

## SHOOTING EQUIPMENT

A. RIFLES FOR INTERNATIONAL COMPETITION. Each international course of fire lends to a specific type or style of rifle for competition. These rifles vary according to ISU rules governing competition and the shooters preferences.

1. Prone Rifle:

a. The prone rifle is designed especially for the prone position. The stock is generally longer with a built-up cheek piece to enable the competitor to maintain position over long periods of time. The smallbore prone rifle is .22 caliber long rifle and the full bore prone rifle will not exceed 8 millimeters, or .323 caliber. (Figure 6)

b. The prone rifle may be used in the English Match and the prone phase of the three-position event. Due to its particular design, the prone rifle is generally not used in any other position.

2. Free Rifle:

a. The free rifle is fully defined in the ISU rulebook as a rifle with a thumb-hole stock, a removable palm rest, and an adjustable butt assembly with an interchangeable hook and plate. The smallbore free rifle is .22 caliber long rifle and the full bore free rifle is a caliber not to exceed eight millimeters. The free rifle is used in all positions because of its inherent ability to be adjusted to any shooters body configuration and position requirements. (Figure 6)

b. The three position rifle may be used in the English Match and in all positions of the three position free rifle matches.

3. Standard Rifle:

a. The standard rifle is any rifle which does not have a thumb-hole stock, adjustable butt plate, butt hook, hand stop, and does not exceed 11.1 pounds and specific length and width measurements (see ISU rules). The standard rifle is designed to enable the shooter to compete in prone, kneeling and standing positions of the standard rifle match. The smallbore standard rifle is .22 caliber long rifle and the full bore standard rifle is not to exceed eight millimeters. (Figure 6)

b. The standard rifle was designed primarily for the standard rifle match; however, if the competitor desires, he may compete in the English and/or three position match with the standard rifle. The full bore standard rifle, when fired in a military match, is called an Army rifle.

4. Air Rifle:

a. The air rifle is designed to meet the same requirements as the standard rifle. It is .177 caliber and is fired at 10 meters (33 feet). (Figure 6)

b. The air rifle is used only in the 10 meter air rifle match. The match consists of 40 shots fired from the standing position.

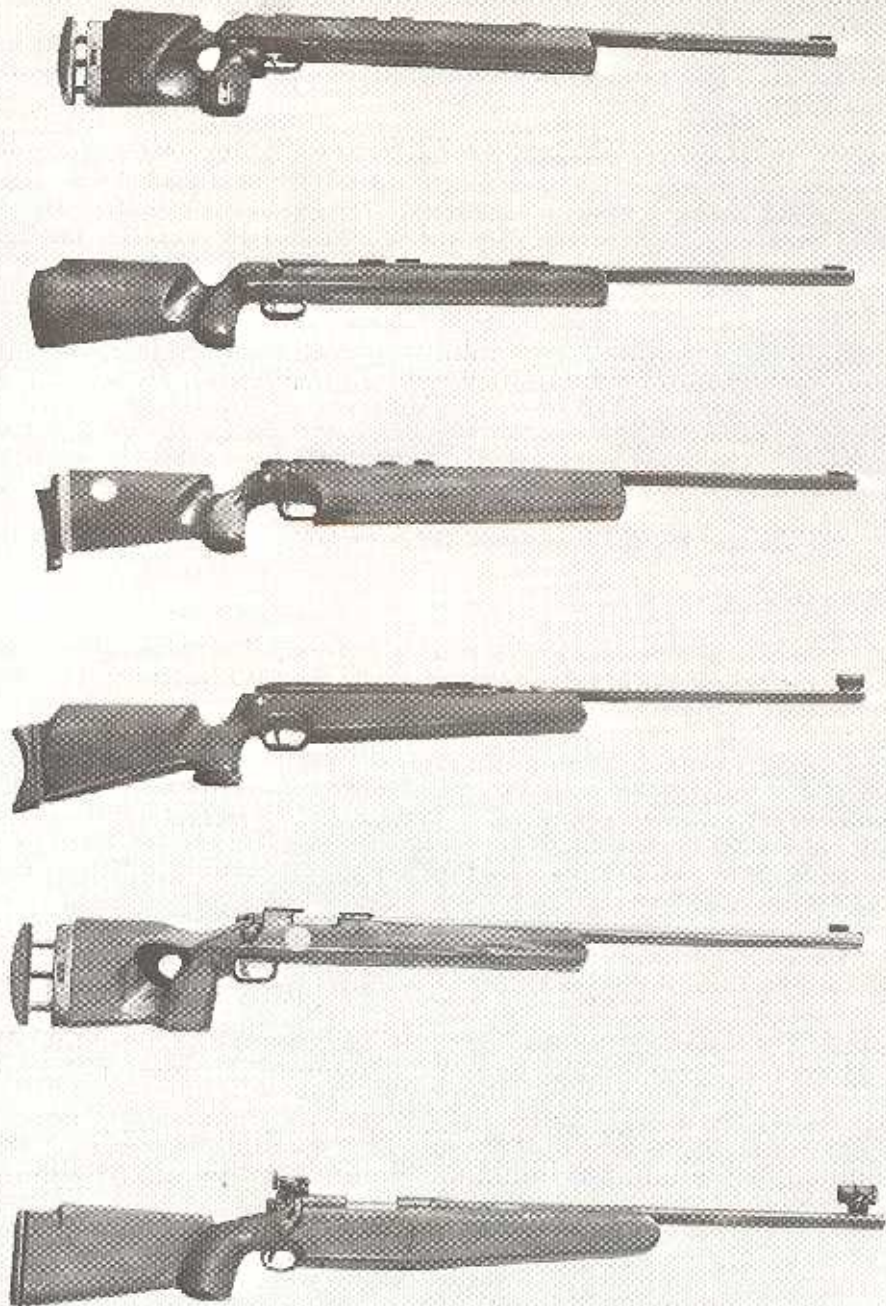


Figure 6. Rifles used in International Competition from top to bottom: smallbore position rifle, smallbore prone rifle, smallbore standard rifle, air rifle, full-bore free rifle, full-bore standard rifle (army rifle).

B. ACCESSORIES FOR INTERNATIONAL RIFLES. Each shooter should equip his rifle with all the necessary items to compete on an equal level with his opponents. The international shooter should make sure his equipment conforms to ISU specifications.

1. Palm Rest: As seen in Figure 7, the size and shape of the palm rest is up to the individual shooter. There are many fine palm rests produced commercially; however, some shooters make their own custom palm rests.

2. Butt Plate: The butt plate assembly can be one of the most useful parts of the international rifle. Besides being able to adjust the stock length and the height of the hook or prone plate, the newer butt plates also have adjustments for cant and offset. These adjustments allow the shooter to modify his rifle to fit his particular body conformation and position. Used properly, the butt plate can also be a great help in consistent placement of the rifle to the shoulder (Figure 8).

3. Hook: The hook is used mainly to help the shooter place the rifle in his shoulder the same way every shot. Although the hook is used mostly in the standing and kneeling position, a number of good shooters find it is also beneficial in the prone position (Figure 8).

4. Prone Plate: Many shooters find that the hook is unnecessary or uncomfortable; therefore, they use a flat prone plate. The prone butt plate may be made of either rubber or metal and has the capability of being adjusted vertically on the rifle stock.

5. Sights: See Chapter III, the Integrated Act of Firing - The Eye and Sight System.

### C. SHOOTING CLOTHING.

1. Shirts: ISU rules permit the wearing of up to 2.5-mm of clothing under a shooting jacket. Their use greatly decreases the effects of pulse beat and single muscle tremors that would otherwise be transmitted to the rifle (Figure 9).

2. Shooting Coat: A leather shooting coat gives the shooter some body support in all positions. It is especially helpful in the standing position. Legal leather coats are available from American and European manufacturers. Though expensive, it is considered a worthwhile item of equipment for the serious shooter. ISU rules permit the use of a leather jacket that has only one row of buttons located in the center third of the jacket, and does not have adjustable straps (Figure 9). (For some detailed information see ISU specifications.)

3. Pants: Trousers thickness cannot exceed 2.5 millimeters. Reinforcement or skid pads may be used on the seat and both knees (Figure 9).

4. Footwear: The shooter may wear nonrestricting footwear in which the height does not exceed  $\frac{2}{3}$  the length of the sole, and does not exceed 10 millimeters in thickness (Figure 9).

5. Glove: The ISU shooting glove must not be more than 12 millimeters total thickness. More time is required to condition the hand to the pressures of the hand-stop and sling when a thinner glove is used. The glove must not extend up the wrist more than 5 millimeters from the hand (Figure 9).

6. Hat: A cap or hat of some sort is recommended to protect the shooter from the sun, wind, and rain.

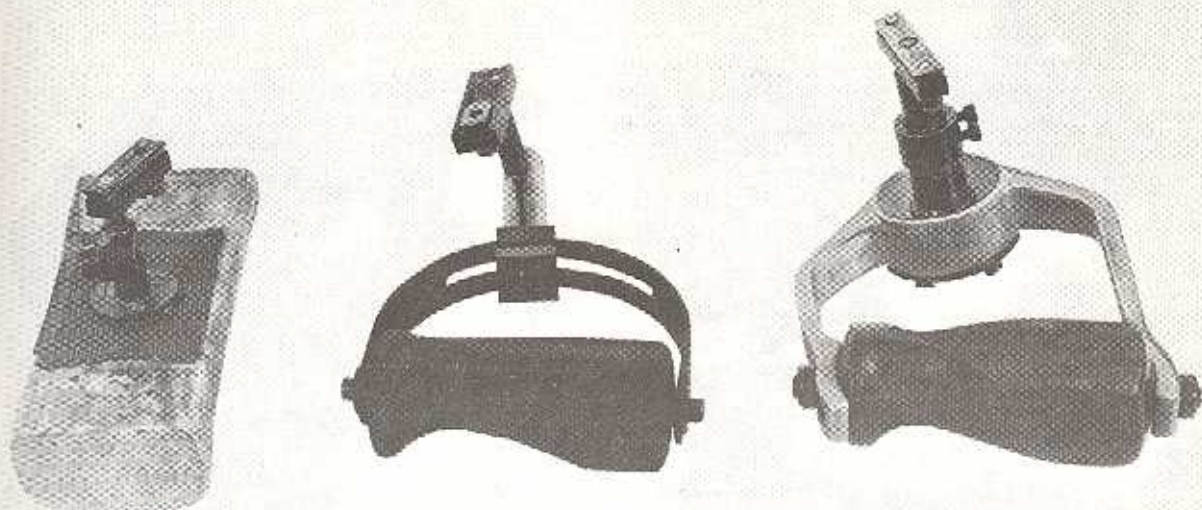


Figure 7. Palm rests.

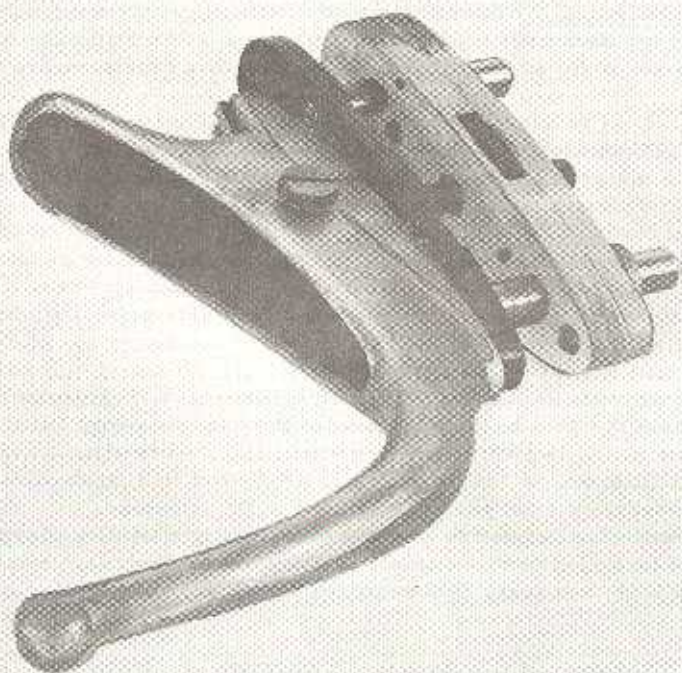


Figure 8. Adjustable butt and hook assembly.



Figure 9. Shooting Clothing: (a) Boots, (b) Sweat shirt, (c) Shooting jacket, (d) Glove, (e) Trousers.

D. OTHER SHOOTING EQUIPMENT. In addition to the rifle accessories, each shooter should be outfitted with other necessary items of clothing and equipment. The following items of equipment are recommended as being useful while at the same time meeting the requirements of the International Shooting Union.

1. Kneeling Roll: The kneeling roll can be made of cloth or leather and be filled with sand, sawdust, or any other suitable material. The roll must be no more than 8 inches long and 7 inches in diameter. The roll should conform to the individual shooter's position and instep (Figure 10).

2. Shooting Mat: In international competition shooters are normally required to use mats provided by the host range. Nevertheless there will be many instances where each individual will need to have his own. The mat should be thin and have a non-skid surface for the shooter's elbows (Figure 10).

3. Sling: The ISU sling must not be more than 40 millimeters (1-9/16 inches) in width. More time is required to condition the arm to the pressure of the narrow sling, but it nevertheless provides adequate support. A shooter who intends to participate in ISU events should use a narrow sling exclusively to keep his arm conditioned. A leather sling is preferred to a webbing sling (Figure 10).

4. Hand Stop: The hand stop is used to prevent the hand from sliding along the forearm of the stock. The hand stop can be as large or as small as the shooter desires. Some shooters merely use the sling swivel as a hand stop; however, this requires additional conditioning of the hand to prevent undue discomfort.

5. Equipment Box: A sturdy box is useful in carrying all of the miscellaneous equipment that the shooter needs. It should be large enough to comfortably contain this equipment and so arranged to offer maximum protection to delicate accessories such as sights, stop watch, etc. (Figure 11)

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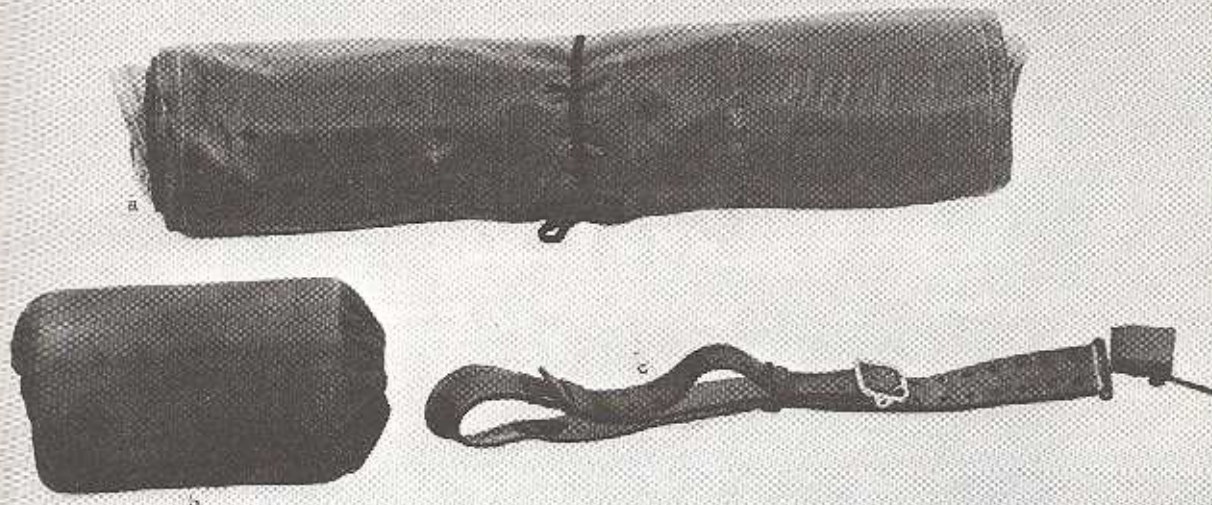


Figure 10. Shooting Equipment: (a) Mat, (b) Kneeling roll, (c) Sling and hand stop.

6. Spotting Telescope with Stand: A telescope gives the shooter a means of spotting his shot. The scope also can be used to study mirage. It should be equipped with a tripod stand capable of adjustment for each shooting position. Most shooters use a telescope with a magnifying power between 20X and 30X (Figure 11).

7. Loading Block: The ammunition loading block not only serves to keep the ammunition clean, but is helpful to the shooter in counting the number of shots fired. The block is usually constructed in wood or plastic with a capacity of holding 50 to 100 rounds (Figure 11).

8. Stop Watch: In all international courses of fire a specified time limit is enforced. The shooter should carry his own timepiece and monitor the remaining time for the course (Figure 11).

9. Balance Weight - Rail Weight: Many shooters employ the use of an added weight attached to the stock of a rifle which extends out under the barrel. This weight known as a balance or rail weight, tends to dampen or slow the movement of the rifle, allowing easier trigger control. It should be noted that the added weight does not stop the movement of the rifle, but may slow the movement. The weight also allows the shooter to lean farther back in the standing position and maintain his non-muscular, bone to bone support.

10. Target Fasteners: The shooter is often required to hang his own targets. On most ranges, a staple gun and/or a set of target clips are sufficient tools to securely fasten targets (Figure 11).

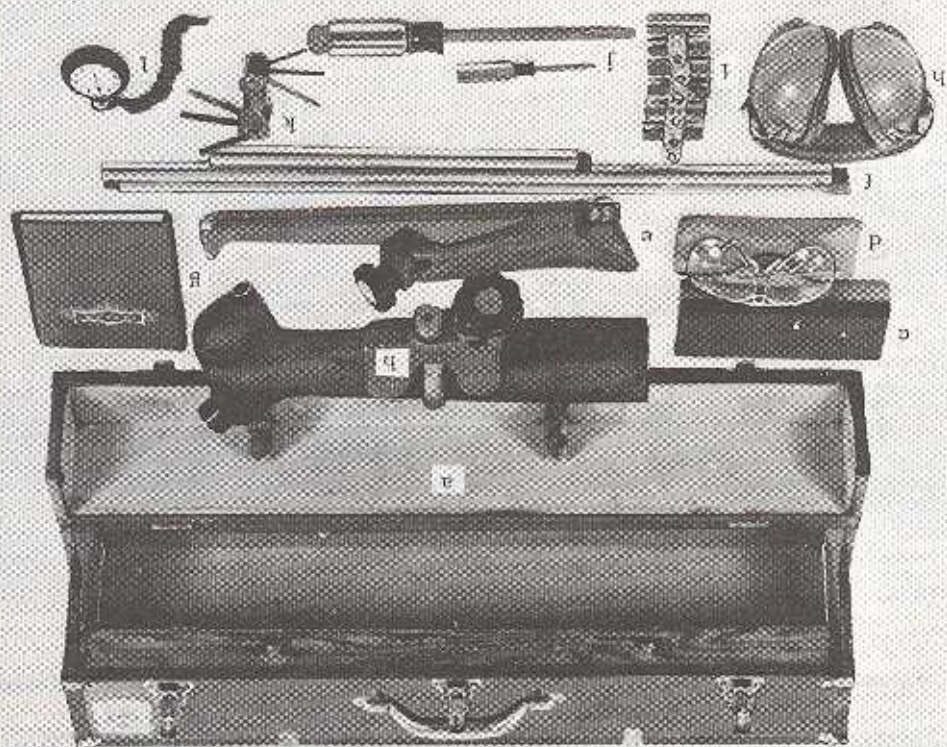


Figure 11. Shooting box and accessories.

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| (a) Shooting box       | (g) Notebook       |
| (b) Spotting telescope | (h) Ear protectors |
| (c) Loading block      | (i) Target clips   |
| (d) Shooting glasses   | (j) Screwdrivers   |
| (e) Tripod             | (k) Allen wrenches |
| (f) Extension rods     | (l) Stopwatch      |

11. Shooting Glasses: There are two general types of shooting glasses: those with standard frames and large lenses, and those with normal size lenses and jointed, adjustable frames. Both types are widely used. The chief advantage of shooting glasses is that they allow the shooter to look through a central portion of the lens without interference from the frame. To use shooting glasses correctly, the eye should look through the central lens area where the prescription is focused. Individuals with corrected vision will find these glasses extremely useful. Colored or tinted shooting glasses are available to aid in adjusting to varied light conditions. Dark green, smoke, or blue lenses are used in very bright sunlight and yellow lenses are generally used in dull light. However, some shooters prefer to use one color under all conditions. It must be noted, however, that all colored lenses filter out some amount of light. An additional advantage of shooting glasses is that they protect the eye from gas blow back in case of a ruptured primer or cartridge case (Figure 11).

12. Hearing Protectors: Regardless of how minor the muzzle report seems, hearing protectors should be worn at all times while on the range. In addition to physically protecting the ears from permanent damage, concentration can be significantly improved by eliminating extraneous range noises. (Figure 11)

13. Rule Book: The current rule book is a helpful item of the shooter's equipment. It is the shooter's responsibility to be familiar with all the rules and regulations governing the match in which he is firing.

14. Shooting Notebook (Diary): Every shooter should keep a notebook to record information he has found to be helpful to his performance. This notebook may include concrete information such as sight setting for specific range zeros as well as experimental ideas or psychological conditions which the shooter has formulated. It is important that these facts, ideas, and personal techniques be promptly recorded rather than left to memory. This information can provide the key to consistent improvement and good scores (Figure 11).

15. Tools: A few small tools should be carried to perform adjustments on the rifle and its accessories. A small and large screwdriver plus a set of allen wrenches will be useful (Figure 11).

16. Cleaning Rod and Materials: The cleaning rod should be a one piece steel rod coated with a plastic material softer than the rifle barrel. In order to maintain a high degree of accuracy and correct rifle function, proper cleaning materials are required. These materials may include: Bore brushes, cloth patches, solvent, lubricant, bolt brush, rust inhibitor, and cleaning rod guide. Arms manufacturers recommend regular cleaning to maintain maximum accuracy of their rifles (Figure 12).

17. Rifle Cases: All rifles should be transported in cases of some sort. A canvas or leather case is sufficient for daily use and will keep the rifle safe from scratches, dust, and the weather. When transporting the rifles for a long period of time or when abusive treatment is likely to occur, a metal or wooden box should be used for additional protection (Figure 13).



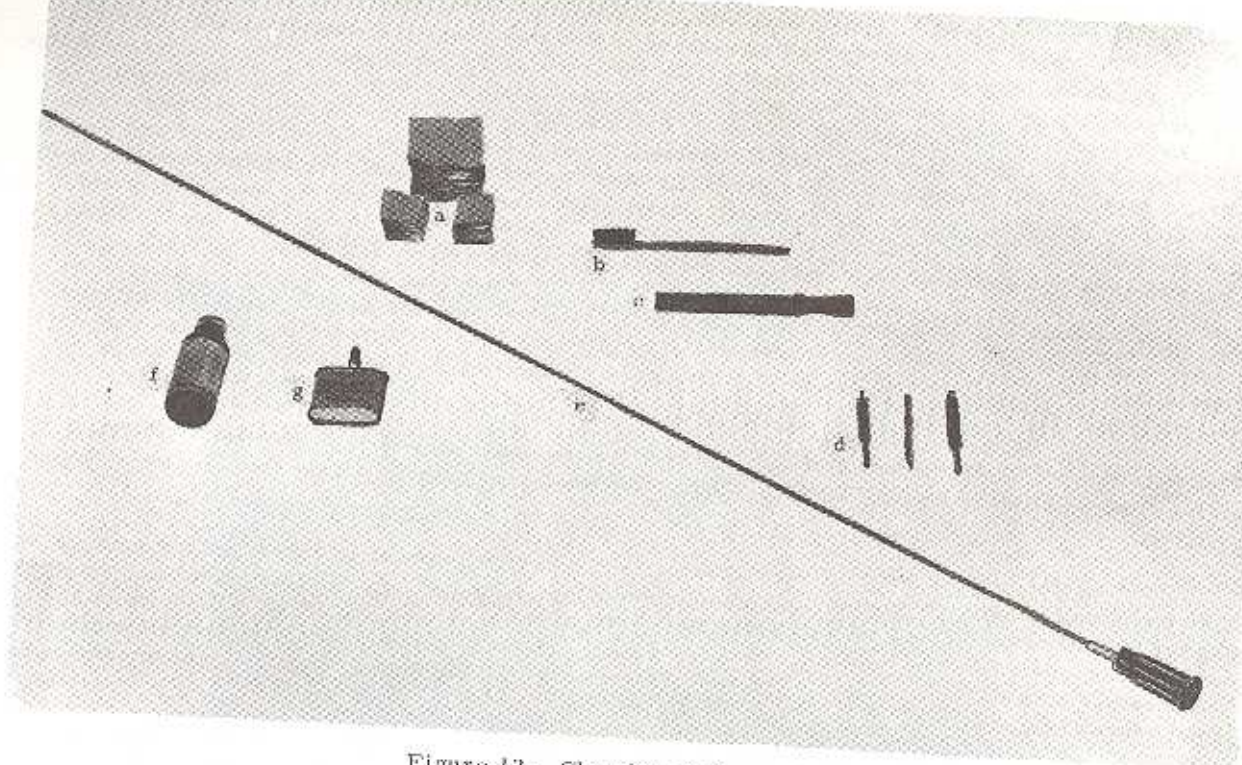


Figure 12. Cleaning equipment.

- (a) Patches
- (b) Brush
- (c) Cleaning rod guide
- (d) Cleaning rod brushes and jag
- (e) Cleaning rod
- (f) Solvent
- (g) Oil

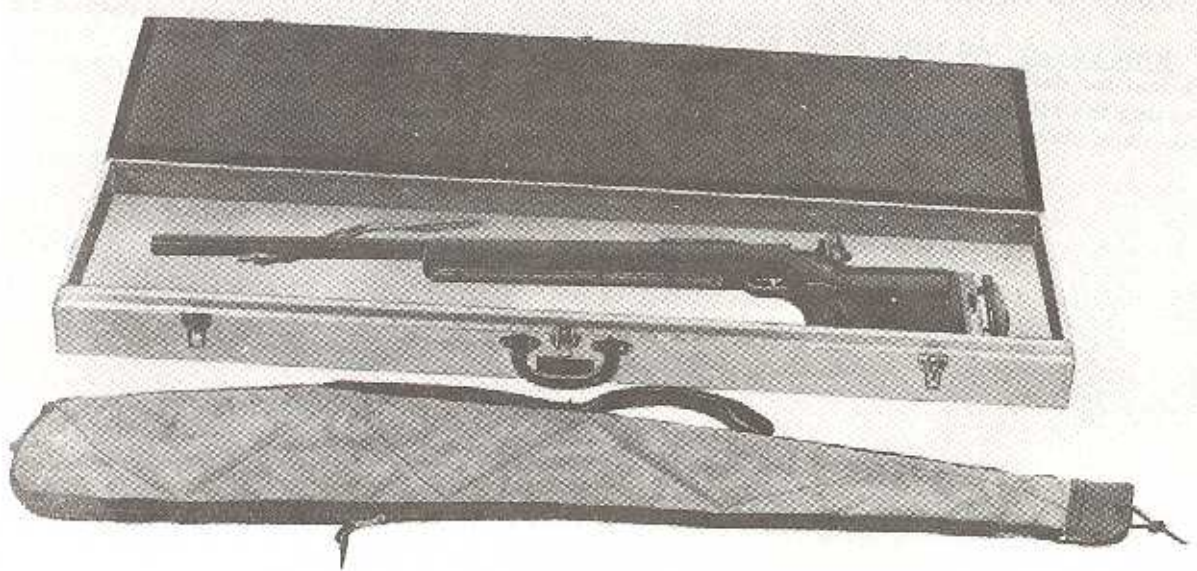


Figure 13. Rifle cases.