. Local recyclers will generally purchase the lead scrap. Handloaders in your local area may also be interested in your lead scrap. They can melt it down to cast bullets for muzzleloading guns. Contact them for specific requirements.

Pellet trap maintenance is a simple but important task. Set up a checklist that includes emptying and cleaning the traps and cleaning the floors in the backstop area on a regular basis. How often you clean depends mostly upon the amount of use the range receives. As part of your inspection process, you should determine when cleaning is needed.

OVERVIEW OF ADDITIONAL TRAINING OPPORTUNITIES

The NRA

The NRA developed this guide.

The NRA conducts training through a team of more than 50,000 NRA Certified Instructors and Coaches nationwide.

Programs

What other programs are available for shooter and leader development?

NRA Basic Firearm Training Programs are available for a myriad of interests, including rifle, pistol, shotgun, and muzzleloading firearms, personal protection, reloading ammunition, and Home Firearm Safety, as well as Range Safety Officer. Contact (703) 267-1496.

NRA Certified Instructor and Training Counselor training. NRA Instructors are experienced shooters who wish to share their knowledge and skills with others. If you are interested in becoming an instructor, contact training@nrahq.org or (703)-267-1428.

Training Counselors are experienced instructors who are appointed to train new instructors. To become a training counselor, contact trainingcounselor@nrahq.org or (703) 267-1422.

NRA Coaches train shooters to participate in competitive shooting programs. If you are interested in becoming a Coach contact coaching@nrahq.org or (703) 267-1401.

NRA Range Safety Officer. If you are interested in becoming an NRA Range Safety Officer, contact

AIR GUN SHOOTING SPORTS SAFETY GUIDE

training@nrahq.org or (703) 267-1428.

Youth programs and activities, including the NRA Marksmanship Qualification Program, Youth Hunter Education Challenge, air gun events, NRA Youth SportsFests, and cooperative youth programs which include 4-H, Boy Scouts of America, American Legion, VFW, Royal Rangers, and FFA. Contact *youth_programs@nrahq.org* or (703) 267-1505.

Organized competitions in every state, including NCAA tournaments, club, high school leagues, and the National Matches held annually at Camp Perry, Ohio. Contact *tournops@nrahq.org* or (703) 267-1459.

The NRA Foundation, which supports grants for education, training, recreational land use, and habitat protection. For more information on the NRA Foundation, visit www.nrafoundation.org, or contact *nraf@nrahq.org* or (800) 423-6894

Like no other institution, the National Firearms Museum, located at NRA headquarters in Fairfax, Virginia, proudly illustrates America's priceless heritage of firearms, freedom, and the American experience. Through its many galleries are the actual artifacts that were with the Pilgrims as they left the good ship *Mayflower*, marched with the American militiamen at Lexington and Concord, camped near Gettysburg with Robert E. Lee, helped a young Annie Oakley put food on her family's table, or stood on the winner's platform at the Olympic Games. The tapestry of America has been woven by people, places, and things, and so in the National Firearms Museum, each of the threads of the past bears a familiar name like Beretta, Browning, Colt, Marlin, Remington, Ruger, Savage, and Winchester. For more information on the museum, visit <http://nra.nationalfirearms.museum/>

Youth Education Summit, which brings high school students to Washington, D.C., to learn about the operation of the U.S. government and to meet with members of Congress. For more information, contact (703) 267-1345.

Technical assistance and safety advice for new ranges

and for upgrading existing ones can be obtained by contacting rta@nrahq.org or (703) 267-1278.

And much more!

NRA Marksmanship Qualification Program

The NRA Marksmanship Qualification Program is a self-paced, honor-based program that does not require you to enter any formal matches or competitive events. But you can if you want to! Awards are available at the completion of each level. It is an excellent way to progress and challenge your shooter skills. Contact dconni@nrahq.org or (703) 267-1505

Find more information at:

<http://www.nrahq.org/education/training/marksmanship/index.asp>

A booklet is also available from NRA Program Materials Center, Phone 800-336-7402. Ask for item number EQ 09525

Excellent Performance Awards

NRA Excellent Performance Awards offer competitive shooters incentives to develop their skills in competition using various courses of fire for Sporter Air Rifle, Precision Air Rifle, and International Air Rifle. The EPA program is the logical extension of the popular NRA Qualification Awards programs that has been around since the early 1920s. The EPA is a program that shooters can use as a reward for developing their competitive shooting skills.

The Excellent Performance Awards are open to all shooters. The EPA program offers six very nice looking pins (Small Bronze through the Large Gold) to shooters as they complete the requirements for each of the six levels. Qualifying scores for these awards must be fired during competition under appropriate rules as defined in the competition program. Any NRA trainer or competition official can verify qualifying scores. Only competition scores fired in competition or in a sanctioned league may be used. Scores fired for one award may not

be used for another.

All program brochures and pins are ordered directly through NRA National Coach Trainer at coaching@nrahq.org or (703) 267-1401.

Postal Match Shooting Activities

NRA Junior Air Rifle 3-Position Indoor Postal Match

Conducted annually, September 1 through May 5. Open to all junior shooters. The option of Sporter or Precision Air Rifle is offered in this match. The course of fire is 30 shots. This match is an individual and team event. Each competitor must enter as an individual, and the team match is an unfired match generated by the fired scores of four participating individuals.

NRA National JROTC SPORTER Air Rifle Postal Match:

Conducted annually, August through February. This match is open to all members of a JROTC team. Only sporter air rifles may be used. Choice of course of fire is 30 shots for 3-position or 40 shots for 4-position. This match is an individual and team event. Each competitor must enter as an individual, and the team will consist of four shooters.

NRA National JROTC PRECISION Air Rifle Postal Match:

Conducted annually, August through February. This match is open to all members of a JROTC team. Only precision air rifles may be used. Course of fire is 30 shots for 3-position. This match is an individual and team event. Each competitor must enter as an individual, and the team will consist of four shooters.

For postal match information, contact postals@nrahq.org or (703) 267-1482.

NRA-affiliated clubs

NRA-affiliated clubs are an excellent resource for a wide variety of skill-enhancing opportunities. Many offer the opportunity to practice at your own pace, as well as a

myriad of sport shooting and training activities.

Visit local clubs and become an active member of at least one club, or start your own! Call (800)NRA-CLUB

Competitive shooting events

There are various types of air rifle shooting competitions, including NRA Sporter Air Rifle Shooting and NRA Precision Air Rifle Shooting. There is also the International style of air rifle tournaments (shot all standing). Sectional Matches, from which scores are combined into a National Indoor Championship, are also an option.

The NRA conducts an annual National Air Gun Championship and Training Summit at changing locations around the country in the summer. This match draws hundreds of air gun shooters from across the country. Be part of it! Contact *rifle@nrahq.org* or (703) 267-1477.

Other Shooting Organizations

USA Shooting is the National Governing Body for the Olympic and international shooting sports in the United States. Find out more about USA Shooting online at *www.usashooting.org*

Civilian Marksmanship Program (CMP) is a federally chartered not-for-profit corporation whose mission is to train U.S. citizens in marksmanship and firearm safety with an emphasis on youth. Visit CMP online at *www.odcmp.com*

Both organizations are involved in air gun shooting, sponsoring both matches and training.

APPENDIX 1

Air Gun Range Inspection Checklist

Inspected by _____ Date _____

	Yes	No
Controlled access door closed	_____	_____
Windows or walls covered	_____	_____
Backstop/impact area inspected	_____	_____
Number boards painted and visible	_____	_____
Target frames/mounts in good repair	_____	_____
Firing line marked	_____	_____
Firing points numbered/clean	_____	_____
Shooting benches/tables inspected	_____	_____
Sandbags/gun rests on hand	_____	_____
Ready line/area marked	_____	_____
Spectator area designated	_____	_____
Scoring area established	_____	_____
Supplies available	_____	_____
Range officer control area centralized	_____	_____
Emergency communications working	_____	_____
First-aid kit filled/accessible	_____	_____
PA system/bullhorn working	_____	_____
Range rules posted	_____	_____
Bulletin board hung	_____	_____
Gun racks available	_____	_____
CO ₂ and compressed air refill station ready	_____	_____
Empty trash receptacles available	_____	_____
Wash area identified	_____	_____
Lockable storage	_____	_____
Lights	_____	_____

Comments:

APPENDIX 3

The following is a sample release from liability that dive shops may require in order to fill your compressed air tanks. Because of the many variances and nuances of state and local law, please consult with an attorney licensed to practice law in your jurisdiction to prepare a release similar to the one below.

Release from Liability

I certify that the compressed air purchased from _____
on _____, 20__ shall be used solely for the purpose of
charging pneumatic air guns and for no other purpose whatsoever
including but not limited to any breathing purposes.

I hereby release the business or individual(s) named above from any and
all liability arising from providing me with compressed air for this
purpose.

_____ Signature
_____ Printed Name
_____ Street Address
_____ City, State and Zip
_____ Date

Please Retain this Release for your Files



The **NRA** Foundation

*Teach Freedom.*TM

The NRA Coach Program
is made possible, in part, thanks to a
grant from the NRA Foundation and its generous donors.
Visit www.nrafoundation.org

For more information
National Rifle Association
Coach Education Program
11250 Waples Mill Road
Fairfax, VA 22030
(703) 267-1401
coaching@nrahq.org
www.nrahq.org

**To join NRA today or for additional information regarding
membership, please call (800) NRA-3888. Annual membership
dues can be charged to Visa, MasterCard, Discover and
American Express.**

