

**INSTRUCTION MANUAL FOR MUZZLE LOADING  
RIFLES, PISTOLS AND SHOTGUNS**

*- Edition 01.2021-*

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**INVESTARM MUZZLE LOADING FIREARMS ARE INTENDED ONLY FOR  
THE EXPERIENCED SHOOTER**

**INVESTARM MUZZLE LOADING FIREARMS MUST BE LOADED ONLY  
WITH BLACK POWDER**

**REPAIRS OF INVESTARM MUZZLE LOADING FIREARMS MUST BE DONE  
ONLY BY A INVESTARM AUTHORIZED SERVICE CENTER**

**THIS INSTRUCTION MANUAL CONTAIN IMPORTANT WARNINGS WHITH  
SHOULD BE UNDERSTOOD BEFORE USING THIS FIREARM**

**THIS INSTRUCTION MANUAL SHOULD ALWAYS ACCOMPANY THIS  
FIREARM AND BE TRANSFERRED WITH IT UPON CHANGE OF  
OWNERSHIP.**

**COPY OF THIS MANUAL IS AVAILABLE AT INVESTARM ON REQUEST, OR  
ON THE WEBSITE WWW.INVESTARM.IT**

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**INVSTARM SRL**

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## WARNINGS

1. All Investarm black powder rifles, shotguns and pistols are intended for use with black powder only. Use of any other propellant may cause serious injury to the shooter and damage to the firearm. Never use smokeless powder.
2. Guard against overcharges. Follow the instructions and do not exceed maximum charges stated in this instruction manual. Use an adjustable powder measure of non-sparking brass for a safe and accurate charge measurement. Don't use old or contaminated powder.
3. Remember to push one projectile only into the barrel. Be certain the projectile is seated firmly against the powder charge. Any gap between the projectile and powder charge could cause serious damage to the firearm and injury to the shooter. Hunters, in particular, should check the position of the projectile in the barrel at regular intervals when in the field.
4. Use only non-synthetic cloth patching of suitable thickness when loading Round-Ball. Do not use a cloth patch when loading Maxi-Ball or Minie-Ball.
5. Never charge a muzzleloader directly from a powder flask. A sudden powder ignition from a lingering spark could cause the entire flask to explode. Instead, use an individual charge from a powder measure when loading your gun.
6. Keep clear of the muzzle, particularly during loading.
7. Never smoke when handling black powder.
8. Before relying on the half-cock position, make sure the hammer will not fall when the trigger is pulled.
9. Wear safety glasses when shooting black powder firearms. Shatterproof shooting glasses will protect the eyes from sparks, broken percussion caps, hot gases, and lead fragments.
10. Protect your hearing. Use an ear plug or muff when firing any firearm.
11. While on the firing line, keep all black powder canisters closed.
12. Keep spectators to the rear of the shooter. Standing beside a muzzleloader is not safe enough. Flames, not gases and percussion cap fragments may fly from the side of the firearm causing injury.
13. If the gun misfires, keep the muzzle pointed down and wait for at least a minute before attempting to reprime it. There is always the chance a spark is smoldering in the powder charge and the gun could fire at any second.
14. Treat unprimed flintlocks as loaded weapons. Sometimes the spark of an unprimed flintlock can fire the gun.

15. Use a non-flammable material to hold the flint in place. Cloth, cardboard or canvas could hold a lingering spark which might set off the next priming charge unexpectedly.
16. Before each shooting session, check your black powder firearm carefully.
17. Black powder leaves heavy residues on all metal parts. Complete disassembly and cleaning is necessary after shooting.
18. Store black powder and percussion caps in separate locations. Use their original containers when possible. Caps are sensitive to static electricity, percussion, heat and flame. Powder is sensitive to static electricity, heat and flame. Check local fire regulations before storing black powder in the home.
19. Consult with a competent firearms instructor to clarify any instructions that you might not understand. Write to us if you are not clear on any matters relating to your rifle.
20. If you sell or give this Investarm black powder gun to someone else, give him this instruction manual too. Copies of this instruction manual are available from Investarm.
21. Treat every gun as though it were loaded.
22. Keep the gun's muzzle pointed in a safe direction.
23. Be certain of your target before firing.
24. Be certain of your backstop and never aim at hard, flat surfaces or water since ricochets will result.
25. Water or snow or mud or any other material can obstruct the barrel of your gun and cause barrel to be blown apart. Check the gun's barrel for obstructions before loading and shooting.
26. Never climb a tree or fence or wall while carrying a loaded gun. Never let a loaded gun rest against a tree, fence or wall.
27. Unload the gun when it is not being used.
28. Never drop a loaded gun. Never leave a loaded gun unattended.
29. Never bring a loaded gun into a house or boat or truck or car or r.v.
30. Don't "Horseplay" with any firearms. Guns can't think. You can.
31. Don't drink alcoholic beverages before or during shooting.
32. Use only pure soft lead balls. Other alloys will not travel freely through a barrel.
33. Be a safe shooter.

## **BLACK POWDER**

**Make no mistake about it, black powder is the only propellant powder that is safe to use in a muzzle loading firearm.**

The reason for using black powder and black powder only is quite basic and it is related to firearm design. When used as a propellant, black powder generates a relatively low breech pressure. Replica firearms, even with their modern steel barrels, are not designed to withstand the high pressures produced by modern smokeless powder.

Black powder is manufactured by mixing the proper proportions of Saltpeter, Charcoal, and Sulphur - but don't try making it!

The home manufacture of black powder can only lead to trouble with a capital "T". Charcoal (releases carbon dioxide gas when burning) and Sulphur (releases sulphur dioxide gas when burning) form the burning ingredients, while Saltpeter (potassium nitrate) supplies oxygen so that the mixture will burn in confinement.

In manufacture, the mixture is first formed into a damp sludge, then to a dry cake which is broken up into the various sizes, or granulations of powder available to the shooter. For small arms (rifle, pistol and shotgun), four specific sizes are available.

### **FFFFG**

Most commonly called "Four F", this is the finest of all granulations and is used for priming flintlocks. Due to its rather limited use, it is usually somewhat difficult to obtain.

### **FFFG**

Most commonly called "Triple F", this powder is used in most single shot pistols and all percussion revolvers. It is also popular for all smaller caliber rifles up to and including 40 caliber. When FFFFFG is not available, FFFG may be used to prime a flint lock.

### **FFG**

Most commonly called "Double F", this is a very popular powder for rifles over 40 caliber and up to 58 caliber. Also used in the larger caliber single shot pistols and most shotguns.

### **FG**

Most commonly called "Single F", this is the coarsest granulation used for small arms. Its use is pretty much restricted to rifles over 58 calibers and large bore shotguns.

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## MAXIMUM COMBINATIONS OF PROPELLANT AND PROJECTILE FOR INVESTARM MUZZLE LOADING FIREARMS

### Do not exceed

- Use only black powder and nothing else.
- Heavier loads are not to be used nor is a substitution of powder granulation to be attempted.
- Investarm is not accountable for loading information printed in sources other than this instruction manual.

### Rifle

caliber	projectile	propellant	
		G-O FFg	G-O FFFg
.45	.440 Round Ball	80 grs.	55 grs.
.45	220 grs. Maxi Ball	75 grs.	50 grs.
.45	265 grs. Minie Ball	60 grs.	50 grs.
.50	.490 Round Ball	90 grs.	70 grs.
.50	370 grs. Maxi Ball	80 grs.	60 grs.
.54	.530 Round Ball	100 grs.	80 grs.
.54	405 grs. Maxi Ball	90 grs.	70 grs.
.58	.560 Round Ball	110 grs.	-----
.58	460 grs. Minie Ball	100 grs.	-----

### Single shot pistol

caliber	projectile	propellant
		G-O FFFg
.45	.440 Round Ball	30 grs.
.50	.490 Round Ball	40 grs.
.54	.530 Round Ball	50 grs.

### Shotgun

caliber	projectile	propellant
		G-O FFg
20 ga	1 oz.	75 grs.
12 ga	1-1/4 oz.	90 grs.

### Manufacturer of propellant:

Gerhardt-Owen Industries Inc. Belin Plant - Moosic, Pennsylvania 18507

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**Ignition:**

For caplock use only N° 11 percussion caps. For flintlock fill pan cavity with G-O FFFFg or G-0 FFFg.

**Projectile:**

Muzzle loading projectiles are cast from pure lead. Do not use lead alloys for they contain antimony and are far too hard for muzzle loading use.

**LOADING THE MUZZLE LOADING FIREARMS**

- Loading the muzzle loading firearms requires the same techniques regardless whether the gun is caplock or flintlock.
- The following preliminaries should be performed before the first change of the day is poured down the barrel. Since oil and any other form of moisture is the enemy of the successful blackpowder shooter, the bore and chamber area should receive a good cleaning just before the gun is loaded.
- Any oil solvent present in the chamber area will gradually soak into the powder charge and either reduce the power of the load or make it fail to fire altogether. Run fresh patches down the barrel until they come out clean and dry. Clean the flash channels of both flintlocks and caplocks with pipe cleaners, pushing the flexible stem on into the barrel.
- If your gun is a caplock, snap several caps on the nipple before loading. This will insure ignition and clear away any oil that may have accumulated in the nipple port. If your gun is a flintlock, open the frizzen and fill the pan level full with priming powder. Close the frizzen, cock the hammer, and fire the priming charge. Do this several times to burn off any accumulated oil. Next, for a quick visual verification, hold the muzzle near a blade of grass, bit of dust, etc. Denotation of the cap or of the priming charge will cause a small but noticeable blast to emanate from the muzzle, moving the blade of grass or bit of dust.
- If the blast does not manifest itself, the shooter must go back over the gun to clear away the obstruction.
- Finally, after all is clear, run a last clean patch down the barrel to catch any freshly dislodged lubricant. Now the gun is ready to be loaded. Place the hammer in half-cock position and proceed as follows.

## **LOADING THE PATCHED ROUND BALL**

1. Set the rifle on its butt with the barrel inclined in a safe direction so the muzzle is well away from your face or body. Measure and pour the powder down the barrel using an adjustable measure or pre-weighed charges. Strike the barrel several sharp raps with the heel of your hand; this will settle the powder into the chamber area of the barrel.
2. Lay your strip of lubricated patching cloth (pre-cut patch) over the muzzle. Center the ball and press it into the bore until it is flush with the muzzle. Tight-fitting combination can be seated by reversing your ball starter and “rolling” it over the ball.
3. Cut the excess patching from around the ball. Specially designed patch knives are ideal for this task although nearly any sharp object will suffice.
4. Push the ball into the bore using your ball starter (about four inches).
5. Seat the ball firmly on the powder with the ramrod. The desired ramming stroke is smooth and uninterrupted. Jabbing or tamping the ball down the bore may result in serious deformation or uneven seating force upon the charge. Make sure the ball is firmly seated since an air space could cause a bulged barrel-or worse. Once the first ball has been loaded, it is a wise practice to mark your ramrod at the muzzle. A reference mark on the ramrod will insure that all future projectiles are seated to the same depth. Return the ramrod to the thimbles.
6. Place the hammer on full cock and prime your piece. To prime the percussion rifle, you simply press a proper size cap all the way down on the nipple. In the rifle is a flintlock, open the frizzen and pour a small amount (enough to fill the depression) of priming powder into the pan. Close the frizzen and she’s ready to fire. Carefully lower the hammer to half-cock if the shot will not be made right away.

**Note: the foregoing instructions may be used to load the Investarm single shot pistol.**

## **LOADING THE MAXI BALL OR MINIE BALL**

1. Set the rifle on its butt with the barrel inclined in a safe direction so the muzzle is well away from your face or body. Measure and pour the powder down the barrel using an adjustable measure or pre-weighed charges. Strike the barrel

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several sharp raps with the heel of your hand; this will settle the powder into the chamber area of the barrel.

2. Do not use a cloth patch. Push the lubricated ball into the bore with your fingers. The ball will hang-hup when the bearing band on the nose reaches the muzzle. The diameter of the nose is somewhat larger than the rest of the ball and must be engraved to the muzzle to insure a precision fit.
3. Push the ball into the bore using your ballstarter (about four inches).
4. Seat the ball firmly on the powder with the ramrod. The desired ramming stroke is smooth and uninterrupted. Jabbing or tamping the ball down the bore may result in serious deformation or uneven seating force upon the charge. Make sure the ball is firmly seated since an air space could cause a bulged barrel-or worse. Once the first ball has been loaded, it is a wise practice to mark your ramrod at the muzzle. A reference mark on the ramrod will insure that all future projectiles are seated to the same depth. Return the ramrod to the thimbles.
5. Place the hammer on full cock and prime your piece. To prime the percussion rifle, you simply press a proper size cap all the way down on the nipple. If the rifle is a flintlock, open the frizzen and pour a small amount (enough to fill the depression) of priming powder into the pan. Close the frizzen and she's ready to fire. Carefully lower the hammer to half-cock if the shot will not be made right away.

## **LOADING THE SHOT**

1. Set the shotgun on its butt with the barrel inclined in a safe direction so the muzzle is well away from your face or body. Measure and pour the powder down the barrel using an adjustable measure or pre-weighed charges. Strike the barrel several sharp raps with the heel of your hand; this will settle the powder into the chamber area of the barrel.
2. The over-powder card wad comes next and ranges from being a very tight fit to being an impossibly tight fit depending on the degree and type of choke in the barrel. Fortunately there's no need to start the card wads perfectly straight since the only feasible way to get the things started is to push one edge down into the bore collapsing the rim a bit. There will be about half the card wad sticking out of the muzzle at an angle but the next loading step will take care if that.
3. Remove the ramrod from the thimbles and place the head over the tilted card wad. The ramrod head, you'll notice, will be very near bore diameter as it has to

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be to keep the various wads straight as they are started and seated. Now carefully press the card wad past the muzzle and ram it smoothly down to a firm seat on top of the powder charge.

4. The fiber cushion wad next unless you are starting with plastic at this stage. The fiber wads usually aren't loaded dry. The fiber wads are also a tight fit but you can't slip these in sideways-they have to be pushed in straight and thumbed down flush with the muzzle. With the ramrod push the wad down snugly atop the card wad. Now is the time for insertion of that plastic shot protector or cushion wad. This device is generally best used to protect the shot and not as an obturating component in the load column. Seat the plastic wad as you did the fiber wad.
5. Measure and pour the desired weight and size of shot down the barrel.
6. The over-shot card wad is the last major operation and is a duplicate of the over-powder wad's treatment. Push one corner of the wad down past the muzzle and collapse the rim of the wad slightly.
7. Place the head of the ramrod over the card wad and press it smoothly down the bore until it lodges solidly on top of the shot charge. Make sure the load column is firmly seated on the powder since an air space could cause a bulged barrel-or worse. Once the first shot has been loaded, it is a wise practice to mark your ramrod at the muzzle. A reference mark on the ramrod will insure that all future shots are seated to the same depth. Return the ramrod to the thimbles.
8. Place the hammer on full cock and prime your piece. To prime the percussion shotgun, you simply press a proper size cap all the way down on the nipple. If the shotgun is a flintlock, open the frizzen and pour a small amount (enough to fill the depression) of priming powder into the pan. Close the frizzen and she's ready to fire. Carefully lower the hammer to half-cock if the shot will not be made right away.

## **SAFETY NOTES**

### **Caplock**

After firing leave the hammer down over the exploded cap as you reload. This restricts air circulation and helps smother any sparks left from the preceding shot. Keep your hands and face away from the muzzle.

### **Flintlock**

Before squeezing the trigger at the range, check and make your spectators are not standing in line with your barrel's touch-hole. When a fully loaded flintlock goes off there is a jet of hot gas that shoots straight out from the side and leaves its mark on unwary bystanders. Warn your companions and take extra care before squeezing the trigger.

### **All misfires**

Should your gun fail to fire ..... keep the muzzle pointed in a safe direction for at least a minute, until the chance for a hangfire has passed and you are satisfied the charge is truly "dead". Next, inspect the nipple and/or vent, remove any obvious obstruction, reprime and try the shot again. If the charge continues to balk, you may have to work some fine powder into the nipple or venti with your pick, reprime and shoot. At worst, it may be necessary to dismantle the rifle, unbreech the barrel and drive out the load.

### **Projectile seated without powder**

This seems to happen to everyone at one time or another. It may be necessary to use a "worm" or similar device or even unbreech the barrel, but before you go to those extremes try this: Work some fine powder into the flash channel, prime and shoot. Work more powder into the channel and barrel, seat the projectile, prime and shoot. This should do it.

### **Projectile not seated against the charge**

If, due to powder fouling or other circumstances, a ball becomes lodged part way down barrel, then the rifle must be disassembled and the charge removed. With the proper tools, the breech plug can be removed from the barrel. Consult a gunsmith for such work. A stuck ball cannot be fired out of the barrel with safety for it will act as a bore obstruction and possibly damage the rifle, or worse. Never fire a muzzle loading firearm unless the projectile is seated against the powder charge.

### **Remember**

Avoid having your hands or face directly over the muzzle during the loading operation. After the gun is loaded follow the safety rules used for modern firearms.

## CLEANING

### After shooting session

You must clean your muzzle loading firearm after each shooting session to prevent rust and corrosion from damaging the metal parts. The INVESTARM muzzle loading firearms may be easily disassembled for cleaning by removing the ramrod, driving out the barrel wedge in the forearm and lifting the barrel (muzzle first) out of the stock. The hooked breech will slip right out of the tang unit with no further disassembly needed. Of course, the muzzle loading firearm can be cleaned without any disassembly but care should be taken to prevent water and excessive solvents from entering the stock or lock mechanism.

Two cleaning techniques:

- **Hot soapy water: the traditional way to clean a muzzle-loader**
  - a) Scrub the bore with a strong solution of hot soapy water. Wipe all powder fouling from other metal parts.
  - b) Flush the barrel with the hottest clean water available. This not only removes the soap but also heats the steel which helps in the drying process.
  - c) Dry all parts.
  - d) Apply a good coat of oil displacing lubricant to all metal parts and reassemble.
  - e) Inspect for the next few days just to be safe.
- **Modern solvents:** Just as effective as soapy water if properly done. Solvents designed specifically for black powder are now on the market and the old standbys may be used as well.
  - a) Scrub the bore with brass brush and lots of patches. Wipe down all metal parts.
  - b) Using plenty of clean patches, wipe the bore dry. Dry all metal parts.
  - c) Apply oil to all metal parts and reassemble.
  - d) Inspect for the next few days just to be safe.

### During shooting session

To obtain the best accuracy and optimum consistency when loading, most target shooters wipe the bore after each shot.

This is accomplished by running a cleaning patch (saturated with powder solvent) up and down the bore several times. The saturated patch is then followed by several dry

patches to absorb moisture. This same procedure is followed for general type shooting, however, it is not necessary to wipe the bore after each shot.

Depending upon the specific load and weather conditions (fouling forms a harder cake in colder temperatures) a series of shots can be fired before it becomes necessary to clean the bore.

The best method is to pay close attention to loading. If the ball seems to drag or is somewhat difficult to seat, then clean the bore before you load the next shot.