

Hyskore®

RAPID FIRE® PRECISION SHOOTING REST



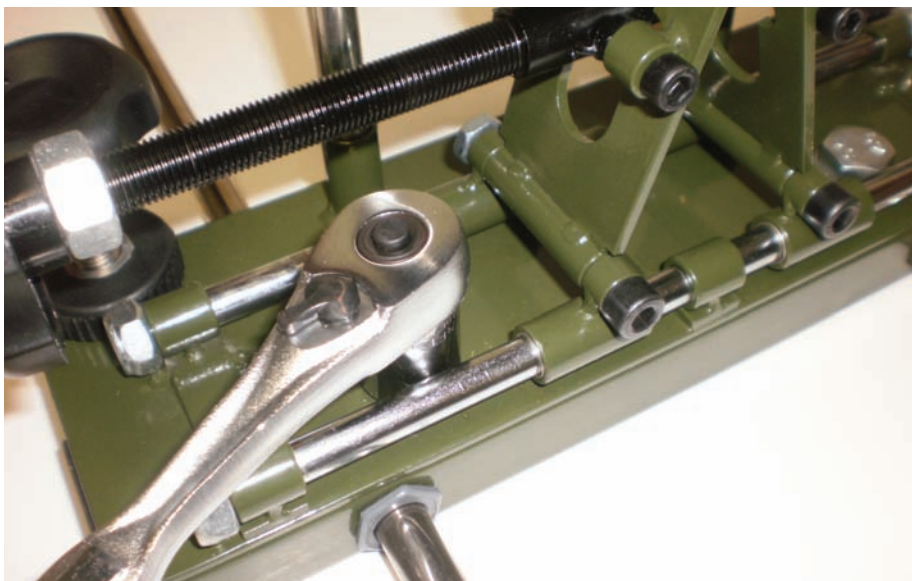
The Hyskore® Rapid Fire® Precision Shooting Rest Incorporates Advanced Features For Serious Shooters.

- Fully Adjustable To Any Length Gun
- Micro Adjustable Front Elevation That Absolutely Holds Position And Can Be Operated From The Right or Left Hand Side
- Front & Rear Leather Rest Bags & V Notch
- 4 Point Leveling
- Magnetic Bubble Level
- Padded Rear Platform
- Makes A Perfect Fit All Guns With Wood Or Synthetic Stocks And Has Been Designed To Accommodate Pistol Grips And High Capacity Magazines
- The Rear Gun Support Can Be Located In A Comfortable Location For Both Right and Left Hand Shooters

In the course of shipping and packing, parts may end up missing or damaged- call us at 631.673.5975. 8:30 a.m. - 5:00 p.m. Eastern Time. We will promptly send replacements.

ASSEMBLY

Step 1



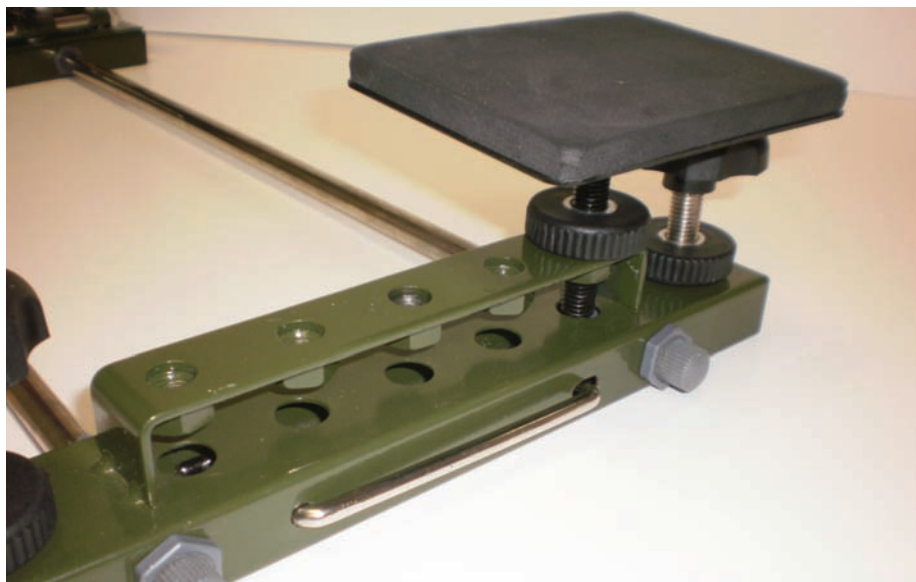
With the elevation assembly raised, mount the front elevation assembly to the front brace as shown using the M-12 hex bolts & washers. A 3/4" or 19mm socket wrench will get the job done. If you do not raise the elevator, you will not have enough clearance to turn the hex bolt.

Step 2



Thread the 4 leveling jacks and locking collars into the threaded holes in the rear brace and the deck of the elevator assembly.

Step 3



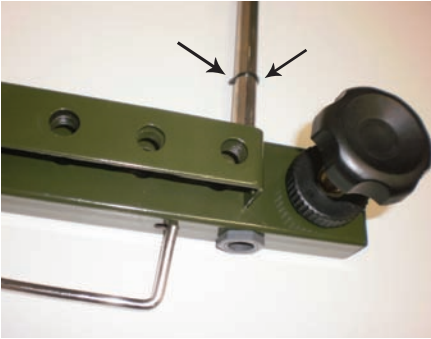
Thread the rear pedestal into the rear brace. There is a choice of 5 locations - Choose the one you like the best - Use the locking collar to hold it in place.

Step 4



Use the hook & loop on the straps of the front rest bag to secure it in place.

Step 5



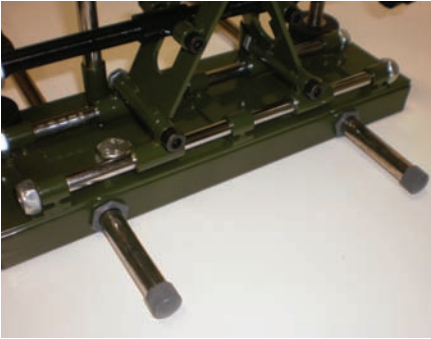
Push the rod ends (with the snap rings) Through the rear brace as shown. The handle must face to the rear. Push the rods through until the snap ring contacts the plastic fitting.

Step 6



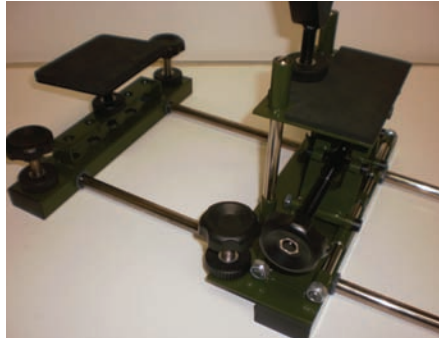
Thread a knurled plastic screw into the end of each rod as shown. Hand tighten.

Step 7

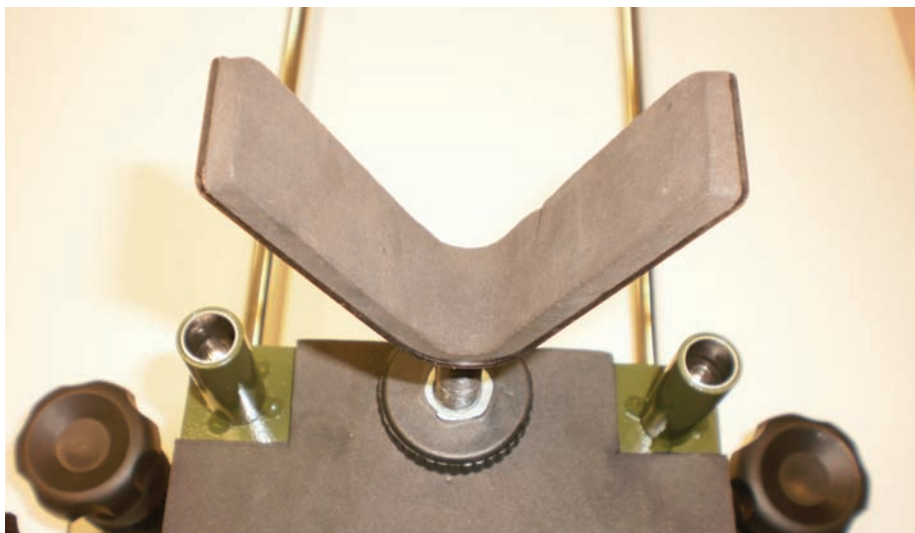


Push the rods through the elevation assembly and install the knurled plastic screws as in the previous step - Either end of the elevation assembly can face forward - It is a matter of shooter preference.

Step 8



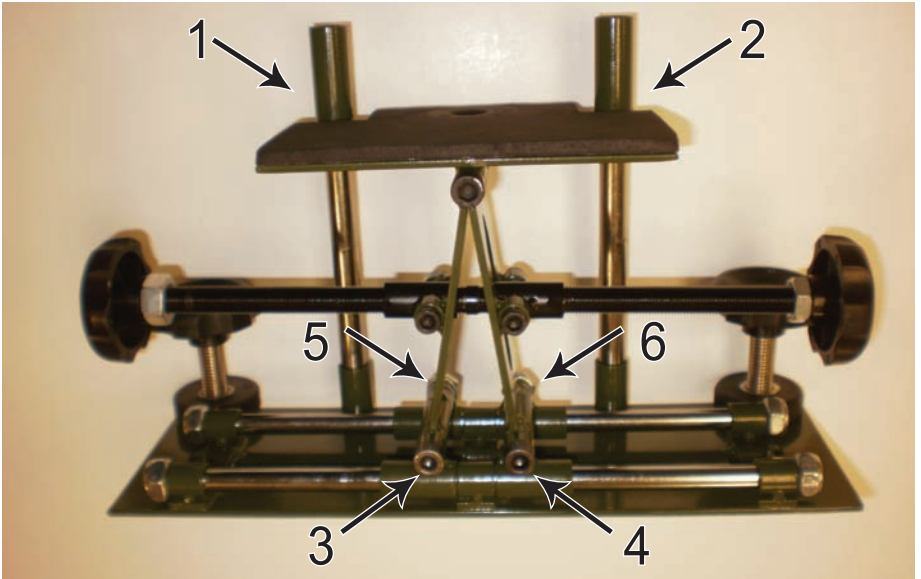
The elevation assembly slides along the rods to make the rest a perfect fit for any long gun or hand gun.



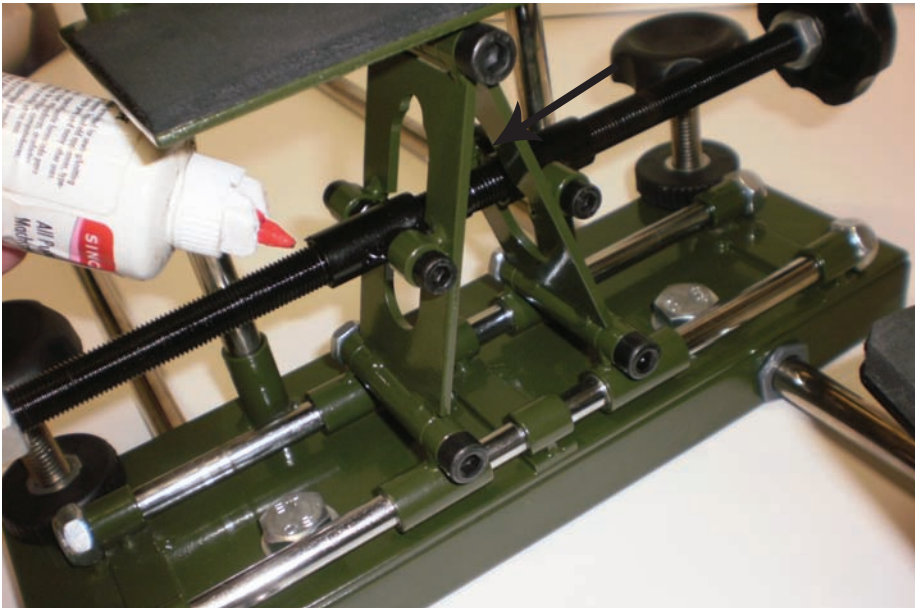
As an option to the front rest bag, you can use the included V notch to support the gun. The front platform has a threaded hole for this purpose. The lock knob can be located above or below the platform.



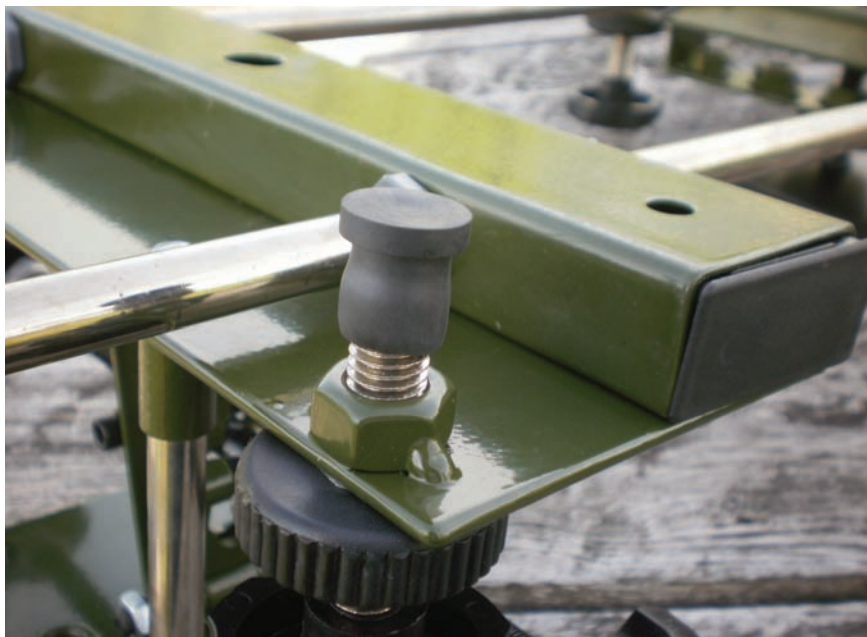
The rest bags are factory filled with non-reactive plastic pellets. Each bag has zipper(s) so that you can access the fill to change the tension of the bag.



The elevation assembly uses a total of 6 linear motion bearings. Generally these do not need lubrication. However, if the action should become sluggish or bind, an application of a few drops of acid free machine oil will get things moving again.
 Always wipe the shafts to keep them free of grit and dirt.



The screw drive for the elevation needs lubrication and this should be done with a few drops of light machine oil every 3rd or 4th use and always before extended periods (1-2 months) of storage.



Protective caps are provided for covering the points on the levelers.



For use with handguns slide the front section close to the rear of the rest.

A WORD ABOUT ACCURACY

When it comes to shooting, the word "accuracy" really refers to group size. Once the group is established, adjusting the sights to move the point of impact to the point of aim is a simple task. A gun/ammunition combination that shoots to 1, 3, or 5 MOA is just that. No matter what device you use to support the gun that group size will not change, not to mention extraneous factors such as sighting device, wind, stability of the shooting platform, trigger pull, parallax and/or the shooter. There is a long list of factors that can affect group size. Below we have attempted to briefly address a few of the more common ones. All comments are made with the "all things being equal" and "under perfect conditions" provisos. Please consider this a general guide that might point out a few things that might not have come to mind. Our #30013 Dangerous Game®, #30003 Precision Rifle Rest and #30088 DLX Precision Rifle Rest are designed to produce repeatable results. If the rests are properly assembled, securely anchored to a bench that is rock solid and does not shift under the stress of recoil, you will be able to maximize repeatability. Each rest will consistently repeat well under 3 MOA. What this means is that if the gun/ammunition combination is capable of shooting groups of less than 3 inches at 100 yards (nominal 3 MOA), you will be able to realize this degree of repeatability with either rest. The big word in the previous sentence is "IF". Neither rest will make a 3 MOA gun place all of the bullets in one hole. The group will still be 3 MOA. If your bullets are not all forming a tight group, there is a high probability that the problem is a result of the gun, ammunition and/or the sight.

* MOA – Minute of arc – A circle has 360°, each degree has 60 minutes, i.e. 1/60th degree. 1.0 MOA is exactly 1.047 inches at 100 yards.

CENTER FIRE ACCURACY

A large percentage of the rifles, old and new, in the hands of American sportsmen will not shoot much better than 2.5 MOA with exceptional guns shooting 1.0 – 1.5 MOA, (assuming the ammunition is correctly matched to the gun). The average deer rifle, using popular brand, off the shelf ammunition is probably capable of 2.5-3.0 MOA because the gun and ammunition manufacturers know that a typical white tail is statistically harvested at a range of less than 100 yards, and a gun that places the bullets within 3 MOA will easily place all of them within a heart sized circle. Manufacturing guns and ammunition that will shoot under 1 MOA is, of course, done every day, but there are only a few manufacturers that guarantee that result, and then only with ammunition that they specify. The costs associated with the manufacturing, quality control, and attention to detail, price these guns out of reach of a large part of the market. With that being said, a gun/ammunition combination with 3 MOA accuracy, properly sighted in, will usually get the job done and nobody will know the difference. The target is dead –end of story. The point here is that if your gun is shooting at or beyond 3 MOA, the issue is, in all probability, a combination, of factors that can affect accuracy. We have prepared a short list of issues you may want to consider in examining the group size of your rifle.

- A. Bolt action sporting rifles are by nature and design typically more accurate than pump, lever, or semi-automatic rifles. The reason for this is the bolt action tends to be much more rigid, and therefore flexes less. In addition, a bolt action usually has a larger and stronger extraction mechanism, which means the chamber can be made to closer tolerances than other types of actions. Believe it or not, not all ammunition in the same caliber is made to the exact same dimensions by all manufacturers. For example, SAAMI (Sporting Arms and Ammunition Manufacturers Institute, www.saami.org publication ANSI/SAAMI Z299-1992) allows a variance of up to -.008 under the standard for diameter, and up to -.007 under for the standard distance from the base to the shoulder (this determines headspacing) for center fire 30-06 ammunition. (Variances across most calibers are similar.) The extraction mechanism in pump, lever, and especially in semi-automatic weapons must be able to consistently and effectively extract cartridge cases at a rate equal to the cyclic rate of the weapon using the entire range of commercially available ammunition. This can be problematic if the cartridge fits too tight in the chamber. As a result manufacturers tend to make these chambers more tolerant of ammunition that may tend towards the larger end of the size range. Conversely, if ammunition manufacturers want their product to function in guns typically in the hands of sportsmen, they must also consider how easily the cartridge seats and extracts. Needless to say, there are exceptions to this, but as a rule as you move away from a precise cartridge chamber fit accuracy suffers. This is especially apparent in military weapons because they must chamber ammunition from various sources (therefore with various tolerances) and must function even if the ammunition is corroded or dirty. Reliability, not pinpoint accuracy is the primary criteria.
- B. Match the correct bullet weight to the twist of the rifling. This is one of the most commonly overlooked factors that determines group size. If the bullet length and twist rate of the barrel are not synchronized, accuracy will suffer. A 110 grain .308 bullet is, of necessity, shorter than a 220 grain .308 bullet. For proper stabilization the heavier, and hence longer bullet, requires a faster rate of rifling twist than a short, light bullet. Further to this point, different guns respond differently to ammunition from different manufacturers. The point here is that you should test fire ammunition from several manufacturers and select bullet weights that are compatible with the rate of twist of the gun's rifling. Generally speaking, twist rate is stamped on the barrel or the information is available from the manufacturer. You need to test different bullet weights to optimize results.) The following websites will give you more information regarding this issue:

www.snipercountry.com/hotlips/twistrate.html
www.uslink.net
kwk.us/twist.html

en.wikipedia.org/wiki/rifling
www.gsgroup.co.za/cip.html

- G. Parallax is the apparent shift of the target relative to the reticle due to the horizontal movement of the observer. Scopes with parallax adjustments must be correctly adjusted. Scopes without a parallax adjustment are generally range specific for parallax free sighting. If you have made the adjustments to eliminate parallax you are good to go. If not, it is important to make sure that the longitudinal optical axis of the scope that runs through the center of the crosshairs is directly aligned with the pupil of your eye. If you have an inconsistent cheek weld to your stock or fail in any other way to address parallax your groups will suffer from horizontal dispersion, i.e.: open up left to right. This will happen because your view of the target in the horizontal plane will vary with each shot.
- H. Barrel temperature plays a major role in maintaining group size. As a barrel heats up torsional stress will cause the barrel to twist. Bench rest shooters wait several minutes between each shot to keep the barrel from over-heating. If you fire 10 or 12 shots in rapid succession from a sporter weight barrel your groups will expand.
- I. Other factors, which we will not explore here include: Free floating barrels, bedding, barrel harmonics, etc. - Not to mention the shooter!

RIM FIRE ACCURACY

(Some of this applies to center fire rifles also.)

Accuracy in a rim fire rifle is to a large degree more dependent upon the ammunition as opposed to the equipment. Center fire ammunition can be loaded and/or reloaded to precise and consistent specifications. Rim fire ammunition can only be loaded at the factory level. Since rim fire ammunition is not re-loadable, it is necessary to use whatever is commercially available. Factors affecting rim fire accuracy are:

- A. As with a center fire cartridge there is a SAAMI specification (ANSI/SAAMI Z 299.1-1992) and variance for the dimensional aspects of rim fire ammunition that allows up to $\pm .004$ under the standard diameter for .22 long rifle match or sporting ammunition. Consequently, manufacturers make ammunition within the entire range of this variance. As a direct result a gun that is expected to perform reliably must be able to accept the full range of available ammunition. What this has led to are guns that are match chambered which are invariably bolt action. (The chambers in these guns have a tight precise cartridge fit and the guns perform best with match grade ammunition that is made to close tolerance), and then we have most other guns that have sporting chambers, many of which are auto loaders. The chambers in these guns must be made large enough so that the gun will cycle correctly with any off the shelf brand of ammunition which could be manufactured to any size within the allowable range of tolerance, i.e., This means the cartridge may fit loosely in the chamber. Due to gravity the cartridge settles into the lowest portion of the chamber. The result is that the center axis of the chamber, and hence the center axis of the barrel is not aligned with the center axis of the bullet. This means that the bullet will engage the rifling off center and will travel down the barrel and exit the muzzle at an angle resulting in a loss of stability and accuracy.
- B. Concentricity – If the long axis of the bullet is not concentric with the long axis of the case it will also not be concentric with the long axis of the bore, as above the bullet will travel down the barrel and exit the muzzle at an angle with similar results. As little as $.002''$ – $.003''$ off center will cause a noticeable enlargement of the grouping.
- C. Head Spacing is the distance the bullet must move from the casing until it engages the rifling. In a rim fire this is controlled by the thickness of the rim. According to SAAMI standards rim thicknesses may vary from as little as $.036''$ to as much as $.043''$. A gun may perform much better with one rim thickness as opposed to others. It is therefore important to test your gun with a wide range of ammunition. Typically in a box of inexpensive ammunition you will find a considerable variance in rim thicknesses. This will usually result in expanding the group size; consistency of rim thickness will result in smaller, consistent group sizes. Both concentricity and rim thickness can be measured by using the HYSKORE® #30075 Ammo Analyzer.
- D. If the group spread is more vertical than horizontal it is usually the fault of the ammunition. At a known distance, a faster bullet reaches the target quicker and drops less, i.e. gravity has less time to act. As you may appreciate, the small quantities of primer and propellant used in a rim fire cartridge must be precisely and accurately measured in order to produce consistent velocity. Only a small variance in absolute terms translates to a significant percentage variation and by extension, variation in velocity. Maintaining this type of consistency across large production runs is incompatible with maintaining low cost. Primer compound has an explosive force in the magnitude of 25 to 50 times that of the propellant. As little as 1/10 grain (1/70,000 lb.) deviation will cause a velocity differential. With these thoughts in mind, the culprit in groups that open top to bottom is almost always inconsistent velocity. The faster bullets strike higher and the slower ones lower.
- E. Scope Problems – See “F” and “G” under Center Fire.

The aforementioned issues represent a brief synopsis of various conditions that may affect accuracy. There are numerous in depth studies that can provide detailed analysis of each situation. We are not experts and do not intend to be. Our comments and suggestions are the result of studying and compiling data from a wide range of sources. Furthermore, we have only touched on the more significant factors that affect accuracy. If you elect to make adjustments to your gun/ammunition combination to increase accuracy, we suggest that you address each issue one at a time. Do not try to make multiple corrections at the same time as you may contaminate the results, and possibly obscure important issues that need further attention.

Calculating Twist Rate

Legend:

BL = Bullet Length

BD = Bullet Diameter

C = 150 constant for muzzle velocity 1500-2800 FPS

C = 180 constant for muzzle velocity over 2800 FPS

(choose the correct constant for the ammunition you are using)

Formula:

$$\frac{C}{\frac{BL}{BD}} \times BD$$

First divide the bullet diameter (for example .224) into the bullet length (for example .712). Divide the result into the correct constant (150 or 180) and multiply the result by the BD (for example .224). The results is the **approximate minimum** twist rate necessary to stabilize the bullet - Remember a 1:9 rate is faster than a 1:14 rate.

Example A: .223 (5.56 x 45) @ 3200 FPS, 52 Grain, BL= .712 BD=.224

$$\frac{180}{\frac{BL}{BD}} = \frac{180}{\frac{.712}{.224}} = \frac{180}{3.178} = 56.64 \times BD = 56.64 \times .224 = 12.7$$

12.7 is the optimum rate of twist

Example B: .223 (5.56 x 45) @ 2500 FPS, 75 Grain, BL= 1.095 BD=.224

$$\frac{150}{\frac{BL}{BD}} = \frac{150}{\frac{1.095}{.224}} = \frac{150}{4.9} = 30.6 \times BD = 30.6 \times .224 = 6.86$$

6.9 is the optimum rate of twist

If you use the 52 grain bullets in a 7.0 twist barrel the result will be fairly accurate. If you use the 75 grain bullet in a 12.0 or 13.0 twist barrel your group will probably be all over the target.

Diameters of Popular Bullets

.204 - .204	7mm - .284.
.223 - .224	.308 - .308
.243 - .243	.338 - .338
.270 - .277	.375 - .375

Note: 7.5:1 is about the fastest you will find in any barrel. Even though calculated results may indicate a faster rate, too fast will cause the bullet to disintegrate. At 3000 FPS in a slow 1:12 twist barrel a bullet spins at about 90,000 RPM.

Bullet length varies by manufacturer and style. For this information check with the manufacturer or take an actual measurement.

C. A perfectly formed muzzle crown allows the gas to escape in a uniform pattern around the base of the bullet as it exits. Through improper cleaning and handling the crown of the muzzle can be easily damaged. Even a small ding, which may not necessarily be visible to the naked eye, can cause an uneven release of gas, which can heel the bullet over slightly, producing a yaw attitude. This will affect the bullet's stability and accuracy, as the long axis of the bullet will no longer be coincidental with the path of travel.

D. The quality of the ammunition you use can have a direct result on repeatable group size; the more consistent the ammunition, and the components from which it is manufactured, the more consistent the results. Several manufacturers make match grade ammunition where the components are carefully selected and screened for consistency and conformance to specification. (One of the manufacturers that are best known for achieving the most consistent results is Black Hills www.black-hills.com). There are several other manufacturers that make acceptable match grade ammunition, and there are other options. If you are a re-loader, you are already aware of the range of quality components available and in all probability you are able to produce consistent, high quality ammunition.

E. Vertical Grouping – See Rim Fire section point D.

F. Check Your Scope and Mounting – With older and especially inexpensive scopes it is not uncommon for the reticle to stick or shift, especially under heavy recoil and/or temperature extremes. If this happens your muzzle could end up pointing in a slightly different direction after each shot. To check for this condition, lock the gun in a vise that doesn't move and sight the reticle on a set point/target then use a piece of wood or other object (that will not do damage), to tap the scope tube to imitate recoil. If the reticle moves from the original point of aim, you have a problem with the scope. Also check the scope mounting using the same procedure. Mounts and rings frequently become loose due to recoil and heat. In addition to properly mounting a scope the rings must be lapped and centered otherwise there may not be sufficient contact to secure the scope. Even Locktite doesn't insure that mounts and rings will not shift.

• REPLACEMENT PARTS •

These are replacement parts for purchase. Pictures do not represent contents of set.



30207-1



30207-2



30207-3



30207-4



30207-5



30207-6



30207-7



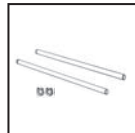
30207-8



30207-9



30088-6



30207-11



30207-12



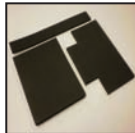
30207-13



30207-14



30207-15



30207-16

Parts List & Pricing:

30207-1	V-Notch	\$ 15.00
30207-2	Left Hand Knob & Nut	\$ 5.00
30207-3	Right Hand Knob & Nut	\$ 5.00
30207-4	Front Rest Bag	\$ 17.50
30207-5	Rear Rest Bag	\$ 26.50
30207-6	Elevation Jacks & Collars - 2 sets	\$ 15.00
30207-7	Rear Pedestal	\$ 17.50
30207-8	Front Brace	\$ 22.50
30207-9	Rear Brace	\$ 27.50
30088-6	Magnetic Level	\$ 7.50
30207-11	2 Extension Rods & 2 Snap Rings	\$ 22.50
30207-12	Elevation Assembly	\$ 75.00
30207-13	Rod End Retainer - 4 pcs	\$ 7.50
30207-14	Leveler Tip Protectors - 4 pcs	\$ 7.50
30207-15	Bushing Set - 4 pcs	\$ 10.00
30207-16	Foam Pad Set - 3 pcs	\$ 7.50

These are replacement parts for purchase. Pictures do not represent contents of set.

Visit Our Website For More Information or to
Check Out Our Other Great Shooting Accessories: www.hyskore.com

Send Check or Money Order with Phone Number to:

Power Aisle, Inc.

193 West Hills Rd. Huntington Station NY, 11746

NYS Resident add appropriate Sales Tax

**** \$10.00 Shipping & Handling to
Lower 48 States****

**** \$25.00 Shipping & Handling to
Alaska, Hawaii, Puerto Rico****

WARRANTY AND DISCLAIMERS

HYSKORE®/Power Aisle, Inc. guarantees that its products are free from defects in material and workmanship for a period of 90 days from the original date of purchase. For electronic items (anything that requires a battery), the warranty period is also 90 days. This Warranty applies to non-commercial use only. Commercial use voids this warranty. In the event of any defects in material or workmanship, HYSKORE®/Power Aisle, Inc.'s sole liability therefore shall be the replacement of any such product(s) and/or components that are defective in material or workmanship. The replacement of any such product(s) and/or components shall be HYSKORE®/Power Aisle, Inc.'s sole responsibility. This warranty specifically excludes any and all consequential or accidental damages. No other warranties or liabilities whatsoever are either expressed or implied. If any such warranties shall be imposed by law, not withstanding this provision, then such warranties shall be the responsibility of HYSKORE®/Power Aisle, Inc.'s immediate buyer. There shall be no warranties of merchantability, use of trade, or fitness for a particular purpose. Alteration of any product, misuse, or exceeding any stated product limitations voids this warranty. All returns, adjustments, etc. are the responsibility of the retailer/dealer that sold the product. HYSKORE®/Power Aisle, Inc. handles return issues through it's dealers. It should be obvious when using some of these products that approved protective safety gear, including, but not limited to, eye and ear protection, should be utilized. Using the appropriate safety gear is the sole responsibility of the person(s) using the product. It should also be obvious that certain products such as silica gel, etc. must not be consumed, inhaled or taken internally. The user takes full responsibility for inappropriate or incorrect use of these items. In the event an inadvertent event takes place, Material Safety Data Sheets (MSDS) are available on the HYSKORE® website. www.hyskore.com. We do not sell guns, scopes, ammunition, cleaning accessories, etc. These accessories are used in many of our product pictures, as props to illustrate how the products are used. As such, they are not included with any product. All photographs, drawings, copy, instructions, etc. are the exclusive property of HYSKORE®/Power Aisle, Inc. All downloadable files are intended for the use of the end user of HYSKORE®/Power Aisle, Inc.'s products and cannot be reproduced without the express written permission of HYSKORE®/Power Aisle, Inc.

RAPID FIRE® PRECISION SHOOTING REST



Perfect for handguns.



The rest has enough clearance so that lever guns can cycle.