

Palmetto Gun Club Presents

Intro to F-class Prone Competition

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F-class, aka F-Class Prone is a discipline of NRA High Power Rifle, other disciplines within that class are Service Rifle, Palma Rifle, and F-class Prone, which is one of the easiest competitive shooting sports to get into and do well. A disciplined shooter with pretty good equipment has as much chance of winning as anyone and the learning curve in many ways is easier than some other sports such as Service Rifle or even International Rimfire Rifle. These other sports are much more dependent on muscle memory and physical conditioning than F-class, and have a similar equipment costs. F-class is more dependent on tuning ammo & equipment, wind and technique. I compete in many different disciplines F-class is my favorite.

Basic Rules & Procedure:

F5 class is a long5 range discipline of NRA High Power Rules Section 22. There are two sub5 classes, Target Rifle (F5 T/R) & Open Rifle (F-O). The differences between the two are the calibers, max rifle weight and rest types. F5 T/R requires rifles of .223/5.56 or .308 win, max weight of 18.18lbs (8.25 kilos) and a bi5 pod (weighed with the rifle) and rear bag to stabilize the system. F5 open allows rifles of any caliber no larger than .35 caliber (30 caliber for PGC), max weight of 22lbs (10 kilos) and permits a bench type rest of any weight (not weighed with the rifle) and a separate rear bag to stabilize the system.

F-Class Prone is fired in the prone position from the shoulder. The rifle may be supported with a rear and/or front rest or with a bipod and/or sling and rear rest (See Rule 3.4), a shooting mat or ground cover of some type is recommended but optional.

Targets for F-class are split into two categories; for long range targets are NRA type LR @ 800, 900 or 1000 yards. Targets for mid-range are: MR-63 @ 300yards, MR-65 @ 500 Yards and MR-1 @ 600yards. The target rings are ~1 MOA for each ring with the X ring being ~½ MOA. The MR-63 is just under 1 MOA with a 2.85" 10-ring.

Typically strings of fire are 1 minute / shot, 15 or 20 rounds plus sighters. At PGC we allow 5 minutes for unlimited sighters, then we check targets and paste before firing "for record", record shots are counted for score. 2 or more strings constitute a match, scores from all strings are aggregated and the highest score in each rifle class (F-T/R or F-O) is the winner, the number of X's of the tied scores breaks a tie. 2nd & 3rd place finishers may also be declared if the total number of competitors warrants it.

Firing in the prone position requires some practice, and provides the most stable shooting position with the shooter in contact with the rifle and ground. Try to align your target – rifle – body in a nearly straight line. Most shooters will line up at a slight angle to the rifle. Practice your position and dry-fire at home to perfect your technique, sight alignment and trigger press and breath control. Competing at long range isn't about strength or stamina; it is 100% about consistency and being able to move your sub-moa group onto the 10-ring.

The bullets does not travel in a straight line from muzzle to target, at shorter range it may seem that it does. What really happens is you break a shot with the muzzle

pointed slightly up and to either side, the bullet continues to rise up and to the side and reaches its apex and then begins to curve down and the side toward the target dependent of the twist of your barrel (rifle twist) following a bullet means you will follow a smooth curve not a straight line.

Reading the Wind: Bullets traveling at great distances, > 200 yards are much more subject to wind and atmosphere than in other short distance sports. A bullet leaving the muzzle at 2800 fps will take about 1.1 seconds to impact the target @ 800 yards. A constant 10mph wind (the wind is never constant) will move that bullet only 2.9" in 300 yards (< 1 MOA) but at 800 yards the bullet will "drift" 22.5" (2.69 MOA). Learning to shoot in the wind simply takes practice, a set of wind charts, and a bunch of ammo.

Practice, practice, and then practice. Start every session with a goal, i.e. I want to shoot 4x 5 round groups in < ½" @ 100yards. Then I will shoot these groups before I move to longer ranges, maybe 1 ¾" group at 200 or 20 shots in 2" or something that helps develop consistent habits getting on the gun, acquiring a sight picture, pressing the trigger and releasing a round. Shooting long-range starts with position, the right equipment, and practice. We have attached some do's and Don'ts on what you'll need, how to set it up for maximum accuracy and how to maintain it.

Range Procedures:

*During a match the Match Director and anyone he designates is in control of the entire rifle range. Be alert for other shooters not in the match and ensure they are observing the range commands for hot, safe (non-firing handling of firearms), cold (no handling of firearms at all, no looking through scopes or inserting(ed) magazines). During any match **EVERYONE** is a "**RANGE SAFETY OFFICER**" and may call a cease fire, alert the match staff to unsafe conditions, and intervene to correct unsafe acts.*

Typical range commands:

***** Bold words are announced so everyone can hear them *****

Shooters to the line, this is the first opportunity to start placing your equipment in the firing position (usually pre-assigned) and getting ready to shoot. At PGC this is done only while the range is HOT and you can touch your gun.

Pre-prep period has begun, This is the time you when you can handle the firearm with the ECI still in, DO NOT LOAD, CYCLE THE ACTION OR DRY FIRE!

Get your equipment ready to compete, set your scope, rest, bags, ammo and sling *if applicable*. Get ready to get into position. At the end of this period you will still have 3 minutes of prep-time to cycle the rifle, dry-fire and make any final adjustments. Usually 2 minutes or so but if you need more time signal the person calling the match. When all shooters and equipment is on the line (2-5 minutes) start the prep period and a timer.

Your 3 Minute Preparation Period begins now. You may get into position, remove the ECI and cycle the action, dry fire and look through the sights. DO NOT LOAD. Make sure your ammo is close and counted out for the number of rounds you plan to use for sighters and the required course of fire. Get comfortable, relax, breathe, and close your eyes.

Preparation period has ended, (match caller describes the course of fire and time that will be allowed i.e. “you will now have 5 minutes for unlimited sighters” or whatever the next course is according to the match program.) **On the command “Targets UP!” you will have X minutes for Y round for (record or sighters).** **Ready on the right?** *Match caller and ROs look up and down the line for not ready signals from competitors* **Ready on the Left? All are ready on the firing line, with one round load, 3-second pause, Targets UP!** (start the timer) at the end of the allotted time announce;

Cease Fire, Cease Fire, clear chambers and insert ECIs! Make the line safe (its still hot...) visually verify that all rifles are cleared and either go cold or if switching relays instruct shooters to remove rifles from the line once all rifles are removed from the line (or confirmed safe if the same relay will shoot the again) make the range cold and send scorers forward to score, past or replace targets.

Standard Equipment:

Rifles, the average off the shelf deer rifle won't do, but many of the new heavier "tacti-cool" models will. Some shooters prefer a complete custom rifle with the finest optics available and ultra precise hand loads. We won't recommend a specific model(s) or brands or even a recommended spend level. What we will suggest is you see what the successful shooters are using and provide a basic outline for a good platform. A high quality rifle from reputable manufacturer or gunsmith should have a heavy barrel for the caliber, these are often referred to as varmint or bull or target profiles. A good heavy stock that fits the action well or is properly bedded to the action. The trigger should be adjustable, break cleanly with no creep, some shooters are using Timney, Jewell or Geissele, many other major brands can also be used. The lightest pull possible will probably be best, with some shooters preferring 2 - 3 ounce pulls others as high as a couple of pounds.

Scope and mounts, good quality optics with thin crosshairs is best. You can spend as little as \$500 or as much as \$5000, all will play but the older weaker your eyes are the more you need the best optic you can afford. Most shooters choose to use a variable power optic and a top magnification of between 20x and 50x. A cheap 5x-30x scope will not have as good an image as a good quality 4-20x. Ask around and look through the scope at targets 600+ yards away before shelling out \$\$\$\$.

Mount a good optic, professionally on good rings and a good 20 MOA rail. The 20 MOA rail is essential as it allows most scopes to "dial up" enough angle (20-30 **Minutes Of Angle**) needed to reach to 800 - 1000 yards. It will also place your scopes internal reticle closer to the centerline of the scope tube & "optical lens group" allowing significantly more light to reach your eye. More light means less eyestrain and a better view of your target. The subject of scopes and mounts is so controversial it can't be summarized here, what we can tell you is that it needs to be installed properly and setup correctly for your eye in the prone position. Take your time and do it right, get experienced help if you need it.

Ammo selection/loading, each gun seems to shoot one load better than others. Advanced load development and hand-loading techniques are not required but are

very helpful. Factory ammunition even factory “Match” ammo does not have the consistency to produce small groups for many rifles over the long run. If you have some factory ammo that shoots $< \frac{1}{2}$ ” groups at 100 yards you should buy a lot of it. A lot of ammo is usually produced on a single production line in one run, and it may not shoot as well in other guns or the next “lot” wont produce the same results in your gun next time. Precision hand loading is where repeatable precision begins, even if you don’t compete; hand loading is a big part of the long-range sports. You don’t have to start out hand loading for your rifle, you can buy good quality match ammo and win, but in the long run it pays to hand-load. Hand loading gives the ability the to shoot what you want when you want and fine tune the load for your rifle and the conditions. Hand loading can also save you some money, but in reality the equipment investment is significant if you only load for long range.

Rests:

The front rest you choose partly depends on the “rifle class” you plan to shoot; in open class most common is the heavy rest, a shooting rest (*Fig1*) with mechanical adjustments for elevation and windage and its own bag to pad/support the fore-end of the rifle. This rest will weigh 15lbs or more and does NOT count in the weight of the rifle (22lbs for Open). F-T/R rifles must use a bi-pod of some type; shown below are the F-class bipod (*Fig2*) and the Tactical bi-pod (*Fig3*) that WILL BE WEIGHED with the rifle for a total of 18.18lbs. optionally F-T/R guns may employ a sling to help stabilize the rifle.

Fig 1



Fig 2



Fig 3



Rear bags are two basic types; “rabbit ear” or “squeeze bag”. The Rabbit ear is usually a heavy-sand filled leather bag with ears or tabs on top (*Fig4*) to center & support the bottom/sides of the rear stock and allows the stock to ride forward and back with little resistance. This is a virtual standard with the open class shooters.

Fig 4



Fig 5

very popular with T/R class shooters as well.

The squeeze bag (*Below*) is popular with tactical shooters, snipers and T/R shooters and does not provide as much support but allows quick elevation adjustments. The techniques for each type of rear support are completely different and you should try both before investing in your own high quality bag. You may also use “flat plates or blocks” to raise the front or rear rests, any number may be used but must not serve to form a table, or connect the front and rear rest systems.



The shooting mat can be as simple as an “army Blanket” or tarp and as elaborate as a special made shooting mat with pockets, pads anti-slip areas and straps to make it all easier and comfortable. Here you probably don’t need to spend

a lot and just consider your typical shooting situation and position. If you shoot from concrete under cover you may want more padding, if you are shooting from the grass in the open, you may want it to be water and dirt repellent.

D.O.P.E. Book: this is a notebook of information specific to you, your rifle and ammo and the weather conditions you have encountered. Data On Previous Engagements is a time honored and proven concept for getting all the little details that have an effect on where your bullet will go after it leaves the barrel. With a DOPE Book you can lookup settings for your scope, record how many rounds you have fired and any pertinent maintenance information. You can also record the “Come Ups” for each distance and temperature that you have fired and use this information to make better more accurate shots on target.

Other equipment Other equipment like spotting scopes, wind meters, ballistic calculators, etc. are not that common on the firing line, but you are welcome to use whatever helps you. You can use them (nothing can be placed forward of the firing line) if you like but in F-class Prone they might be more distraction than aid. Brownells.com, MidwayUSA.com, Creedmoor Sports, or Shooters Choice are good sources for equipment.

Prohibited items: any pads, rest or support intended to help steady the shooter that is not attached to the shooter or the rifle other than the “class allowed” front and rear rests. Ex. a sandbag under your support wrist or shooting palm, any item placed between the rifle and the shoulder to blunt recoil (except if worn by the shooter)

Tables or supports to aid the shooter in maintaining position are not permitted (except where allowed by NRA for accommodating disabled shooters). Shelters to protect the shooter or rifle from wind or rain are not permitted. However shooters may wear appropriate clothing to shield themselves from weather.

Wind flags or other hardware cannot be placed forward of the firing line unless provided by the match sponsor and provided for the equal use of all competitors.

Technique: you need to have good “fundamentals” to shoot well at long distance. Doing this is not difficult nor does it require any secret knowledge.

As taught in the NRA Basic Rifle course the 5 Fundamentals of Rifle Shooting are:

1. Aiming
2. Breath Control
3. Hold Control
4. Trigger Control
5. Follow Through

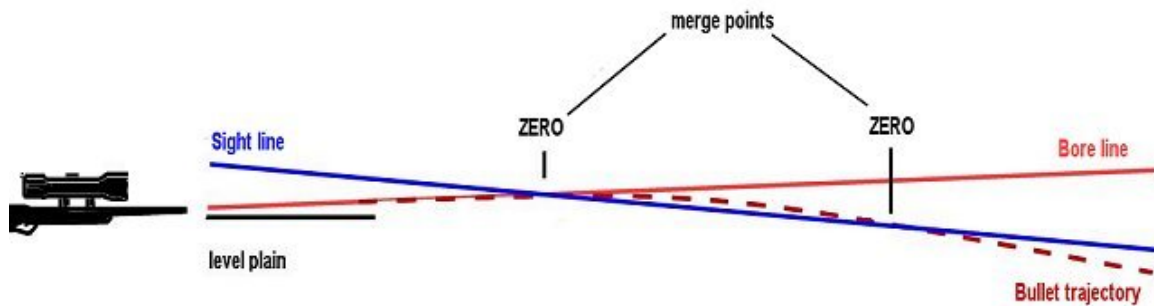
Add to these a stable shooting platform (position of your body, plus your rest(s), and the relationship of the rifle to your body) and you have all that is required to consistently put rounds in the 10 ring. Get a good position on the rifle your head comfortable with your eye perfectly aligned in the scope, relax your body as much as possible while maintaining a good sight picture, then follow the 5 steps in order.

Some shooters use the acronym BRASSER to remember to Breathe Relax Aim Squeeze Shoot Reload. Follow through is a very important step in the process, this means that after “break the shot” and the recoil cycle starts you need to remain in position, flinching as little as possible and try to remain focused on your body-rifle-target relationship. If you break a shot and flinch before the bullet has left the barrel you will not impact the target as desired.

Bullet Drop:

As soon as a bullet leaves the muzzle it begins falling away from the bore line toward the earth. The bore line is actually angled upward to intersect with the scope centerline (crosshairs), therefore the bullet travels upward in relation to the sights or reticle and crosses the line of sight twice, once on the way up (near-zero) and again on the way down (far-zero). Example: the M16-A2 has a near zero of 25M

and a far zero of 300M. The same point of aim will be a hit at both distances.



It is important for you to know your gun/ammo trajectory at all possible distances. Use a ballistic calculator to determine the height or drop at various distances from the muzzle to 1000 yards in 50-yard increments. Record or print this table for your gun/ammo combination and keep it as a handy reference in your dope book.

Books and References and etc.

There are many, many good books on long range shooting, and F-class in particular. There is also a huge number of other materials that are available free on the internet, just be cautious with information from “forums” or BBS type sources.

Especially when it comes to ammo and loading don't take ANYONES word at face value, double check and ask people you know. The following list of books, links and websites will help you get deeper into the knowledge but the basics are covered pretty well above and in the [NRA High Power Rifle Rules](#) booklet the most recent edition (at time of writing this) “Revised January 2014” can be found here;

<http://compete.nra.org/official-nra-rule-books.aspx>

Bullets and Powder manufacturers have a wealth on information on the various rifle shooting disciplines. In particular Berger's reloading manual has a great section on F-class as well as other rifle disciplines. The Berger Bullets website (and many other bullet or powder manufacturers') have resources such as ballistic calculators, load data and Books and other products; <http://buybergerbullets.3dcartstores.com/>

<http://www.bergerbullets.com/ballistics/>

Nosler: <http://www.nosler.com/> has similar resources and produces great reloading brass, the club members can get discounted bullets and components.

The firing line is a community forum with lots of great information, just be careful to weed out opinion from “informed opinion” and fact. <http://Thefiringline.com>

A few other links that may help:

<http://www.brownells.com/> <http://www.sinclairintl.com/>

<http://www.creedmoorsports.com/shop/home.php>

<http://www.midwayusa.com/>

<http://www.opticsplanet.com/>

<http://www.imrpowder.com/basic-manual-inquiry.html>

<http://www.hodgdonreloading.com/>

<http://www.jprifles.com/>

<http://milehighshooting.com/>

<http://www.gunwerks.com/>

<http://www.gaprecision.net/>

Sample come up (trajectory table) for 308 Win !68gn Sierra Match King @ 2763 fps.