



MATCH DIRECTOR HANDBOOK

A GUIDEBOOK FOR DESIGNING,
HOSTING, AND DIRECTING
RIMFIRE PRECISION RIFLE MATCHES

INTRODUCTION

As match directors, we strive to create matches that provide an enjoyable experience for all participants. We have found that the key ingredients to an enjoyable match are: safety, fairness, challenge, and a feeling of accomplishment.

This guidebook has been created using the lessons that we have learned over the past 5 years of competing in and directing precision rifle matches. The rimfire side of the sport will be the main focus of this handbook; however, the majority of the topics discussed will be applicable to centerfire as well. It should also be noted that the topics covered here are geared mostly toward larger, 1 or 2-day matches, but feel free to apply these lessons to smaller local matches.

The nature of this handbook is intended to serve purely as a set of recommendations – and not as rules set in stone. The evolution of the sport is still in its infancy, so the quest for the perfect match formula is still in process. We openly invite your feedback regarding the topics in this handbook, and plan to make regular revisions as we all continue to learn together.

-Ruth and Justin

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MATCH PREPARATION AND COMMUNICATIONS

LOGISTICS

While planning your match, there are several things to consider that will impact its success. An important consideration is when you will open the range to competitors. Will the range be open the day prior for sight-in and DOPE gathering or early registration? Will shooters be allowed or not allowed on site during certain hours? If you are hosting a Range Office (RO) shoot the day prior to the match, you may not want competitors on site until the RO match is completed. For your out-of-town competitors, knowing this information in advance is very important for planning purposes. Communicate whether the range will be open the day prior to the match and the hours the zero range will be open the day of the match in your match description and shooter emails (see [Match Description](#) and [Shooter Communications](#) sections below). Also be sure to include whether there are any additional fees for use of the range prior to the match, or other items for shooters to purchase.

Course Of Fire and Range Access

You will want to consider when you will release your Course of Fire (COF) to competitors. Waiting until the morning of the competition to release your COF is a popular option. If you allow early registration the day prior and choose to release the COF to those competitors, you may want to consider emailing the COF electronically for those who are unable to get to the range for early registration. This will reduce the perception of an unfair advantage, favoring those who could get to the range early. The same issue applies to whether you allow competitors to walk through the stages prior to the match. If this is an option, you will want to determine this in advance and make sure everyone is aware of the opportunity well before the match so they can plan accordingly.

Accommodations and Amenities

There are a few very important accommodations that should be made for any match. The first, is adequate bathrooms for both genders. It is easier for male competitors to relieve their bladders in a field type match than it is for female competitors. Make sure you have adequate bathrooms for both genders available *within a reasonable distance from your firing line*. If there is a lengthy walk from one end of the match to the other, invest in a second bathroom so they can be spaced out accordingly. Your male and female competitors will all be grateful for the level of fairness that comfortable bladders bring to a match.

Another must-have for hosting matches is access to drinking water. Many matches occur in hot weather. Heat stroke and dehydration can come on very quickly when people are out in the elements. Having enough water and a plan to keep it replenished at the stages is very important. We learned this lesson the hard way at a large match we hosted, where we had plenty of water available but did not have a dedicated person to ensure it was being replenished at the stages throughout the day. Some of our shooters had an hour-long period of time on a hot summer day without water readily available to them,

which degraded their overall experience of the match. Bottled water is extremely cheap, so the ROI of its use is extremely high. Plan to have plenty of water, and have a plan to keep it stocked.

Additional items to consider for your match are shaded canopies for protection from the elements, and shooting mats for prone stages. The more you can isolate the shooters from the weather conditions, the fairer and more enjoyable it will make your match.

Lunch is usually expected by the shooters at big matches. We recommend a light lunch, as big meals can bog the shooters down and put a damper on the flow of the match. If you can deliver the lunches to the squads, this is the best way to minimize the effect of lunch and will keep the match flowing. A bonus amenity is to consider various allergies and diet restrictions.

Lastly, a bonus accommodation that you can make is to provide snacks to your shooters. Snacks keep the shooters nourished throughout the day, and their feedback has been that they appreciate the added touch. Snacks that we have found to work well are: trail mix, granola bars, and jerky sticks. Consider nut-free options for shooters with nut allergies.

Prize Table Walk and Cash Payouts

One of the most controversial topics when it comes to matches are the prize tables. The best way to avoid ill-feelings about your prize table is to communicate the method that will be used for the prize table walk well in advance, preferably within your match description. This provides shooters every opportunity to know what to expect, and will prevent letdowns or false expectations.

Communicating prize distribution methods is especially important for matches with cash payouts. Like with anything in life, once you insert money into the equation people will have stronger feelings. Early communication of your payout methods reduces the chances people will interpret the payout as biased or unfair.

Some options for prize table walking order are: shooters walk in order of match placement, shooters walk in order of random draw, or some combination of the two. We choose to use a combination method, where shooters walk in order of match placement until the trophies are awarded, and then the order transitions to alternating between a random draw and the next highest finish. This method strikes a nice balance between spreading the prizes out amongst all skill levels, yet still rewarding shooters with strong placements. The only downside of this method is that keeping the order organized can be a challenge. We created a spreadsheet that creates the order for us.

Match Duration

Another highly important item to consider during planning is the length of your match. When determining the maximum number of shooters you can support for a match, consider the size of your range and its capacity for the number of shooters, vehicles, equipment, facilities, etc. Also consider how much daylight you have to work with, what time you can start shooting at the range, how much time you will allow shooters to zero, and how long the awards ceremony will take.

Match duration becomes particularly important during the winter months, when there are reduced hours of daylight. It is common for a new match director (MD) to underestimate the length of time it will take to get through their COF, which can leave shooters using every drop of available sunlight to

complete the match. Matches that run late can make for a very long day for your shooters, and possibly a reduced level of enjoyment from the match.

One way to minimize match duration is to spread the shooters out as much as possible. This means having the same number of squads as the number of stages, and the same number of shooters on every squad. We do not believe that having breaks between the squads is of benefit for speeding up the match – at least not at the expense of increasing squad sizes.

An exception to the recommendation above is to keep the squad sizes at 5 shooters or more – especially for matches without RO's. This helps the flow of the squad by allowing shooters enough time to focus on prepping, shooting, and post-stage recovery, while still having enough other people in the squad to cover the responsibilities of spotting, timing, and score keeping.

Match Duration Formula

We have created the following formula for estimating the length of your match:

$$\text{Match Duration} = (\text{Par Time} + \text{Prep Time}) \times \text{Squad Size} \times \text{Stages}$$

- Par Time: the time you allow them to shoot for your single stage with the longest time
- Prep Time: the lag time between shooters for your single slowest stage*
- Squad Size: the number of shooters on your single largest squad.
- Stages: the number of stages in your match. If you are using mulligans, increase the number of stages by 1 in the duration calculation.

Notes regarding the match duration formula:

- *Since it can be hard to predict the amount of prep time that will occur at your slowest stage, we recommend using 1.5 minutes as a starting point. Consider the following to have a better idea of the prep time of your slowest stage:
 - Whether there will be ROs keeping things moving, or if the squads will self-RO
 - Whether there will be a lengthy walk before the stage
 - If the complexity of the stage will warrant increased prep time before shooting, e.g., unknown distance stages, blind stages, stages with community gear used, stages that require shooter to end far from the starting line, etc.
 - The smoothest matches can use 1.0 minutes for prep time. This would be the case if none of your stages will have complicated shooter setups, if there are no long walks between stages, and if there will be ROs to keep things moving.
- The length of your match will be the amount of time that it takes the slowest squad to finish the match. Therefore, if you have a slow squad in your match, consider doing things to help them move quicker.
- Purposely increasing the squad sizes, for the reason of placing gaps between the squads, will not reduce the match duration, but will instead increase the duration because it will slow down the slowest squad by adding more shooters to the squad.
- More considerations for the match duration are:
 - If you will break for lunch or if you will serve lunch at the stages

- Potential for calling the range cold to fix targets (see [Match Setup](#) for ways to minimize this)
- Potential for weather delays
 - Consider fog in the mornings, rain, snow, lightning, etc.
- Mulligans. If mulligans are used, increase the number of stages by 1 in the duration calculation.

Example: 2021 MPS NRL22X Match, 6.5-hour match (actual data)

Stages: 12 stages

Squad Size: 10 (the largest squad size had 10 shooters)

Par Time: 2 min (the stage with the longest par time was 2 min)

Match Duration: 6.5 hours (the actual match duration was 6.5 hours (390 min))

Prep Time: Using the formula to back-calculate, the actual Prep Time was 1.0 minutes

Note: This match had ROs keeping things moving, had lunch served to shooters at the stages, had minimal stoppages, and no long walks between stages. Mulligans were used.

Example: 2022 NRL22 Championship Match, Iberia, MO 15 hour match (actual data)

Stages: 21 stages

Squad Size: 12 shooters per squad

Par Time: 2 min (all stages)

Match Duration: 15 hours (900 min)

Prep Time: Using the formula to back-calculate, the actual Prep Time was 1.6 minutes

Note: This match had ROs keeping things moving, had lunch served to shooters at the stages, had minimal stoppages, and no excessively long walks between stages. No mulligans. Day 2 had a few bottlenecks due to some squads not having shot as many stages on Day 1.

Example: Hypothetical 4-hr match

10 stages

8 shooters per squad

2 min (120 sec) par times

1 min prep times (with ROs, lunches served, no stoppages, no complex stages, no long walks)

$10 \times 8 \times (2+1) = 240 \text{ min} = 4 \text{ hrs}$

Example: Alternate Hypothetical 4-hr match

12 stages

8 shooters per squad

1.5 min (90 sec) par times

1 min prep times (with ROs, lunches served, no stoppages, no complex stages, no long walks)

$12 \times 8 \times (1.5+1) = 240 \text{ min} = 4 \text{ hrs}$

MATCH DESCRIPTION

Shooters will determine whether they want to shoot your match based on the information you provide in your match description. The more information you can provide up front, the better they can decide whether your match is the type of match they want to shoot. The following is a list of elements that should be included in your match description:

Must Haves

- Match Format: describe the format that will be used, e.g., team match, hunter-style, or conventional PRS-style
- Match fee
- Min and Max Target Distances
- Maximum Round Count
- Squadding method
- Address of Range
- Zeroing opportunity: Whether or not they will be allowed to zero before the match, and the zeroing distances that will be provided
- Agenda for Zeroing/Sight-in Day (if applicable): describe the agenda for the day before the match, e.g., registration, match book distribution, stage walk-throughs, DOPE gathering opportunity, etc.
- Agenda for Match Day: when to arrive, when zero range will be open, when to meet for match brief, when lunch will be provided, etc.
- Food and beverages: what food and drink will be provided, and what the associated costs will be
- Special rules or requirements: other than those outlined by the affiliated organization
- Prize table walk order
- Mulligans: yes or no, and cost
- Any additional fees for use of the range, side stages, food/drink, etc.
- RO recruiting ask

Nice to Haves

- Greeting to shooters
- Why shooters will want to shoot your match
- Special announcements regarding vendor participation, after-match meetups, etc.
- Suggested accommodations for the local area (or areas to avoid)
- Allergies/alternative food options for dietary restrictions

By including information from the lists above, you will paint a clear picture of what shooters can expect from your match. This will not only prevent the perception of things being unfair, but it should greatly reduce the number of questions in your inbox! In addition, clearly listing the details for the match will increase fairness, and will most likely increase the amount of participation in the pre-match events like side stages, vendor booths, and other festivities.

See example match description in [Appendix A](#).

Shooter Communications

MD communications to shooters is a very important component to ensure a successful match. Many grievances can be avoided by proactively communicating expectations to shooters. There are several times when a shooter should receive a communication from the match director, either automated or manually sent:

1. Registration Confirmation
2. Squadding
3. Week prior to the match
4. Day prior to the match
5. RO Communications

Registration Confirmation

A simple email should be sent indicating the shooter is registered for the match and their registration has been accepted. If payment is taken at time of registration, confirmation of payment should also be included. This email is automatically sent when utilizing PractiScore for match registration, but the MD will choose the specific text sent to shooters. This email can be short and to the point but should include next steps shooter can expect such as, "Squadding will open four weeks prior to the match date."

Squadding

Once squadding is available, an email should be sent to notify shooters and indicate the method by which squadding will be handled. We recommend utilizing self-squadding using PractiScore to allow shooters the opportunity to choose who they are shooting with.

Some situations might call for the MD to squad the shooters directly. For example, match directors may want to choose squadding for a series finale match where participants are squadded based on series scores. This puts the similarly skilled shooters in the same squad, minimizing scores being affected by changes in conditions throughout the match. In these instances, make sure that the squadding method is outlined in the match description to avoid disgruntled participants.

If you foresee any reason you will need to modify or rearrange squads (and there are many reasons this may need to occur) include a disclaimer to shooters indicating squadding is subject to change. Whenever possible, proactively reach out to shooters who you will need to move out of their squads and include the reason for the change.

Week Prior to Match

Shooters should receive an email around one week prior to the match date reminding them of important information already shared in the match description. The agenda for the match, location information and directions, as well as any changes that have taken place or other important information for travelers should be shared in this email. This can be copy and pasted from your match description but should be pared down to only include pertinent information about the match agenda and logistics. This email should also include updates on range access, weather conditions, or items that shooters should make sure to bring with them to the match (bug spray, cash for side stages, rain gear, etc.)

Day Prior to Match

The day prior to the match, we recommend sending a quick email to shooters with any last-minute changes and reminding them when the range opens for the match and zeroing. You may also choose to send out the Course of Fire in this email. Also include any details regarding navigating to the range, weather considerations that have changed, or any information you yourself would like to have if you were a match attendee.

RANGE OFFICER (RO) COMMUNICATIONS

Your Range Officers (ROs) are the single most important component to the success of your match. Ensuring Range Officers are prepared and feel supported by MDs will help them better serve your match and will make them more likely to return to RO future matches. For ROs, you will want to send a communication confirming their commitment to RO the match and thanking them as soon as you

receive an inquiry about their volunteering. You will also want to ask a series of questions for your records as you plan your match.

We recommend asking the following:

- Do you own a tripod and spotting scope or binoculars and, if so, are you willing to bring them to the match?
- What day/time are you available to arrive at the range?
- What is your shirt size (if you are providing RO shirts)?
- What's your preferred way of receiving communications (email, text, phone call)?
- What is a good phone number to reach you?
- Have you ever been an RO at any matches before? If so, how many and what types of matches?

Knowing arrival days and times will help you know who is available to help with setup, who will be able to participate in an RO Shoot (if applicable), and which stages each person can or should be assigned based on their skill/experience level. You would not want to assign an RO to a complex stage, for example, if they are unable to arrive prior to the morning of the match. Having phone numbers for each RO is critical for urgent communications the day of the match and if you need to reach out with questions or concerns prior to the match. If you will be hosting an RO shoot, you will also want to ask ROs if they have a rifle or will need to borrow one.

RO Communications should occur whenever you contact shooters so they are kept up to speed on any instructions shooters have about arrival times, zero ranges, and rules. Be sure to add them manually to any shooter communications and send them a unique email the week prior to the match and day prior to their arrival at the range if they are expected to arrive early.

SPONSOR COMMUNICATIONS

Working to find sponsors for your match can easily entail more work than any other part of this process. However, as time goes on, and you begin to develop more relationships within the industry, finding sponsors becomes easier over time.

Sponsors are more than just people sending match directors prizes for the prize table. Many new MDs do not leverage sponsorship relationships to their fullest potential. When approaching sponsors for your match, try to be creative about how you can accommodate them and showcase their products. If you can find synergistic ways to incorporate their products into your match, the entire industry, including the shooters, will benefit.

At a minimum, when contacting potential sponsors, be prepared to provide match details such as: match type, series or league, range location, dates, number of shooters, etc. This gives sponsors an idea of who their products will be exposed to and what types of products might be the best fit for the clientele.

You should also include what the sponsors can expect from you in return for any products or monetary support they provide.

RANGE OFFICER RECRUITING

IF YOU BUILD IT, THEY WILL COME

There's no question that matches are better when they have Range Officers (ROs). Competitions with ROs tend to be safer, more efficiently, fairer, and all-around more professional. Most people agree on these benefits, but not everyone agrees on the feasibility of all matches being able to attract enough volunteers for a full complement of ROs. It is our belief that if the proper incentive package is put in place, there is a high likelihood that an adequate number of quality volunteers will sign up to RO your match.

Okay, let's talk about how we can complete the mission of attracting quality ROs to your match. For starters, let's touch on what we believe are **the basic reasons that people participate in events**:

1. To be part of something/to feel a sense of belonging/to feel like a member of a group.
2. To fulfill a purpose/to be effective/to grow and succeed.
3. To feel appreciated and know their contributions made a difference.

If you keep these 3 aspects in mind when deciding on how to attract ROs, it will guide you towards the most effective recruiting incentives.

Special note: *these 3 aspects are the same ones that attract shooters to matches. Consider these when designing your match, and you will have a higher shooter turnout.*

RO Recruiting Mission Statement

Okay, now that we've identified the goal, and the basic direction forward, let's define the mission statement.

RO Mission Statement: To attract a full complement of quality ROs by offering incentives that provide a sense of belonging, give a feeling of purpose, and show appreciation.

Incentives for ROs

Next, what are some incentives that you could use to attract ROs? Here's a list of possibilities:

- Offer them the same goodies that the shooters receive: match t-shirt, shooter packet, etc.
- Allow them to contribute to match design/setup/proving-out stages
- Give them special jobs/responsibilities (e.g., running side stages, food prep, managing the zero range, handling check-in, etc.)
- Allow them to participate in the side stages and pre-match festivities
- Let them shoot the match (have an RO match the day prior to the official match)
- Let them walk the prize table
- Give them chances to win trophies (RO side match)
- Allow them to earn series points
- Publicly recognize them for their efforts (individual recognition is even better)
- Thank them personally (individually is preferred)
- Find a sponsor to highlight the ROs and provide food and/or prizes specific to the ROs

- Waive their entry fee
- Provide food/snacks
- Cover their expenses (fuel, lodging, etc.)
- Pay them a stipend

In the list above, there are many possible incentives you could offer. Nobody expects you to offer all of them; however, you will need to offer enough to attract competent ROs – and we have found that is very reasonable to offer most of them.

To choose the options that might be the most effective for your audience, let's sort them out by category (priority):

1. To be part of something/ to feel a sense of belonging/ to feel like a member of a group

- Offer them the same goodies that the shooters receive: match t-shirt, shooter packet, etc.
- Let them shoot the match (have an RO match the day prior to the official match)
- Allow them to participate in the side stages, pre-match festivities
- Basically, enable them to participate in as many things that the shooters do as possible
- Don't forget to include the ROs in all of the shooter communications!

2. To fulfill a purpose/ to be effective/ to grow/ to succeed/ to achieve/ to make a difference

- Allow them to contribute to match design/setup/proving-out stages
- Give them special jobs/responsibilities (e.g., running side stages, food prep, managing the zero range, handling check-in, etc.)
- Let them shoot the match (have an RO side match)
- Let them walk the prize table
- Give them chances to win trophies (RO side match)
- Allow them to earn series points

3. To feel appreciated/ like their contributions made a positive difference

- Publicly recognize them for their efforts (individual recognition is even better)
- Thank them personally (individually is preferred)
- Find a sponsor to highlight the ROs and provide food and/or prizes specific to the ROs

4. Monetary incentives

- Cover their expenses (fuel, lodging, etc.)
- Pay them a stipend
- If the match budget allows, covering RO expenses and/or paying them a stipend is a nice touch; however, might not be the best use of resources. It is our belief that **monetary incentives are not the primary reason that ROs will participate in your match.** Instead, we believe it is most effective to focus on sections 1-3 and spend your match resources there.

5. Basic human needs (even though this is number 5 on the list, we feel these are all mandatory)

- Waive their entry fee
- Provide cold water/hot beverages
- Provide 2 meals per day AND breaks to enable them to eat

- Provide shelter from sun and rain
- Provide adequate bathrooms AND make sure they get occasional bathroom breaks

Holding an RO Match

The first big decision that you need to make is whether you can offer the ROs a chance to shoot their own match the day before the main event. We really think that this is the most important feature that you can add to your match, and an RO match is a prerequisite for a lot of the other incentives. **Not only is having an RO match a nice perk for the ROs, but it can also a great benefit to the match director!**

The RO match is essentially a way to have many people prove out the stages. It's also a way for the ROs to become familiar with the stages, so it eliminates the need for you to do a stage walk-through with the ROs. Lastly, since you're probably going to be using PractiScore to score the RO match, you can also utilize the functions within PractiScore to handle the RO registration and communications.

Assuming you're going to hold an RO match, this enables you to offer several other perks that we feel are really effective at attracting ROs: awarding trophies, prize table walks, and series points. Of these, the awarding of series points is by far the most complicated, and will require working within your organization to implement. With that said, the RO trophies can be a very easy addition to the ones that you are already ordering. This leaves the RO prize table walk. We have built an Excel spreadsheet for handling this. We copy/paste the results from PractiScore into the spreadsheet and it automatically mixes the ROs in with the shooters and sorts them all based on a predetermined method of sorting.

Once you have implemented the RO match with awards, the rest of the incentives are pretty easy. You just need to put in a little effort to add them in, and to always remember to include the ROs in as many of the things that the shooters do as possible. And always remember to be appreciative for their efforts, to publicly recognize them, and to personally thank them.

Real-Event Examples

The sweet spot: In the last 4 NRL22X matches that we hosted, we offered all of the incentives on the list except the following: the ROs did not earn series points, no special RO sponsorships were offered, and little to no monetary incentives were given. We did, however, offer an Airbnb for the ROs to stay in for a few of the matches, but this did not seem to be as important to them as we thought it would be. If you want to skip the lodging, you would probably still have plenty of volunteers for your match.

Now that we've recommended a recipe for attracting ROs, you might be asking if the recipe meets the mission? It has for us! In each match, there was a full complement of ROs (2 per stage) as well as extra helpers for special jobs like food prep, water, and trash. And good things tend to multiply, as we've had no trouble filling all 50 RO slots for the upcoming NRL22 Championship. And believe it or not, **the RO slots were filled 8 months before the match!**

Another successful use case: the NRL Hunter series is a shining example of how an RO incentive process automatically attracts ROs. The Hunter series relies on ROs because the match format is based on blind stages, and these would not be possible without officials working every stage. Therefore, they have offered incentivizing perks for ROs. Some of these include an RO match the day before the event, their scores being eligible to earn match/series points, prize table walks, trophies, and all with no match fees. These incentives have proven to be effective, as **Hunter matches tend to fill all of the RO slots very**

quickly. There's even been so much interest in ROing that some of the match directors have gone to an application process, in which the most qualified RO applicants are accepted.

One last idea to consider: onboarding ROs does not need to pull people away from your current pool of shooters. If done correctly, your process will grow the participation pie by attracting new people to your event that wouldn't typically have participated. People like friends and family of regular shooters, and beginner-level shooters who might benefit from a less-intimidating match environment and from the opportunity to learn how matches work from this inside by being an RO.

To recap, we strongly believe that ROs make for a better match, and that successful RO recipes already exist and are being used effectively. Please consider using these tips to recruit ROs for your next match. And **please help spread the word!** Let's incentivize more ROs so that we can all benefit from safer, fairer, more efficient and more professional matches.

MATCH DESIGN

SAFETY

Our sport requires the manipulation of equipment that, when used improperly, can cause serious injury or death. Maintaining a high level of safety at precision rifle events should be a core value to all MDs, ROs, and match participants. Let's take a moment to discuss how MDs can create a process for enforcing safety at their matches.

As a match director, you should have a defined safety policy that you use to state safety rules and penalties in the event that a rule is violated. You should also have a defined safety brief that is announced before your matches. The policy and the brief may be the same document, as

So, before you direct your first match, take the time to either define your own set of rules and penalties, or find a preexisting set of safety rules that you agree with. These could be obtained either from the website of the governing series or league that you are affiliated with, or from another match director or organization. If you would like to start off with what we at MPS use for our matches, feel free to use the [MPS Safety Brief](#) found in Appendix C. (Disclaimer: the MPS Safety Brief is only our opinion on what constitutes a safe match environment, and does not ensure that accidents will not happen.)

Your safety policy/safety brief should be used in the following ways:

1. The safety policy should be presented to all ROs and shooters before the match begins
 - a. Consider sending it to shooters in a pre-match email. Otherwise, in the case of a match featuring a zeroing-day before the match, an entire day of shooting would take place without the MD having communicated the policy to the shooters
2. ROs should have a printed copy of the policy to use for enforcing safety during the match
3. The safety policy should be adhered-to by the MD when making decisions regarding safety infractions in their match
4. The safety policy should be a living document that is revised and updated each time new lessons are learned regarding safety

While designing your match, it is important to consider ways in which your match design can increase or decrease the possibility of safety issues occurring. For example, when props or barricades are placed in a way that the shooter will be slightly ahead of or behind the firing line it is paramount that the ROs for that stage are briefing competitors about safe muzzle direction and are interrupting the stage to prevent competitors from pointing their muzzle in an unsafe direction. Other barricades and props can create spauling if struck by a bullet which is a major safety hazard. When choosing to have shooters shoot past or through barricades (such as the rungs of a ladder or the window of a vehicle), ensure a safe space is marked where the bullets will clear all parts of the prop and make sure your ROs explain potential hazards to your shooters during the stage brief.

Tips for a Safe Match

- Set the tone for a safe match during your safety briefing - be stern during the brief.
- Have a marked area at every stage for competitors to safely stage their rifles.

- Coach ROs on how to deal with and, more importantly prevent, safety infractions during the match.
- Include your safety policy in your match book so that all competitors have their own copy.
- Empower every participant to work together to enforce safety at your match. Motivate them to work together and point out safety concerns before they become a violation or an accident.

See [MPS Safety Brief](#) for example in Appendix C.

TESTING YOUR COF

The first rule of proper match design is to test your course of fire before the match. The second rule of proper match design is to test your course of fire before the match. We have developed this philosophy based on years of shooting and hosting matches. Here are some of the many reasons why you should test your COF prior to match day:

- Shooting the COF is the only way to see the match from the shooter’s perspective
- Things you didn’t consider will become apparent when you are shooting
- Sometimes the only way to know the difficulty level of a stage is to try it
- Target malfunctions become apparent when you test the stages
- You will discover confusing scoring aspects when logging scores during practice
- Having ROs shoot the COF will help familiarize them with the COF prior to the match and help to identify and last-minute adjustments needed
- Match book errors can be found while you are following instructions for the stage
- Testing and making adjustments to stages minimizes the chances of a stage needing to be thrown out of the match due to an oversight

The more testing of your course of fire you do before the match, the smoother it will run.

STAGE FORMAT

When writing your match booklet, knowing what to include in each stage is very important. The ROs rely upon the stage descriptions for consistency and clarity. Shooters have less “wiggle room” to game stages when the course of fire is straightforward and clear.

All stage descriptions should include the following:

- Stage number/name
- Par time
- Round count
- Points awarded per impact
- Total points possible
- Target distances (when possible)
- Target sizes (optional) We choose to not include target sizes in our match book. This gives us the option to change target sizes the morning of the match, based on weather conditions
- Equipment restrictions
- Starting position
- Stage procedure

Be sure to put some thought into how a creative person could work around the rules and find ways to shoot the stage in a way that was not intended by the stage designer. We call these creative shooters “Gamers.” It’s nice to have a Gamer on your MD or RO crew to help go through the stages with you and look for easier ways around your stage rules that you may have overlooked.

Any special notes regarding the rules of the stage should be in an easy-to-read location and highlighted in a way that they could not easily be missed when reading through the stage description. These notes should also be specifically pointed out to the ROs, and the ROs should emphasize them to shooters during the stage briefing.

See example Stage Description in [Appendix B](#).

STAGE DIFFICULTY

Overall Match Difficulty

It is recommended that the difficulty level for your match meet the following criteria:

<i>Match Difficulty</i>	<i>Too Hard</i>	<i>Just Right</i>	<i>Too Easy</i>
<i>Winning Hit %</i>	<70%	75-85%	>90%
<i>Average Hit %</i>	<45%	50-60%	>65%
<i>Fairness</i>	<i>Less Fair</i>	<i>More Fair</i>	<i>Less Fair</i>
<i>Challenge</i>	<i>Discouraging</i>	<i>Balanced</i>	<i>Not Challenging</i>

Matches that are too easy create a situation where it is difficult for the best shooters to separate themselves from the rest of the pack. In these scenarios, a tiny occurrence, such as an unlucky wind scenario, can become the determining factor for who wins the match. Or, since many people will have high scores, the tie breaker could become the deciding factor for the winner. In matches that are too easy, you may see pile-up of shooters with similar scores at the top. You may also see shooters finish significantly higher than they normally would. Essentially, matches that are too easy start to become more luck-based and don’t do a good job separating people based on their performance. The risk of having matches that are too easy is that you may lose some of the competitive nature of the match, and therefore lose the interest of the higher-level shooters.

Likewise, when a match is too difficult, it too can cause issues with the standings. Hard matches greatly increase the effect that luck has in determining a shooter’s score. For example, if the targets are very small and the wind picks up for one shooter and not for another, that can have a significant impact on the scores for those shooters. Similar to easy matches, hard matches tend to alter the standings and create more of a luck-based outcome rather than a performance-based one. The main risk of having matches that are too hard is that you may lose the interest of the newer shooters. If they become discouraged and don’t have a good time, they might not come back to the next match. The other risk of the hard matches is that the higher-level shooters might feel that it is too wind-based and therefore not fair.

Example: If you have a match with 500 total available points, and if the winner's score is 480, then the match difficulty level can be evaluated in the following manner: $480 / 500 = 96\%$. In this example, 96%

is higher than 90% therefore we feel that this match is too easy and suffers from being too heavily reliant on uncontrollable factors. In other words, random luck tends to play a significant role in how the standings end up. Another disadvantage in this example is that the higher-level shooters feel less challenged and might not return to your next match.

Stage Difficulty

Recommended scoring goals for your individual stages:

1. It is recommended that each stage have a few of the participants earn 100%.
2. It is recommended that each stage have an average score of 50-60%.

If your stage is more or less difficult than this, then it is not within the recommended difficulty range of the match, or it is not in balance with the other stages in your match.

Balance the Stages for Difficulty Level

All of the stages in your match should be of similar complexity and difficulty level. By balancing your match in this way, it will minimize the effects of changes in conditions during the match. Said another way, if your match is balanced, then no matter which stage the shooters start on, they will all have similar match experiences – regarding difficulty and fairness.

Things to consider when creating a balanced match:

- All stages should be of equal difficulty level, and equal or similar scoring likelihood.
- If wind-dependent stages are being used, there should be several of them, equally spread out, with equal target sizes, and equal distances.
- If highly physical stages are being used, there should be multiple instances mixed in equally throughout the COF. This provides a fair experience for shooters who are cold or rested in the beginning of the day, and the ones who are warmed-up or worn-out at the end of the day.
- Stages with difficult target visibility, subject to changes in mirage or cloud cover, should be minimized, and if required, should be balanced throughout the match.

Stressors

Stressors are methods by which a stage will test the shooter's abilities. Different types of stressors exist to test different shooter skills: from precision (target size), to time management (shortened par time), or position building (multiple barricades or use of unstable barricades). We encourage MDs to test multiple skillsets throughout the match, while limiting the use of too many stressors within any stage. You can get creative in how you test shooters without over complicating your stages.

We recommend that you limit individual stages to 1-3 of the following stressors.

- Short par time (90 seconds or less)
- Several distance changes (3 or more)
- High number of positions (3 or more)
- Wide-angle target transitions
- High number of target transitions (5 or more)
- Difficult target identification
- Unstable props

- Uncomfortable positions (support side)
- Dynamic targets (spinners, movers, snake charmers, or targets that swing wildly)
- Memory / problem solving
- Small target sizes
- Difficulty spotting misses (sky lined targets, grassy backgrounds, etc.)
- Long distances (200+ yards)
- Magazine changes
- Increased heart rate (physical movement requirements)
- New concepts (anything not commonly used in precision rifle matches)
- Windy conditions, “switchy-winds” (winds that change in direction), or terrain-induced wind effects are all stressors that are out of the MD’s control. But it is your responsibility as an MD to consider the likelihood of these added stressors when designing your stages. If your stage is already maxed out for stressors, and then the day of the match has difficult wind, then your stage might suffer with low scores and shooter dissatisfaction.

You will also want to consider the severity of the stressors used. For example, a single magazine change during a stage is much lower in severity than a highly unstable prop such as a T-post. Lower severity stressors could be used in higher numbers than higher severity stressors.

STAGE VARIETY

A balanced, fun, and interesting match will have a variety of positions and props to test the shooter. Unless specified for your shooters in your match description (as indicated in the [Match Description](#) segment of the guide), matches should include an assortment of prone and positional/prop stages. Stages can get repetitive when you leverage several similar stages in a row - and this includes target types and target order. Having a variety of mental and physical challenges throughout the course of fire is ideal. Reference the [Stressors](#) segment for ideas on mental stressors that can be added to prone stages. Physical stressors can also be added to stages lacking variety.

But it is important that you do not forget about balancing the stages for complexity and difficulty. If you can provide variety, while maintaining balanced difficulty, you will have a beautiful match.

For example, your stage sequence might look like:

1. Prone stage with small targets and wide target transitions
2. Barricade stage with shaky/unstable barricade and a single target of a generous size
3. Prone stage breaking position every 2 rounds and elevated heart rate
4. Barricade stage with several stable props at different heights
5. Prone stage with troop line with small targets
6. Barricade stage with lots of movement for elevated heart rate
7. Prone stage with compromised shooting position
8. Barricade stage with a few positions and difficult target transitions

In the example above, no two stages are so similar that it will feel repetitive to the shooter. This will keep shooters engaged and test a wider variety of skills in a variety of combinations throughout the match. But remember, don’t sacrifice the balance of the stages in the strive for variety. Balance will maintain fairness. Variety will test skills and keep it interesting. We want to have both!

STAGE LAYOUT

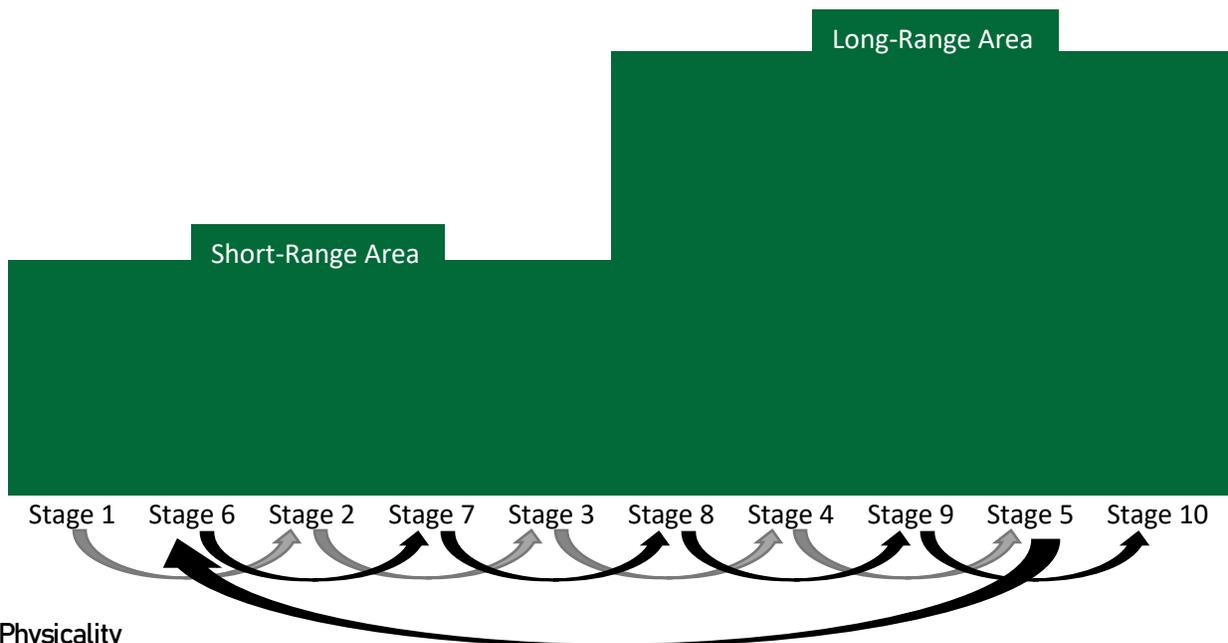
Stage layout is important for a number of reasons. As previously mentioned in the [Balance the Stages](#) section, having an even distribution of stage difficulty will minimize the effects of changes to the shooting conditions. Also, ensuring there is a good level of [Stage Variety](#) will keep the feel of the match flowing nicely.

Near Range vs Long Range Stages

Setting the sequence of close versus long range stages is an important factor when creating your match layout. If the wind increases or decreases throughout the day, you want to minimize the overall impact this will have on people's scores. Your goal is to minimize the luck-factor for your shooters.

If your range does not allow for the even distribution of long-range stages, consider mapping the stages similar to the follow diagram to allow for each squad to have equal opportunity to shoot in variable wind conditions:

Figure 1



Physicality

You will want to consider how you space out stages that require a lot of movement by the shooter. If you have multiple stages that require running, for example, putting those stages back-to-back may create an unfair situation for some participants. In this example, having to do both of the running stages on cold morning might be more difficult than it would be later in the warmer afternoon. Spreading out these stages will also minimize the disadvantages caused by changing weather, e.g., snow, rain, etc.

Par Times

We recommend having all stages throughout the match utilize equal par times. This keeps things simple for shooters and sets a theme for your match. We understand that it is sometimes desirable to run a few stages with shorter times to test shooters' abilities, just understand that having some stages with shorter par times may create buildups of shooters. And don't forget the lesson discussed in the [Match](#)

[Duration](#) section, having a few stages with shorter times will not speed up the match. The match duration is based on the single slowest stage in your match. We have just found that having a consistent par time for every stage lends itself to a more professional match.

If you still choose to have variety in par times, consider how the different stage times will fit together. Be careful not to stack multiple longer time limit stages together. Also, consider placing a shorter par time stage after a long walk, for instance. Also, if there is a stage that takes longer than the others, and if there are less squads than stages, then it is recommended to place a gap before the slow stage. This will reduce the amount of backup shooters will experience during the match.

TARGET CONSIDERATIONS

Recommended Target Size

The target sizes in Figure 2 on the following page are the recommended average target sizes for the distances and shooting positions listed.

When choosing target sizes for your match, consider the following:

- Stable prop is defined as being deep enough to fully support and balance the rifle. For example, a large post, or the center of a tank trap.
- Moderate prop is defined as being stable, but not deep enough to balance the rifle. For example, horizontal bar, hog panel, VTAC barricade, etc.
- Unstable prop examples: rope, chain, t-post, or wobbly barricade.
- If you allow a tripod for rear support, then move up one row in stability.
- The tables in Figure 2 on the next page refer to the average target size for your stage. Targets may be larger and/or smaller than the average.
- Small target size is on the list of stressors, therefore, targets smaller than the recommended average should not be mixed with too many other stressors.
- Consider mixing larger and smaller target sizes in the same stage. This strikes a nice balance between allowing the majority of shooters to get some impacts, while providing some increased challenge to differentiate the higher-level shooters from the rest of the pack.
- Remember to balance stage difficulty for equivalent score likelihood between stages.
- Consider the wind-sensitivity of your stage. See [Wind Sensitivity](#) section for more on this topic.

Figure 2 – Recommended Target Size

Short Range

25-75 yds	0-7.5 mph		7.5-11 mph		11-15 mph		15-21 mph	
	MOA	Mils	MOA	Mils	MOA	Mils	MOA	Mils
			(1.5x sizes)		(2x sizes)		(3x sizes)	
Prone Supported	1.0	0.3	1.5	0.4	2.0	0.6	3.0	0.8
Stable Prop, Front & Rear Support	1.2	0.3	1.7	0.5	2.3	0.6	3.5	1.0
Stable Prop, Front Support Only	1.3	0.4	2.0	0.6	2.7	0.7	4.0	1.1
Moderate Prop, Front Support Only	2.0	0.6	3.0	0.8	4.0	1.1	6.0	1.7
Unstable Prop, Front Support Only	2.7	0.7	4.0	1.1	5.3	1.5	8.0	2.2
Unsupported Prone	1.7	0.5	2.5	0.7	3.3	0.9	5.0	1.4
Unsupported Sitting/Kneeling	2.7	0.7	4.0	1.1	5.3	1.5	8.0	2.2
Unsupported Standing	4.7	1.3	7.0	1.9	9.3	2.6	14.0	3.9

Mid Range

75-150 yds (1.5x short range)	0-7.5 mph		7.5-11 mph		11-15 mph		15-21 mph	
	MOA	Mils	MOA	Mils	MOA	Mils	MOA	Mils
			(1.5x sizes)		(2x sizes)		(3x sizes)	
Prone Supported	1.5	0.4	2.25	0.6	3	0.8	4.5	1.3
Stable Prop, Front & Rear Support	1.75	0.5	2.63	0.7	3.5	1.0	5.25	1.5
Stable Prop, Front Support Only	2	0.6	3	0.8	4	1.1	6	1.7
Moderate Prop, Front Support Only	3	0.8	4.5	1.3	6	1.7	9	2.5
Unstable Prop, Front Support Only	4	1.1	6	1.7	8	2.2	12	3.3
Unsupported Prone	2.5	0.7	3.75	1.0	5	1.4	7.5	2.1
Unsupported Sitting/Kneeling	4	1.1	6	1.7	8	2.2	12	3.3
Unsupported Standing	7	1.9	10.5	2.9	14	3.9	21	5.8

Long Range

150-300 yds (2x short range)	0-7.5 mph		7.5-11 mph		11-15 mph		15-21 mph	
	MOA	Mils	MOA	Mils	MOA	Mils	MOA	Mils
			(1.5x sizes)		(2x sizes)		(3x sizes)	
Prone Supported	2.0	0.6	3.0	0.8	4.0	1.1	6.0	1.7
Stable Prop, Front & Rear Support	2.3	0.6	3.5	1.0	4.7	1.3	7.0	1.9
Stable Prop, Front Support Only	2.7	0.7	4.0	1.1	5.3	1.5	8.0	2.2
Moderate Prop, Front Support Only	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r
Unstable Prop, Front Support Only	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r
Unsupported Prone	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r
Unsupported Sitting/Kneeling	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r
Unsupported Standing	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r

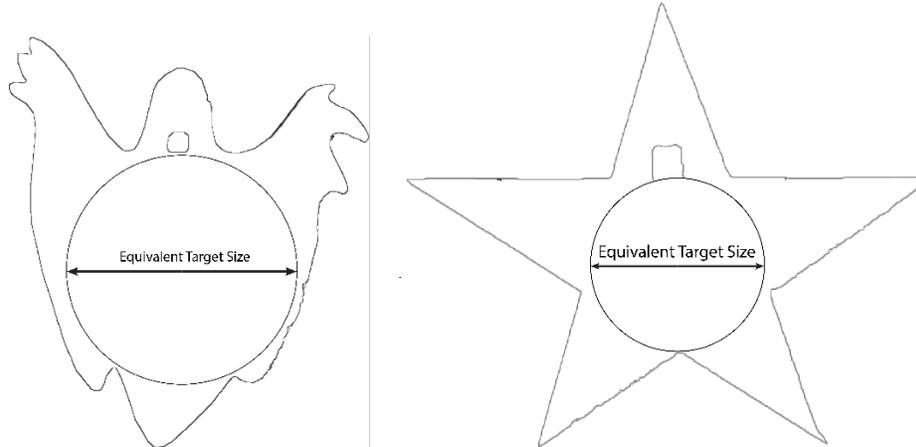
n/r = Not Recommended

Shaped Targets

Shaped Targets are fun to use, but the following considerations should be made:

- If shaped targets are used, make sure that you have an array of sizes so that target size can be adjusted the day of the match to adjust for windy conditions
- If shaped targets are used, the size of the target should be measured by fitting the largest diameter circle that will fit within the solid of the target. See examples in figure 3 below:

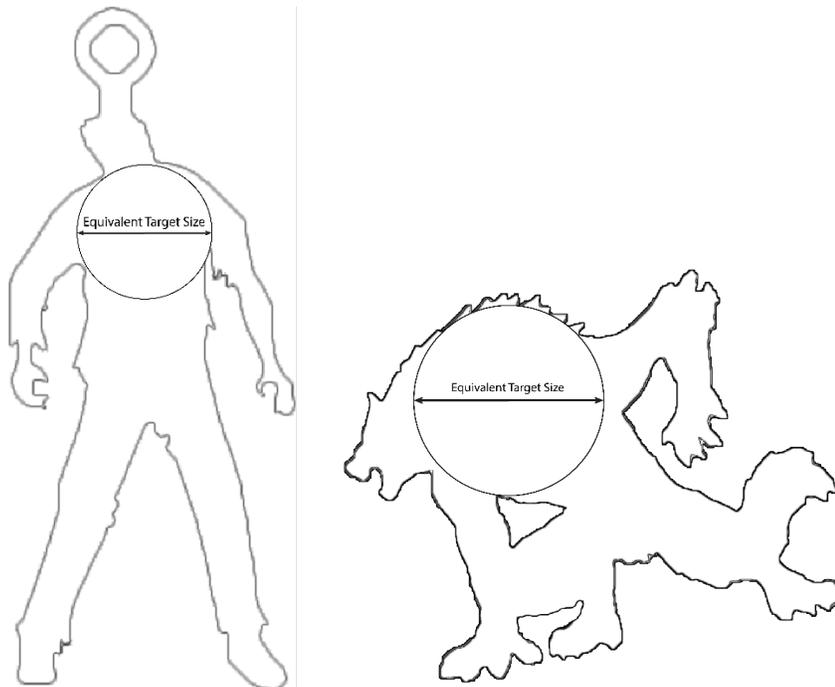
Figure 3



Targets With Holes

Targets with holes or gaps in them are not recommended unless there is a section of the target with adequate complete target area. Adequate complete target area is defined as allowing a circle of a diameter not smaller than the minimum recommended target size to fit on any section of the target without any of the circle being off the edge of the target, and with no holes being inside of the circle.

Figure 4



Wind Sensitivity

The effects of wind can be significant to the results in your match. If the weather during your match is windy, and if the stages were designed such that they are sensitive to wind effects, then the score credibility can suffer. The fairness of the match, and the enjoyment of the match can both be at stake when there are windy conditions in a wind-sensitive match.

Matches can be less fair when different shooters receive different wind conditions in a wind-sensitive match. Remember, we want to test the performance of the shooters, not their luck with the wind. Also, any time the scores are excessively low, then the overall match enjoyment will be lower than if the scores were higher.

Attributes of Wind

First off, there are several attributes of wind that can each have their own effect on the difficulty level of your stages:

- Wind speed: is the most common attribute of wind, also known as the wind magnitude, commonly measured in miles per hour.
- Wind speed consistency: refers to how much the speed is changing over time. The swing of the highs and lows. How long the highs and lulls last. Is the pattern consistent and predictable?
- Wind direction: is a significant factor for how much effect the speed is actually having on the bullet flight. A direction that is 90 degrees from the path of the bullet is referred to as a full-value wind. A direction that is 30 degrees from the path of the bullet is a half-value, as it is the cosine of the angle that is actually affecting the bullet.
- Wind direction changes: can be a very difficult aspect of shooting in the wind. Since wind direction has such a significant effect on the bullet, when the wind is changing in direction, it can make for a very difficult condition to shoot in.
- Topography wind effects: Hills, valleys, tree rows, shooting lanes, etc. can affect how the wind flows. Not only can these terrain features affect the windage component of the POI, but they commonly change the vertical component of the POI, as well. Consider these factors when designing your stages.
- Wind effects on mirage: If there is mirage between the shooter and the target, the wind can become even more of a factor. A no-wind situation can create a "boil" in which the shooter's vertical POI can be affected due to the refraction of the light traveling through the mirage. Basically, the target appears like it is higher than it actually is, resulting in high vertical POI. When there is mirage with wind, then the vertical POI is no-longer affected. Also, the mirage can actually be a good thing because it gives the shooter a way to read the wind.

Factors of Wind Sensitivity

Some of the factors that can determine how wind-sensitive your stages are:

- Target Size: if the targets are small, especially in target width, then the wind can have a significant effect on the probability of impacts. Especially if the direction and/or magnitude are changing. Use the target size table to determine the proper target sizes for the wind at your match. This means that you may want to adjust target sizes the morning of the match.

- Target feedback: Do your targets give feedback when they are impacted? Some targets are hung using belts or hooks such that the target will twist or swing to the side when it is impacted off-center. This can make it easier for the shooter by telling them what the wind is doing on a shot that resulted in an impact. This can help the people who are already on target.
- Target backers: What is behind the target? Dirt berms, short versus tall grass, splash feedback, how high the target stand is off the ground, etc. This is a significant factor for how well a missed shot can be identified. Dirt berms are the easiest way to assist the shooter with identifying missed shots. Tall target stands make it more difficult because a missed shot will continue to travel downrange before it hits the ground. Tall grass can make it nearly impossible to spot a miss.
- Wind indicators on the range: Is there tree foliage, tall grass, floating leaves or seeds, water, etc. to help the shooter read the wind? The use of wind flags is a good way to assist the shooter with being able to read the wind.
- Shot progression: Stages that have more than one round fired per target can decrease the effects of wind on your stage. The reason is because this gives the shooter an opportunity to make an accurate follow-up shot after seeing the result of the first shot. Of course, the ability to see the first shot relies on the target feedback and target backer. Stages where the shooter does not get a second shot, or where the second shot comes after a position change or length of time, become harder to deal with changes in the wind.
- Shooting position: Stages with compromised shooting positions can make it hard to see feedback. This could be due to a wobble in the shooter's position, or due to the recoil of the shot moving the shooter's optic during the impact.
- Number of stressors used: We recommend that your stages include between 1-3 stressors. See the section titled **Stressors**. When your match includes windy conditions, then wind should be considered as one of the stressors in your stages.
- Wide target transitions: in windy conditions can add a layer of complexity when trying to track the wind direction for each of the directions of fire. This can be a great stressor to test the shooter's ability to deal with wind, but it should be known that the difficulty of this stressor is magnified in the wind.
- Holdover stages: can be much more difficult when the shooter must also hold wind. Depending on their reticle, holding drop and windage at the same time can be a challenge. Consider this when you are designing stages that will most likely be shot using holdovers.
- Range topography: Since different types of topography can have unique wind effects, this should be carefully considered when designing your stages. Consider not mixing multiple wind conditions in the same stage. For example, shots into the woods, shots into an open field, shots on hills, etc. Just understand that these unique wind conditions add an element of complexity that may render a stage overly-difficult.

Example of a Wind-sensitive Stage

An otherwise perfectly-designed stage can become significantly more difficult when there's wind. At the 2022 MPS NRL22X match, Stage 9 was a fairly straight-forward stage when there was no wind. The stressors were: lots of movement, wide target transitions, and three different target distances, all of them at long ranges (between 210-325 yds.) 2 of the 3 targets had dirt berms behind them, and the other was low in the short grass, which provided some decent miss identification. Also, 2 of the 3

targets were hung on hooks to provide windage impact feedback. Target sizes were 8" at 210 yds, 8" at 224 yds, and 12" at 324 yds (3.7-4.0 MOA) which seemed reasonable based on the recommended target size table. However, since we did not consider the wind-sensitivity of the stage, and since the match experienced difficult wind, (5-20 mph with inconsistent direction) the stage proved to be too difficult for the shooters (average score 26%, high score 80%, goal average 65%, goal high score 100%.) The following aspects made this stage wind-sensitive: The target sizes could have been larger. According to the recommended average target size table, the targets should have been closer to 5 MOA. Next, there were no double taps on targets, so even when a shooter saw the result of the wind on a shot, they didn't get their next shot on that target until after some time had elapsed due to required movement and shots. Also, there were 3 different topographic conditions that were used on this stage (one into the woods, one through a break in the trees, and the third through the tree break and across a wide-open field. This stage included 2 directions of fire, which added some complexity when trying to stay on top of the wind direction relative to the direction of fire. Lastly, there were no wind flags, and since the wind was coming from the opposite side of a row of trees, it was very difficult to read the wind. There were just too many things going on to expect the shooters to be successful. If we could redo this stage, we would reduce its sensitivity to wind with the following changes:

- Increase target sizes and/or reduce the target distances per the recommended average target size table
- Change the target progression to include some double-taps
- Move the targets so that they reside within the same or similar wind condition
- Add wind flags to the field

DISTANCE CONSIDERATIONS

Minimum Target Distance

It is not recommended to have targets closer than 25 yds to the shooter. This recommendation is based on an unknown safe distance for splash coming back towards the shooters. At the majority of the matches we have witnessed, safety glasses are not worn. It is not worth the risk to shooter safety to have targets unnecessarily close.

Also, most scopes do not have a parallax that will adjust inside of 25 yards. This is another reason to not push the limits inside of 25 yards for 22LR competition.

Maximum Target Distance

It is recommended that target distances be inside of 300 yards. The 22LR is greatly affected by wind, and this is amplified by distance. The system is just not resilient enough to bet on the conditions being calm. If the wind picks up on the day of your match, the extended long rang (ELR) stages (stages beyond 300 yards) are out the window.

Also, we have found that the 1:16" twist barrels that are commonly used by shooters will only marginally stabilize conventional 22LR bullets. These bullets will often start to lose stability beyond 300 yds. This results in vertical stringing, with the unstable bullets impacting low.

The goal here is to test the shooter and their gear – not their luck. There are just so many factors at play in ELR shooting that the match results may not accurately fit the performance levels of the shooters.

It is also difficult to spot reliable target feedback at longer distances. Increasing target size to account for the extended distances complicates things further by reducing amount of target reaction or ability for hit indicators to sense impacts on the heavier steel.

If you still choose to include ELR stages in your COF, consider using extra thin steel targets, hit indicators, and dirt berms for spotting misses. Also, pay close attention to the wind forecast, and set your target sizes accordingly.

BARRICADES AND PROPS

A well-designed stage is of equal difficulty for right-handed shooters as it is for left-handed shooters, short individuals and tall individuals. Barricades and props should not disadvantage one shooter over another. Shorter shooters should not be expected to stand on “booster” items or “tippy toes” to reach the props, as this limits their ability to secure a stable shooting position. This is not only an unfair disadvantage but can also pose a potential safety risk.

Likewise, props should not be placed in a way that disadvantages right or left-handed individuals. A common prop, the tank trap, can pose an issue if utilizing the center of the tank trap as a shooting position because it can be angled in a way to the target that poses a particular challenge for shooters of one or the other dominant shooting hand. Avoid this issue by testing your props from both right and left-handed shooting positions.

Recommended barricade guidelines:

1. Maximum recommended prop height is 42”
 - Or include two identical props of different heights/sizes and allow shooters to choose which to shoot from.
 - Using multiple prop heights may be the best way to ensure that all shooters are competing under the same conditions. However, you might want to specify the intended shooting positions for the stage: e.g., kneeling, standing, or sitting. This will ensure that the optional prop height stage will be an equal stage for all height shooters.
2. Test props from both the right and left-handed positions, ensuring the angle of the prop does not advantage either dominant hand.

RANDOM CHANCE STAGES

We highly recommend entirely avoiding lottery stages. Do not utilize draw a card /roll the dice stages unless the shooter experience is the same for every shooter. All shooters should engage the same target sizes, in a similar target order, and from equal difficulty positions. Likewise, there should be an equal number of target transitions for every shooter. The stage should be of equal difficulty level for all shooters.

HIT TO MOVE STAGES

We have found that it is best if hit-to-move stages are not used in matches. However, if used, the match designer needs to make some careful considerations. First, the stage should not have difficult barriers

to progress early in the stage. An example of this is a difficult target early on, such as a small target, a target with no berm behind it, or a difficult shooting position. The risk here is that shooters could get stuck at the beginning and not have a chance to move on. Remember, our goal for the lowest score on any stage is 3/10.

We have also found that the best order for hit-to-move target difficulty proceeds from easiest to hardest. This gives the majority of shooters a good chance to score points but differentiates the higher performances with the added points earned at the end. Another option is to maintain a consistent difficulty level throughout, but set the par time or movements required such that the stage be challenging to complete in the time allotted.

It is not recommended to order a hit to move stage with the most difficult targets in the middle with easier targets at the end because this results in a large bonus for shooters who get past the middle of the stage. Gaps like this can be difficult to crawl back from for shooters, making the importance of hitting that single difficult target more important than any other target in the match. Again, environmental factors can unfairly impact one shooter more than others who might be able to take the more difficult shot under better conditions and subsequently gain the easier bonus points. Not only can this be an unfair bonus, but in other stage designs it's just a less-exciting target order, e.g., after you hit target 5, the rest are easy.

Another risk of having hit-to-move stages is that ROs can easily lose track of which shot number the shooter is on. If your match includes a hit-to-move stage, it is highly recommended that the RO have, not only an impact counter, but also a shot counter to ensure that no shooter accidentally fires more rounds than the stage allots.

If you must use a hit-to-move stage, the following are recommended:

- Target difficulty should proceed from easier to harder
- ROs should track rounds fired

DYNAMIC TARGETS

Dynamic targets, such as spinners, movers, snake charmers, swinging targets etc. that are intended to be engaged with multiple consecutive shots are not recommended unless careful consideration is made to minimize the effects of their randomness on the scores in the stage. Spinners rely on mechanical bearings that are sensitive to dust, moisture, and temperature, and the friction can change over the course of the match. Snake charmer targets can be overly reactive and provide a different experience for every shooter and create the potential for rounds being deflected out of the range. Swinging targets will swing more for some shooters than others. The goal should always be to test the skill of the shooter, not the luck of the shooter.

Spinners

If you choose to include a spinner in your match, another thing that should be considered is how the stage will be scored. Spinners are a unique target requiring previous experience and above-average skill in order to be successful. Also, spinners are dynamic and require precise timing to turn them over. There is sometimes a fine line between a performance that results in spins, and a performance that falls short.

It has been difficult to choose scoring criteria for spinner stages that is both fair, and still rewards shooters who successfully complete the stage. Spinner stages are commonly scored with excessive weighting on successful spins. This can prove to be a barrier to shooters who are making impacts but cannot get them to spin over.

Also, again consider the potential for the bearing friction changes discussed in the previous section. We have had spinners which work well in the morning but slow down throughout the day, making it nearly impossible to spin by the end of the match. In this instance we needed to throw out the spinner stage as squads who shot the stage later in the day had a much more difficult time spinning the target than those who shot the stage in the morning. For all of these reasons, the following points for spinners are recommended:

- Spinners should be used sparingly. Recommended to only use them for side stages that do not affect placement in the match.
- If used in a match, consider using them as a sub-component within a stage
- Scoring bonuses for spinning the spinner should be limited to 1 or 2 points
- If spinner is being used in a hidden target stage, always ensure that spinner legs are anchored down to prevent target from walking throughout the match

SCORING

No Barriers

Stages should not have early barriers to points. Examples of these are hit-to-move stages with difficult targets early on, or spinner stages with big bonuses for spinning over, or where you engage a spinner until spun and then finish remaining rounds on an easier target. These stages result in large point disparities that are difficult for shooters to overcome.

We additionally recommend that stage difficulty level proceed from easier to more difficult. This allows for all shooters to accrue some points and better shooters to gain additional points while avoiding point disparities.

See [Hit-to-Move](#) section for more information.

Equal Value Stages

All stages should be of equivalent scoring likelihood. Said another way, the average scores earned should be similar for all stages. This recommendation is made for the following reasons:

- Equal value stages prevent any one stage from being a trump stage that determines the result of the match.
- If the conditions change, e.g., the wind picks up, all stages are affected equally
- If a shooter has a gear failure or a single bad performance, it won't be one stage that determines the fate of the entire match. See [Robustness](#) section for more on this.

A Point Earned Is A Point Kept

We do not recommend stages that cause the shooter to lose points, go back to zero, or go negative. Our philosophy is that an earned point is just that, it's earned. Future performance should not negate

past performance. If a shooter has a perfect performance for 90% of the stage, but then misses their last shot, our philosophy is that they should receive 9/10 points, and not 0/10 points.

- This applies to know-your-limits stages
- This also applies to banking points stages

Small Bonuses

Bonus points earned during stages should not be significant enough to throw off the balance of scoring with other stages. Bonus points such as additional points for rounds remaining after all targets are impacted are nice to use in matches when they provide some differentiation between performances and reward shooters for a job well-done. However, having large bonus points can create a trump stage. Instead of offering one impact worth of bonus points in these situations, you may want to consider using a reduced bonus of 0.5 impacts/round remaining. See [Equal Value Stages](#) section.

Tiebreaker Stages Recommended

It is recommended that there be a dedicated tiebreaker stage in every match. Matches that, for example, simply use the scores on Stage 1 as the tie breaker, feel like they are losing an aspect of the competitive nature of the match. It is our opinion that a tie breaker should be based on bonus points that are earned by the shooter after they have been notified that the stage has available bonus points. The current best method we have found is to award a small bonus for time remaining, such as the 0.1 points per second remaining on the clock. This method is used in the NRL22 monthly COF and seems to work very well. This creates a differentiator for breaking ties without excessively rewarding time remaining. It also makes score compilation quick and easy at the end of the match as you will not need to manually break ties. To date we have not yet had a tie between shooters utilizing this method.

Whatever you decide to use for the tiebreaker in your match, make sure that it is communicated in advance. Otherwise, it not only looks like it was an oversight, but could be perceived as unfair if the MD is choosing the tie breaker criteria after the scores have been posted.

15 Rounds to Earn 10 Impacts

Having a stage where the shooter is only able to impact 10 targets but is allowed 15 rounds to do so is not recommended. It gives equal points to the shooter who made 10/10 shots as the shooter who made 10/15. If you choose to use this format for a stage, consider utilizing the 0.5 bonus points per round remaining outlined above. You will need an RO to track the number of rounds fired in this case so someone is not awarded bonus points for rounds loaded beyond the allotted amount.

Reasonable Range Officer Expectations

Design your stages with RO duties and spotting in mind. A stage with 10 wide target transitions may do a great job of testing the shooter's ability to transition, but can be exhausting for an RO that has 100 shooters to spot for (10 x 100 = 1000 target transitions). Likewise, stages that involve rapid target transitions run the risk of the shooter beating the spotter to the next target and can result in the spotter missing the shot. Stages like these can be used, but consider the experience of the RO assigned to the stage, and consider staffing these stages with multiple ROs.

Always consider whether a stage should warrant the RO to track the round count. Stages that are hit-to-move, and stages that involve multiple rounds on a single target (think movers, spinners, long-range

stages with a single target) are easy to lose track of round count. The RO must track the number of rounds fired to ensure that shooters do not fire more rounds than allotted for in the stage. This may require additional ROs, with one to count rounds fired and the other to count impacts. It is highly recommended that mechanical counters be used for both rounds fired and impacts.

TESTING YOUR COF (AGAIN!)

The final rule of proper match design is to test your course of fire before the match.

We can't stress this enough. So many problems can be discovered and resolved by first shooting your COF. Please do this!

MATCH SETUP

ZERO RANGE

It is recommended that there be a zero range available before and during the match. The ability for the shooters to zero their rifles before the match ensures that everyone is set up for their best performance and maximizes the competitive level of the match.

Having a zeroing range open throughout the match allows shooters who have gear issues a chance to fix their gear and get back into the match.

Paper Zeroing Targets

Providing paper zeroing targets for shooters is highly recommended. Steel zeroing targets are not recommended because steel does not show precise point of impact (POI) as well as paper will. Steel zeroing targets can also have excessive movement when multiple shooters are using them at the same time which makes it difficult for shooters to determine their precise POI.

Long Range DOPE

Steel targets at longer distances for collecting data can be used but consider that they will be shot many times, their paint will be gone, and precise impact locations will not be available for anyone but the first people to shoot them. We recommend that dirt berms be available for shooters to use for spotting precise points of impact at longer distances. A large steel target, with no paint left on it, with nothing behind it is of little use for getting data.

Recommendations for Zero/DOPE Gathering

- Use paper zeroing targets at 50 yds
 - Paper at 100 yds is also nice to have
- Use dirt berms for longer distance zeroing ranges
- If no zeroing will be allowed, this should be communicated in the match description before shooters register for the match

PAPER STAGES

There are several considerations for paper stages at matches. The first is how you will score the paper and when. You will need to add paper stages manually into your score-keeping program either throughout the match or at the end of the match. If you choose to score throughout the match, make sure the paper stage is in an area of the range where you will not need to call other areas of the range cold while you retrieve the paper targets. If you wait for the end of the match, make sure you designate someone to assist you with scoring and logging the scores to save the amount of time shooters are waiting around for scores to be posted. You will also need a method for scoring paper stages that reduces subjectivity. We recommend utilizing a measuring device and having two individuals scoring to decide on any scores that are unclear.

Paper stages at matches should be set up in a way where they can be monitored throughout the match by a Range Officer. This will reduce the potential for cheating, or perception of cheating, that can occur when shooters are able to shoot at their paper targets without supervision. The Accu-Shot Challenge is one example of a paper stage where policing of the stage is necessary to reduce the perception of unfairness.

Paper targets should be clearly labeled with shooter numbers and shooter numbers should be located in a place where shooters can reference them at the stage in the event they misplace or do not remember their shooter number.

Accu-Shot targets must be monitored at all times to ensure that only 1 round is fired by each shooter to maintain the integrity of the contest. Either post an RO at the firing line at all times, or mix Accu-Shot within a different stage. It is not recommended to have Accu-Shot targets on the zero range because shooters may have a difficult time determining what they are meant to shoot.

TARGET SELECTION AND SETUP

When setting up for your match, it's important to consider several factors when selecting which target(s) to utilize for each stage.

Robustness

Consider the robustness of the targets and hangers. Untested targets should be proven with at least one third of the total number of shots that will be fired during the match.

- Broken targets: ¼" AR500 is prone to breakage, especially with smaller target sizes, i.e., 2" and smaller. Consider using 3/8" thickness steel for sizes below 2.5".
- Targets flying off hangers. Smaller targets commonly come off their hangers. Consider using targets with more robust designs intended to stay on hangers. Otherwise, consider using hose clamps, rubber hose, retainer pins, tape, etc. to prevent targets from flying off.
- Target stands can move around from being impacted throughout the match. Consider staking the stands to the ground or using cinder blocks to prevent movement.
- Hidden target stages, where a target is hidden behind a spinner for example, are notorious for targets moving over time and becoming less hidden throughout the match. Anchored target stands are critical if you want to utilize hidden target stages in your match. Half of the hidden target stages we have encountered have had targets that moved throughout the match and became revealed rather than hidden.
 - In addition to anchoring the target stands down for hidden target stages, the shooting position must be strictly defined to prevent some shooters from being positioned off to the side.

Swinging Targets

A common aspect of targets is that they sometimes swing like pendulums after being impacted. Make careful consideration during COF design when using these targets. It is not recommended to have more than 1 shot in a row on these targets. Consider using steel that is specifically designed not to swing.

Target Feedback

Targets should provide consistent feedback that is easy to tell the difference between an impact and a miss. Target feedback should not be limited to relying on paint or audible sound – as paint wears out through the match, and noisy shooting lines limit ability for ROs to hear impacts. Consider hanging targets on chains, belts, and hooks. These hangers allow more target reaction when impacted; however, be careful that targets don't have too much freedom to swing around in the wind.

Target Reaction

Targets should react consistently after every impact. Targets that swing randomly, in an unpredictable fashion are not recommended for consecutive shots. This provides a different experience for each shooter and does not lend itself to a fair match.

Target Presentation

Ensure that targets are placed so that they are facing directly towards the shooter's view. Also, depending on the design of the target and its hanger, sometimes targets can randomly rotate to the side and change the presentation relative to the shooter. For example, a circle may appear as an oval if the target is angled to the side. This can be the case when targets have a hole significantly wider than the width of the hook. Make a point to ensure that the target presentation will be consistent for all shooters in the match.

TARGET PLACEMENT

The ability for the shooter to spot misses should always be considered when placing targets and designing your COF. Sky-lined targets, targets with tall grass behind them, targets with no berm, or any targets that do not reveal the point of impact of a missed shot should be limited and should rarely be used for multiple consecutive shots. Unless the bullet is spotted in flight by the shooter, a miss leaves the shooter guessing. These scenarios often result in either all of the points earned by the shooter with a first-round impact, and few if any points earned by the shooter with a first-round miss. Feel free to mix these targets into your COF, but just understand the implications of their use in your match.

TARGET IDENTIFICATION (ID)

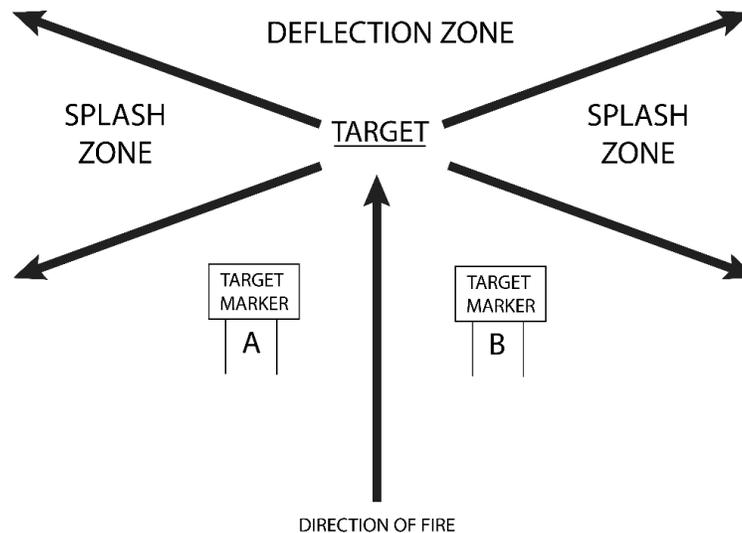
Targets should have clear line of sight, and flight path should not be obstructed by branches or foliage. This creates an unfair situation with random bullets being deflected along their flight path.

Targets should be equally visible throughout the day, whether sunny or cloudy. Be careful with targets in the shade, snow, or obscured by mirage. They should be properly visible during all lighting conditions, precipitation changes, and/or temperature fluctuations during the match. Taller target hangers can be used to mitigate the effects of mirage on target visibility.

Signs and Target Markers

Target markers (signs) are highly recommended. Shape-based or number-based are better than color-based due to maintaining fairness for colorblind shooters. More people are colorblind than left-handed. We have had the best luck simply numbering the targets with 4x6" signs made from corrugated plastic and lawn sign hangers used for garage sale signs, political signs, etc. To prevent markers from being damaged due to bullet splash or ricochets, consider using the recommended placement A or B below.

Figure 6



Painted Targets

Freshly painted targets are not recommended. The value of fresh paint is different between stages. Being able to spot the hit location of steel is more important on some targets than others. Target identification should not be reliant on paint. It is recommended to paint the targets before testing out the stages. This gives all targets a similar look. Instead of relying on paint for target ID, we recommend the use of target markers.

SHOOTING POSITION SETUP

The shooting position should be free from water, mud, slip or trip hazards, etc. It is recommended that a shooting mat be provided when possible. There should be adequate room for the shooter's feet, keep in mind that taller shooters take more space than you might think.

There should be adequate room for the spotter to be positioned directly behind the shooter. This allows the spotter to see the bullets in flight, which helps them know exactly whether the shots are impacts or misses. When spotters are positioned off to the side, the parallax error in their line of sight makes it difficult to see if missed shots are off the left or the right side of the target. This misinformation can lead to confusion, especially when spotters provide POI info to shooters after they have finished the COF.

If possible, there should be enough room behind the shooting position to fit several spotting tripods. This is not a hard rule, but it can lead to an unfair situation if there is only enough room for one spotting scope, and if the squads contain several shooters in competition with one-another.

Another consideration when setting up the shooting position is mirage. If the line of sight to the target is close to the ground, consider the potential for mirage to affect the view of the target. This increases the difficulty level and can lead to an unfair situation if the mirage is only present for a portion of the match. It is recommended that shooting positions be elevated when target line of sight is close to the ground.

RANGE OFFICER ONBOARDING

Your Range Officers are the single most important part of the success of your match (did we say that already?!?). The onboarding process for ROs should enable even the least experienced RO to successfully ensure a safe, fair, and fun match for your shooters. Setting the tone early for ROs is important. When we welcome our ROs and do our initial safety briefing with them, we share our match philosophy with them. We explain the importance of safety first and foremost and explain what to look out for and how to handle safety violations. Immediately after our safety discussion, we emphasize the need for fairness AND fun at our matches.

ROs must be consistent and treat all squads the same. We highly recommend that the ROs read the COF from the match booklet for every squad throughout the day to maintain consistent delivery of information. Any additions or changes should be written or edited in writing directly into their match book to ensure consistency for all shooters.

We tell our ROs to ask us for help if they need clarification but that they need to equally enforce rules throughout the entire match. If they make a call for one shooter, they need to consistently make that call for every other shooter throughout the match. If an RO uses a modified impact criterion, it needs to be followed throughout the match.

For example:

Shooter A asks if they can use the center of the tank trap as one of the three required positions. No one else has asked about using the center of the tank trap. COF does not specifically prohibit or exclude the center of the tank trap as a usable position. RO allows use of the center of the tank trap. All other shooters should be allowed to use the center of the tank trap.

We also ensure our ROs become more experienced by having them shoot through the entire course of fire the day prior to our match. This allows us to both test our course of fire AND let each RO experience the match as a shooter, deepening their understanding of each stage and helping them relate to and understand the perspective of our shooters.

Our match philosophy is that the main reasons that shooters come to shoot the match is to compete and to have a good time – and we feel that the purpose of the RO is to ensure that these happen. This mission cannot be achieved without safety and fairness. Therefore, the number one priority of the RO is to enforce safety, the number two priority is to display consistency and fairness, and the number three priority is to set the tone for having a fun match.

Safety

The most important responsibility of any RO is the safety of all participants at the match.

- Review the Safety Policy and/or Safety Brief that will be given to the shooters
- Cover the range commands that the ROs will be giving to shooters
 - Do you understand the course of fire?
 - Load and make ready.
 - Is the shooter ready?
 - Stand by.

- Engage.
- Impact.
- Time.
- Unload and show clear.
- Clear.
- Discuss whether muzzle up or muzzle down will be required at the range
- Identify and communicate where rifles will be staged
- Decide if and how 180-degree rules will be enforced for EACH stage
- Decide whether magazine flags, and/or chamber flags will be required
- Determine who the first responders will be in the event of an emergency
- Discuss who to call and what to say during an emergency

Fairness

The RO's second priority is to maintain fairness. Essentially, their job is to provide the exact same experience for all shooters in the match.

- Stage Briefs: RO should read the COF from the matchbook, word for word, to every squad. We know how old it can get to read the same thing over and over, but this is the best way to ensure that every squad is given the same information about the stage.
 - If it is found during the first squad that information is missing or additional information is required, then the RO should write it down in the matchbook so that it can be consistently read to the remaining squads during their stage briefs.
- Judging impacts: whatever criteria is used to judge impacts must be consistently used for all shooters.
 - Discuss how to handle shots that barely graze the target. Usually, these should be considered as impacts. But sometimes ROs don't, and while this is not ideal, the same judgement should be used for all shooters in the match.
- Buzzer beaters: be sure to discuss how shots that occur at or near the buzzer should be handled. Also, the NRL22 has a quarter-second grace period for the shooters. Whatever you set for your criteria, this should be discussed with the ROs. When it's questionable, the tie usually goes to the shooter.
- Coaching: some matches allow coaching to young shooters and others do not. Some MDs consider coaching as verbal-only, while others allow help with dialing, moving gear, etc. This needs to be decided before your match and communicated with the ROs during the onboarding process.
- Questions for Match Directors that arise during the first squad should be addressed before the shooting begins. If the RO makes a decision on their own, it must be held consistent for the remainder of the match.

Fun!

Now that safety is being enforced, and everything is fair, the ROs should be encouraged to set a positive tone for the match. The ROs will be the leaders of the match, so while they hold the line for safety and fairness, they should lead the way for everyone to have a good time.

Testing the COF

We recommend that the ROs shoot all of the stages prior to the match. This gives people who are newer to precision rifle competitions an opportunity to shoot a match, as well as gives them a chance to become accustomed to the stages. This also gives them some time on the spotting scopes so that they can become used to what bullet impacts and misses look like on their stage. The ROs become the experts on their stages.

Another great benefit of having the ROs shoot the COF is that they essentially beta test your match. This uncovers the bugs in your design and gives you a chance to make improvements.

TESTING YOUR COF (AND AGAIN!)

If you didn't get it the first two times, we really want to emphasize how important it is to test your course of fire! Many people are making the trip to your match. Let's button this thing up and have a kick butt match!

POST-MATCH FOLLOW UP

SHOOTER COMMUNICATIONS

After the match has concluded, and once you have had a couple of days to recover, we recommend sending a follow up email to shooters. This follow-up email should include a thank-you for attending the match and any words you want to share with the shooters about your thoughts on the day. We also recommend including a whole group or squad photos if you had someone taking any at the match. We suggest having one RO take a photo of each squad prior to the stage briefing so each squad is captured.

Another option we are a fan of is sending a post-match shooter survey asking for feedback about shooters' experiences at the match. This enables you to find areas of improvement and will highlight what you are doing right. We also ask shooters if they have visited any of the sponsors from the match due to their support and if so, which ones and to share with us if they made any purchases. We leverage this feedback at future matches and several of the things we have learned from shooters has been included in this guidebook.

SPONSOR COMMUNICATIONS

Your post-match follow ups to sponsors is the most important interaction you will have with them. This is your opportunity to provide a return on investment directly to sales or marketing staff who have to decide which matches receive their limited supply of prizes for the season, or who have to convince their companies to continue supporting matches as part of their marketing strategy. These are also the people who you can, and should, lean on in the future to help you ensure you have proper equipment to support your matches.

We send personal follow ups to each sponsor and include a group photo and a few snapshots from the day, as well as specific photos of the winners of the prizes they specifically donated to the table and any snapshots of competitors using their products during the match. This process takes a lot of time but really shows the appreciation you have for the support and helps the sponsors continue to justify their sponsorship programs. In addition to the personalized photos, we include our post-match shooter survey results and a list of equipment used by our shooters, which we gather during the registration for the match. We have received several emails back thanking us for our efforts and indicating the high level of value they see in this type of feedback and information.

APPENDIX

APPENDIX A

Example Match Description

Match Details

MATCH NAME: 2022 Midwest Precision Shooting NRL22X Match

MATCH DIRECTORS: Ruth Soucie and Justin Carbone

COST: \$85

Fee includes: Snacks, Water, Lunch at the match, Match Shirt and Bag

DATE: June 25, 2022

REGISTRATION: Now-May 25th, 2022

LOCATION: Rush Lake Range, 49899 Co Hwy 54, New York Mills, MN 56567 (Google maps will guide you to the range via 500th avenue- do NOT turn onto 500th avenue. Instead, the range entrance will be off of CO Hwy 54 just west of 500th avenue.)

LIMITED SPOTS AVAILABLE!

Additional Information

Round count will be 150+ for the match, but bring more for zeroing, malfunctions, side stages etc.

This match will be self-squadded. An email will be sent out to notify registrants when squadding opens.

We are incredibly honored to be hosting this NRL22X match for the third year in a row. As shooters ourselves, we strive to host matches that are both fun and challenging. Stages will be designed to push the limits of shooters and rifles both, so be prepared for a challenging course of fire.

Lunch, snacks, and bottled water will be provided the day of the match. **Please reach out via phone or email (listed below) if you have any dietary restrictions and we will do our best to accommodate them.**

Mulligans will be available for \$20 each, limit one mulligan per shooter. Side stages for high-value prizes will be available on Friday for \$10/try. Each try will earn you anywhere from 1-10 tickets entered into a drawing for the prizes available. The money made from side stages and mulligans will go to supporting the match/ROs.

Target distances will be between 25-350 yards.

Prize table walking order will be a combination of place finished and random draws. Top 3 overall and class winners walk the table first, followed by alternation between a random draw RO, random draw shooter, and the next highest match placement. We would like our ROs to be adequately rewarded for their participation and we will have the top 3 ROs from the RO match walk the table with the other class winners. We cannot provide high quality matches without high quality ROs.

Range Officer (RO) opportunity

We feel strongly that a big key to a high-quality match is to have good ROs. Good ROs bring consistency to stages for a fair competition and help keep the match flowing smoothly. We are looking for willing ROs to participate. ROs will eat free, will receive a door prize bundle, will walk the prize table with the rest of the shooters, and will receive appreciation and respect from the match directors and the shooters. ROs will also be given the opportunity to shoot the course of fire on Friday. This will give them the opportunity to shoot the match, as well as allow them to become accustomed with the stages. If you are new to precision rifle competitions, ROing this match will be an excellent opportunity to get experience shooting with help from match directors, as well as experience spotting bullet impacts through spotting scopes. To RO, please reach out via phone or email (listed below).

Agenda

All times are in CST

Friday, June 24th, 2022

- Early Registration/Check-in Open from 3pm-7pm (you must check-in prior to zeroing)
 - You will receive your COF during this time
- Sight-in range will be open from 3pm-8pm
- Side stages will run from 3pm-8pm
- Self-walk through of stages available 3pm-8pm **(NO RIFLES ON PROPS OR SHOOTING OF STAGE STEEL ALLOWED)**

Saturday, June 25th, 2022

- Shooter Registration/Check-In will run from 7:00am-8:30am. (You must check-in prior to shooting)
- Sight-in range will be open from 8:00am-8:45am
- 8:45am-9:00am Safety Briefing
- 9:15am Match Start
- ~12pm Lunch served to your squad. Keep shooting. We'll bring it to you!
- Award Ceremony to follow immediately after last squad is finished and scores are tallied

Feel free to call or email us with any questions or concerns.

Email: midwestprecisionshooting@gmail.com

Phone: 763-360-0913 (Ruth) 612-232-6899 (Justin)

Location/Range information:

Rush Lake Range is located in New York Mills, MN. Google maps will guide you to the range via 500th avenue- do NOT turn onto 500th avenue. Instead, the range entrance will be off of CO Hwy 54 just west of 500th avenue.

The range is approximately 50 minutes from Alexandria, MN which offers a variety of accommodations and restaurants. There are several towns closer to the range that have accommodations as well: Wadena (20 minutes), Ottertail (15 minutes), and Perham (20 minutes drive). Several resorts and

AirBnBs are also available on nearby lakes. The range has limited spaces for RVs and camping on site, please reach out if you would like to camp at the range.

If you are making a trip to Minnesota, here are some recommended activities to do in the area:

The largest town close to the range is Alexandria (approximately 30 minutes south of the range) which offers a variety of activities for the family from antique shopping to historic tours to golfing or boating/fishing. For tourism information on Alexandria, check out this website:
<https://exploreallex.com/>

There are some great resorts in the area as well as AirBnBs with lake-front accommodations. A few options are below:

Wild Walleye Resort and RV Park: <https://campnative.com/campgrounds/usa/mn/ottertail/wild-walleye-resort>

Four Seasons Resort: <https://www.fishrushlake.com/>

Thumper Pond Resort and RV Park: <https://www.thumperpond.com/>

For those interested in fishing, we highly recommend Walleye fishing. There are some great local guides who can help you find all the best locations to catch the state fish (check out <http://jsguideservice.com/> for more information!). Walleye are both fun to catch AND taste great!!

APPENDIX B

Example Stage Description:

STAGE 10 – YOU DON'T NEED NO STINKING BAGS



STAGE DETAILS

Time: 120 Seconds

Distance: 150, 177, 160, 105 Yards

Equipment: Bipod only

Round Count: 10

Scoring: 10 Points per Impact, 100 Points Possible

STAGE PROCEEDURE

Starting position: Standing with all gear in hand

Upon "Engage" command shooter will assume a prone position and engage the 150 yard target, then 177 yard target, then 160 yard target with one shot each, hit or miss move on. Repeat this engagement in the same order 3 times. With the 10th round, engage the 105 yard target.

APPENDIX C

Example Safety Briefing – MPS Safety Brief

Thank you all for coming to our match, we are excited to have you here and to get started. Before we begin we have some important safety topics we need to discuss. We aim to create a fun environment for everyone to learn and compete in the precision rifle discipline; but before we can have fun, we need to make sure we are safe. Because without safety, we can't have fun!

We are going to cover some general safety rules. If you have ANY questions about these rules, please ask - everyone here is happy to help. We all must hold each other accountable for safety. If you notice any act approaching violation of these safety rules, please speak up and stop the action before it becomes a violation.

- A Range Officer (RO) is defined as the person on your squad who is acting as the enforcer of safety during your individual course of fire.
 - The RO will give the following commands:
 - If the shooter understands the course of fire, Load and make ready
 - Shooter ready?
 - Stand by...
 - Engage
 - Time
 - Unload and show clear
 - It is the RO's responsibility to verify that the rifle is unloaded, observe a visibly empty chamber, and ensure that the chamber flag has been reinserted before the rifle can be removed from the firing line
 - Clear
- Throughout the entire match, your muzzle must be pointed in a safe direction. Muzzles can be pointed Up or Down, or Downrange, or in a Rack, or Pointed at a Berm.
 - But a muzzle pointed at a person, whether it's another person or yourself, no matter the body part, is an immediate DQ from the match.
- This is a Cold Range: Always keep your rifle unloaded and chamber flag in until you are on the firing line and instructed by the RO to load and make ready.
 - Chamber flags are required. If you do not have one, come see us and we will loan you one for the match.
 - First violation of the Cold Range rule will result in a warning. Second violation will result in a stage zero. A third violation will result in a match DQ.
 - This includes a live round in the chamber, a magazine inserted, a closed action, or a chamber flag not being used.
- Firing Line is no-longer the same firing line that was used for sight-in. The firing line is now located in front of the tubes. When standing inside houses, do not point guns downrange because there will be people down there.
- When on the firing line, your muzzle must not break the 180, meaning that it cannot be pointed behind the imaginary vertical plane spanning the firing line.
 - A loaded rifle in violation of the 180-rule will result in a match DQ.
- Make sure that you do not accidentally shoot barricades or props.

- A bullet that impacts a prop will result in a match DQ.
- Make sure that you are on target before closing your bolt or taking your rifle off safe. This means that you are looking through your scope, and your crosshairs are on target before you close your bolt or take your semiauto off safe.
 - Closing your bolt or taking your rifle off safe without your eye being in the scope and seeing the target will result in a warning. The second violation will result in a deduction of one impact. The third violation will result in a zero for the stage.
- Any movement between shooting positions must be done with the action open and an empty chamber. The only exception to this rule will be with the use of semi-automatic rifles but the shooter must engage the safety, and yell “Safe” loud enough for the RO to hear before moving.
 - Unsafe transitioning: transitioning between positions without having the action open, or a semi-auto not engaging the safety or calling “Safe” will result in the Range Officer directing the shooter to move back to the previous firing position, then opening their bolt (or semiautos engaging the safety and calling “Safe”) before resuming the course of fire. This will be considered a first warning. The second violation will result in a deduction of one impact. The third violation will result in a zero for the stage.
- A Negligent Discharge (ND) is defined as any round unintentionally discharged from a firearm caused by the shooter. Examples of this can occur from being under stress, having cold hands, wearing gloves, accidentally bumping the trigger, or loss of control of the firearm. An ND will result in a match DQ
- An Accidental Discharge (AD) is defined as any round unintentionally discharged from a firearm due to a mechanical failure.
 - The participant will be removed from the event until they can repair the rifle to safe working order. All stages and points will be forfeited during this down time.

Flagging/Muzzling/Sweeping

Any time the barrel end of the rifle points at any part of a person it is a major safety infraction. This is sometimes referred to as “flagging,” or “sweeping,” or “muzzling” someone. This is a major safety infraction whether the shooter muzzles another person or any part of their own body. Shooters must always have control over their rifle and keep it pointed in a safe direction throughout the entirety of the match. Consequences of muzzling oneself or another at a match should be a stage disqualification (Stage DQ) at a MINIMUM. We personally recommend disqualification from the entirety of the match (Match DQ). Consequences need to be painful to ensure competitors keep safety at the top of their mind throughout the competition. This should be announced during the safety brief and reiterated in the match book under “safety rules” so there is little to no argument should this occur during the match.

Negligent Discharge

A “negligent discharge” occurs when the shooter causes his or her rifle to discharge unintentionally. This can occur if someone accidentally bumps the trigger while moving positions, if the rifle is dropped or mishandled, or if the shooter is wearing gloves or hand coverings and accidentally presses the trigger unintentionally. The consequences of a negligent discharge vary based upon the severity of the infraction. If the shooter is pointed in a safe direction when this occurs and the round can be accounted

for, a stage DQ may be appropriate. If the weapon is not pointed at a target or berm when the weapon is discharged, a match DQ is not out of the question.

Accidental Discharge

An “accidental discharge” occurs when the rifle is discharged unintentionally due to a malfunction of the rifle equipment and at no fault to the shooter. This generally occurs in situations where a shooter closes the bolt and the rifle goes off without the shooter pressing the trigger (this is also referred to as a “slam fire”). One cause of slam fires occurs when a trigger is set too light and the bolt is run, it can cause the trigger to reset and discharge the firearm. In the event of a slam fire, the RO or shooter should immediately stop the stage, a “0” score should be awarded for that stage to the shooter, and the cause of an accidental discharge should always be investigated. If an adjustment to the rifle can be made and it’s determined to be safe to return to competition, the shooter may resume the remainder of the competition.

APPENDIX D

Sponsor Request Template

Paragraph 1: Greeting/introduction

When you are sending requests, be sure to address the email to a specific person by name whenever possible. These are real humans and sponsorships are all about relationship building. The opening to your email is also the best opportunity to tell sponsors who you are and how you are involved with the sport. Mention your years of experience, role as a Match Director, what clubs you are affiliated with and whether you are also a competitor and/or otherwise involved in the industry. This should be 2-4 sentences long.

Paragraph 2: Match/event information

Paragraph 3: ROI/Sponsorship levels