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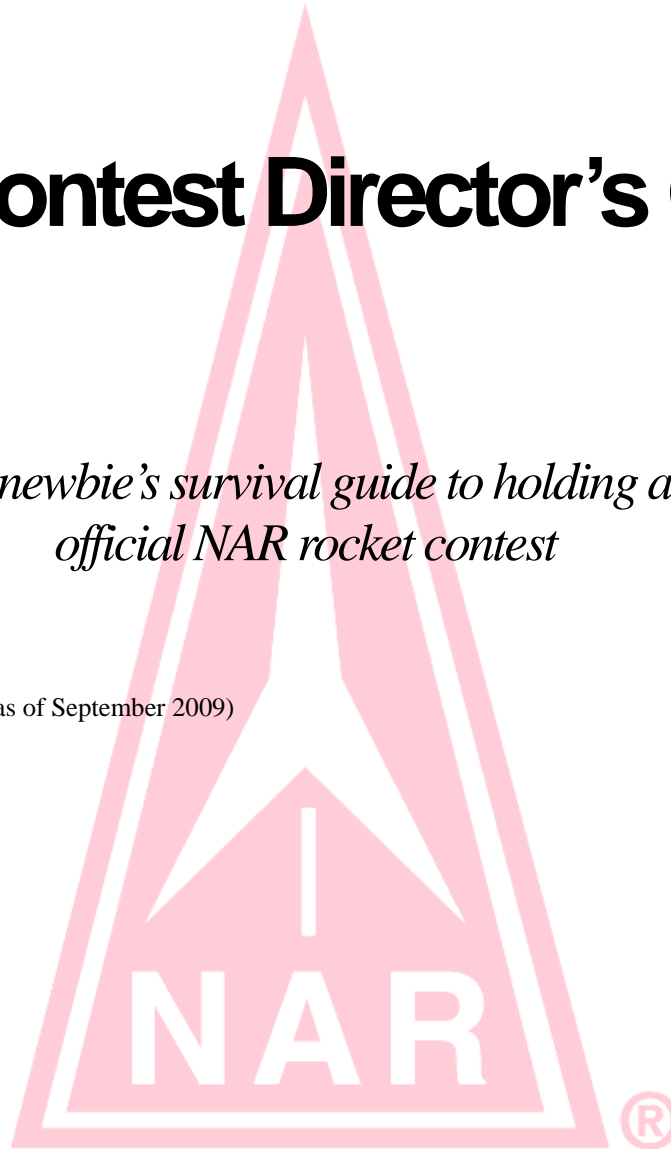
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National Association of Rocketry

# Contest Director's Guide

*The newbie's survival guide to holding an  
official NAR rocket contest*

(edited as of September 2009)



# Running a rocket meet

## Introduction

This 2009 edition of this guide was updated by Chan Stevens with corrections by the NAR Contest Board. What started out as “Gentle Reminders to Contest Directors” by Dottie Galloway in 1973 has been subsequently updated by Ken Brown, Janet Rose, Kevin Wickart through the years to this 2009 edition.

If you've been thinking about holding a rocket contest, but might be a bit afraid of the work involved, or not sure about what's involved, this guide's for you! Unless you're trying to host the national meet (NARAM), running an NAR contest is actually pretty simple and can be a lot of fun. It can also help develop new skills within your local club.

Running a contest can require some significant effort, organizational skills and commitment, but can also be done with a relatively small amount of work if you take a realistic approach from the start. This guide is designed to help you assess where you and your club are in terms of capability, put together an appropriate meet and continue to grow as a group.

The most common reason cited for why people don't participate in rocket contests is because there aren't any when/where they can conveniently fly. The reasons most clubs cite for why they don't hold any contests are that it's too hard or they don't know how. This guide is designed to help, to make the initial step(s) easy.

All it takes to hold a rocket contest is two flyers and someone willing to run it, and the person running it can even be one of the two flyers. This guide isn't going to make you an expert in competition rocketry and the more intricate rules, but should demystify it enough and give you the basic information you need to run a meet. By starting small and simple, working your way up, you'll soon discover that competition rocketry can be fun and challenging, and running contests can be an important contribution towards helping grow interest in the hobby. It's all part of the *paying forward* aspect of what we do.

## Knowing your limits

Before putting together a contest, it's important to think through a few critical factors that should dictate the type of contest and the events you'll be running.

### Type of meet

Other than the national meet, there are four types of contest you can hold. They vary in size and scope. They also tend to vary in level of formality, meaning as you move into larger contests the contest becomes less casual (or more formal) and it becomes more important to develop and adhere to contest-oriented procedures. That's not to say the rules don't need to be followed—all NAR meets have to follow the published rules—but when you're flying a small contest with only 3-4 participants, for example, you probably don't need to line up a team of timers or trackers, but for a larger contest drawing 10-20 flyers, you might need volunteers for check in, timing, tracking, returns, etc.

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The table below shows the key aspects of the various meet sizes. The event weight factor (WF) limits will be discussed shortly.

Meet Type	Minimum # of contestants	Special Requirements	Maximum Event WF's	Formality/Intensity
Section or Local	2	None	40	Low
Open	5	No more than ¼ can fly for the same club	60	Moderate
Regional	10	Must have either 1 contestant from >50 miles away or out of state. No more than 2/3 can fly for the same club.	80	High

### Type of Competitors

How much experience do the flyers you're likely to draw in to the contest have? Have they flown in previous contests? Do you expect to have a lot of kids/families? Are you expecting flyers who are mainly into mid-high power? Do they fly scale models, or more complex models such as gliders, helicopters or radio control? The more serious competitors (often referred to as BTC's for big-time competitors) will typically only fly in regional meets, so it's pretty common to start out small with locals and opens to build up competition experience before trying to put together a regional.

### Dates/Time of year

Seasonality can influence when to hold meets and the meet type. The national championships are held every year at the end of July/start of August

In most parts of the country, spring tends to be the best weather and draw the most flyers, so chances are better you'd draw enough flyers for a regional in the northeast in, say, April than in February. Some clubs take advantage of the "off season" to host smaller contests, maybe even themed around certain holidays, as an excuse to get together for a day of flying in winter, etc.

You'll also want to consider how long your meet will run. Smaller contests might be fine to run in one day, but most larger contests are held over a 2-day weekend. By scheduling a meet over 2 days, you can avoid a lot of the risk of rain/wind/plagues of locusts wrecking your plans. And the rules say that in case of inclement weather, either reducing the number of flights or postponing can be employed.

## Choosing the events

Choosing which events to include in the contest is one of the most important decisions you will make, and can have a big impact on the success of the contest. You'll need to maintain a careful balance of events that are easy or fun enough to attract contestants, but also challenging enough to help them develop new skills and gain valuable experience. The following section will help walk you through the thought process you should be going through in selecting events.

### Field size/condition

First and foremost, you generally want to stick with events that will "fit the field". Think about how large the field is where you'll be holding the contest, what the typical wind patterns are, and what the recovery area is like. Bear in mind that competition flights tend to outperform sport models, so you might need more recovery area than you'd expect. Something as simple as a C motor parachute duration flight, for example, could easily exceed 5-minute duration and drift more than 800 yards downwind in 6 MPH winds, and upper air currents

are normally stronger than you feel on the ground. It can actually be fun as a contestant to try to figure out how to fly an event on a smaller than usual field for the event, but be reasonable—don't try to hold F-streamer duration if you've only got a municipal park with 3 soccer fields of recovery area.

Field conditions can also influence the events. Craftsmanship events, for example, might not be as much fun if flying on hard ground or near pavement, where models could get damaged on impact. A contestant flying an 1/8A event adjacent to a cornfield or in knee-high weeds might not enjoy trying to find his/her model.

### **Event difficulty/complexity**

Each event has a pre-assigned weight factor (WF) based upon its perceived level of difficulty and effort. These are listed in the appendix and are also in the “pink book” (the official rules book for NAR meets, see checklist/tool kit later in this guide). The WF for an event ranges from 2 to 40, with most falling in the 8-20 range. There is a maximum number of WF's you may include in a meet, with larger meets allowing more WF's. Now think about how you want the meet to work—do you want a lot of flights, though somewhat easy? Do you want only a handful of flights, but ones that might take a lot of prep work? What kind of strain are you putting on the contestants? For example, streamer duration and parachute duration tend to have comparable WF's, but parachute duration tends to take longer to track and recover.

Another useful item that can be used is getting everyone to agree with what's known as “gentleman's agreement”. Specify that everyone use 18mm motors, or use “Big Bertha's” for B Parachute Duration, something like that. The rules can't stop a contestant from using a specially designed competitive entry, but just about everyone will enjoy giving themselves some limitations on size or impulse just for the fun and camaraderie.

Not sure you'll be able to get enough contestants? Think about including a relatively easy event or two such as spot landing or streamer duration. Just about anyone who shows up for sport flying could use something from their on-field fleet to qualify for either of these events, even if they hadn't planned on entering the contest that day.

Some events, while fun and interesting, also involve some special logistical/support challenges you'll need to address. Altitude events, for example, either require the use of pre-approved altimeters which can be expensive, or setting up a baseline with tracking theodolites, which requires a crew of 2-3 to operate and coordinate communication (typically with walkie-talkies or FRS radios). Craftsmanship events such as sport scale or plastic model conversion need a judge (who is not competing in that event).

A well-balanced meet will typically have a mixture of easy and somewhat challenging events, possibly with an event or two that might only need one flight (altitude, craftsmanship, egg lofting, payload, spot landing, etc.) that keeps the flight workload down to a reasonable level (typically in the neighborhood of 6-10 flights for a 1-day meet). Also, bear in mind that while you don't have to schedule a meet to the maximum WF's allowed, if you want to attract the more serious competitors to a regional meet, you'll want to schedule the maximum 80 WF, as anything less would hurt the point potential that makes regionals attractive to BTC's in the first place.

## **Sanctioning the meet**

Once you've figured out what type of meet you're going to hold, where it will be, what date(s) and times you'll fly and what events are included, you'll need to take a couple of steps to register and promote the meet.

### **Requesting a sanction**

Before you can hold a contest, you must first get the permission from the NAR representative who oversees the region of the country where you're holding the meet. Current contact information is published on the NAR website ([www.nar.org](http://www.nar.org)), and you can always email the national NAR Contest Board chairman at [narcbchair@nar.org](mailto:narcbchair@nar.org).

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To get the sanction, you need to fill out a brief, simple sanction request form (see appendix) and send in a small fee, typically \$5. Sanctions are almost never denied, as it's just a matter of tracking who is holding meets/when, and making sure no club winds up having more contests than are allowed within a single year (a fairly hard limit to hit). The regional chairman also needs to make sure you're providing enough advance notice, typically at least 30 days before the meet.

### Promoting your meet

Once your meet is sanctioned, you should also list the dates, events, location and contact information on the NAR's master schedule of launches called Launch Windows. This can be done online at [www.nar.org](http://www.nar.org).

Electronic announcements and reminders can also help draw in a good crowd. Consider posting information about your contest through the Contestroc Yahoo group (a discussion group focused on competition rocketry) as well as message boards, newsletters, email lists, etc. for your club and neighboring clubs.

If you have local hobby shops or motor dealers nearby, consider printing up a small flyer for them to hang or hand out.

## Preparing for the meet

After you've gotten your sanction, there are a number of things you'll need to take care of before the day of the meet. This can also be a good opportunity to delegate out some of the work to other helpers, though as contest director (CD) you are ultimately responsible for making sure they all happen.

**Trophies/ribbons**—Most competitors, especially kids and newbies, tend to get more excited about a contest if some sort of awards are handed out to winners. At the very least, you should try to get ribbons for first through fourth place for each event. If your budget can support it, trophies for the meet might also be a good idea. Ribbons are fairly common in smaller meets (locals, opens), and at larger meets (regionals) trophies become more common. Ribbons can be ordered directly through the NAR for about \$1 apiece. Trophies would need to be locally sourced. Also, be prepared for ties. They're not that common, but having a couple extra ribbons is a good idea and avoids having to make someone wait days or weeks for their award. The expense for these can be garnished utilizing an entry fee.

**Prizes**—You might consider asking for donations from club members, local merchants, etc. of small prizes that can be awarded for special/fun categories, fun events, etc.

**Equipment**—You will normally need to provide launch equipment at the contest site. If you're doing this through an organized NAR club, the typical sport launch pad/system is probably sufficient, though if the additional traffic of contest flights causes a backlog at the pad, separate gear for contest flights or granting contest flights top priority would be a good idea. Standard launch rods (1/8, 3/16, 1/4") are the norm. Specialized gear such as rails, towers, pistons, glider launchers, etc. is normally up to the individual contestants to furnish.

If you are holding an altitude event, you will need to round up theodolites for tracking, or altimeters, depending on the tracking method you declared when sanctioning the meet.

Consider what type of communication gear you will need. Does your flight line sprawl enough to warrant a PA system or bullhorn? If you will be using theodolites for tracking, you'll need walkie-talkies or FRS radios to communicate with each tracker.

You'll need measurement gear to support your events. Make sure you've got at least 4 stopwatches for two timing teams for duration events. More stopwatches may be needed depending on the number of contestants. A good long measuring tape come in handy for setting up altitude tracking baselines as well as measuring

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distance to the target for events like spot landing or RC rocket glider. If you're holding a scale event, calipers and a good ruler will likely be needed to measure the rockets.

Don't forget the payloads! Even the most experienced of contest directors will admit to setting up on the day of the meet only to discover that they had forgotten to buy or bring the eggs for egg lofting, or make the payloads for payload altitude. Even if you remembered to buy and bring eggs, did you bring a scale to make sure they comply with weight limits, and calipers or a gauge to verify they are not over/undersized (see Pink Book for specs)?

**Appoint officials**—There are several critical roles that need to be filled for each meet, and you should generally try to fill these before the contest rather than try to remember to do it at the launch. Note that a person can fill more than one role (very common in smaller meets). The main roles are:

- **Contest director**—The person running the meet. That's you.
- **Contest jury**—You need three NAR members (adult) to act as a jury, resolving any disputes related to the contest. The CD often serves as one of the 3. Contestants can serve on the jury. Note that for a local meet, while you only need 2 contestants, you still need 3 jury members.
- **Range Safety Officer (RSO)**—The RSO is responsible for operational safety as with any launch, but takes on the added responsibility at a contest of watching each contest flight and determining whether it is a safe and qualified flight. This person should be familiar with the rules for each event being flown, as this can affect whether or not a flight is "qualified". For example, if a streamer duration flight separates but falls harmlessly to the ground, it might be a safe flight but would be disqualified under the event rules.
- **Launch Control Officer (LCO)**—Most organized launches route all launch button-pushing through a single person. Even if you allow contestants to launch their own, they should coordinate the launching through a single person. At small contests, the RSO and LCO can be the same person.
- **Check-in**—This person is responsible for pre-flight inspection of the rocket for stability, verifying that the motor is legal for the event, reviewing the flight card, etc.
- **Craftsmanship judge**—If holding a craftsmanship event (scale, PMC, etc.), you need someone to review and score both the models and the flights. This is normally not a contestant, or at least not someone competing in that event. For example, if you are short on resources, it's possible to appoint a C division contestant to judge the team entries, and a team contestant to judge the C entries, but no one should ever judge a model who is competing against that model in that division.
- **Data entry**—This is the person that would be responsible for feeding the contest and flight data into either the Contest Manager software program or manually filling out the points award summary sheets at the end of the contest.

**Paperwork**—Your contests will go much more smoothly if you anticipate and have the proper paperwork available in advance of the meet. Blank forms for all of these are provided in the appendix and are also available online via the NAR website.

- **CB-1-70**—This is an entry form that must be filled out by each contestant. It's fairly straightforward, asking for basic information. The most common mistake made in filling them out is forgetting to check the back side, which requires the signature of either the contestant or a parent if the contestant is a minor.
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- **Flight cards (CB-2)**—There are special flight cards used in competition. Key differences between a contest flight card and a sport flight card is that the contest card requires additional information (duration, altitude tracking data, etc.) and since there is only one contest flight card *per event*, multiple single flights may be recorded on a single card. Note that the flight card has two sides—one for duration events, one for altitude events.
- **Points award sheet**—If using Contest Manager, you typically don't need to fill out this form in detail, but regardless of whether or not you use the software, your 3-member contest jury must sign the top of this form. And the Point Award Sheet still must be turned in with the judges signatures
- **Craftsmanship judging forms**—If you are holding a craftsmanship event, you should provide the judge with plenty of blank copies of the static scoring sheet specific to that event. For example, scale and sport scale have different points and scoring criteria. You might also consider supplying the judge with a copy of the pink book rules for the event, which can provide some insight into the point categories.
- **U.S. Model Rocket Sporting Code (Pink Book)**—Always have a copy of the current year's version of the rules printed out and available at the meet. You certainly don't need to memorize it, but should be familiar with the general rules as well as the rules for the specific events in your contest.
- **Certified motor list**—Always have a *current* list of certified motors available. Note that this list is updated several times a year, so always go to the NAR website for the latest version for each meet. This list is important because not all models certified for sport flying are permissible in contests, and you might need this reference to verify that a motor is legal for competition.

**Budget**—Your contest will likely cost some amount of money (at the very least, the \$5 sanction fee). You will need to at least rough out what expenses will be incurred and determine how these expenses will be covered. For most meets, the main expense is the ribbons/trophies, so budgeting is not a complex process. To cover the expenses, most contests charge the contestants a small fee (typically \$2-10). If your club is sponsoring the contest, they might be willing/able to subsidize some of the cost.

## Running the meet

The waiting is over; the day of the meet is now here. Despite the flawless work and preparation you've put into the meet, do yourself a favor and review the checklist in the appendix before you head out to the field. Assuming you've arranged for all the "stuff" to be there, managing the rest of the meet can go much more smoothly.

**Registration**—As contestants arrive, have them fill out a CB-170, collect their contest fee (if any), and give them flight cards for the events they will be flying (so they can fill out their name, NAR #, etc.). As you register flyers, you'll want to keep an eye on whether you've covered the minimum contestant requirements as well as made sure you haven't exceeded the limits for the percentage of contestants that can fly for a single club. If you get too many from one club, you can have someone fly as IND (independent) rather than for the club to get under the limit.

**Assign Range Duty**—All contest flights require at least a minimum level of support. Make sure you've assigned an RSO as well as trackers or timers. Since tracking is typically a labor-intensive process, many contests limit altitude flights to specific periods throughout the day (tracking windows). Since most clubs don't have enough volunteer support to cover all tracking/timing duty, it's pretty common to assign range duty to the contestants themselves. For larger meets, you might need the formality of assigned shifts, though for smaller, more casual meets the norm is often for a flyer or RSO to simply call out for a couple timers as he's heading to the pad.

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**Flight procedure**—You have some flexibility here to do what works best for your particular team of volunteers and contestants. As a general guideline, the process that should be followed for contest flights would be:

1. Contestant fills out flight card for the event, takes motor and/or rocket to an official for check in. Official initials flight card and keeps it at check-in area, contestant goes back to prep the model for flight.
2. Contestant returns with model prepped for flight to check-in, gets flight card, goes through pad assignment.
3. Contestant or RSO verifies timers/trackers/judge are available for the flight.
4. Contestant loads rocket on pad, and when weather conditions are suitable, asks RSO/LCO to launch the model.
5. RSO watches flight, confirms qualification/safe flight. Timers/trackers/judges score flight performance and record the flight score on the flight card.
6. Contestant recovers model and returns to an official (if event requires a return). Official reviews model/engine and signs off on flight card. Flight card remains at check-in/return area.
7. Flight card data is entered into Contest Manager software (if available on the field/at the meet). Or it is retained and turned in to the NAR Contest Board regional chairperson along with the results.

## Wrapping up

Once all the flights are in, if at all possible you should try to determine the event (and meet) winners on the field and award ribbons/trophies at that time. If not, they should be mailed out in a timely manner (within a week). Using Contest Manager software makes this a very quick and easy process, so having a laptop with the software at the field can be a big help. If you held a craftsmanship event, you should also expect to mail copies of their judging sheets to each contestant.

You will need to gather up all flight cards and CB-1-70 registration forms, along with the points award sheet (signed by the jury) and mail this in to the regional chairman, and if used, email the Contest Manager file. This typically needs to be done within 14 days of the meet.

If it looks like you can't conclude the meet on the scheduled days, you have a decision to make. Typically, the only reasons you can't finish a meet on time are because of weather or because of a lack of enough contestants. In the event of weather, you can either restrict the number of flights allowed (for example, declare duration events will only use one flight instead of two) or suggest a continuation of the meet to another date. For a continuation, you must allow the contestants to vote on it and it must be approved by at least 2/3 of the group. If you do not have enough contestants, you will typically have to drop the meet down one level (ex. regional → open, open → local), and this also usually means having to eliminate specific events to get the total WF's below the revised meet's limit.

And lastly, if there's any questions or concerns, you can always contact your specific regional contest board chairman. Not only are they there to manage results, they can help you on how to run your contest.

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# Contest Management Checklist

## Pre-meet

- Secure field, dates
- Meet size (local, open, regional)
- Choose events
- Apply for sanction
- Update Launch Windows online
- Announce (Contestroc, email lists, newsletters, hobby shops, etc.)
- Rough out a budget (expected entry fees, costs)
- Order ribbons, trophies
- Contact vendors or sponsors (prizes, etc.)
- Line up special gear (theodolites/altimeters, payloads)
- Line up volunteers (judges, timers/trackers, etc.)
- Print/order paperwork
  - ✓ Pink book
  - ✓ Certified motor listing (current)
  - ✓ CB-1-70 entry forms
  - ✓ Flight cards
  - ✓ Judging forms (for craftsmanship events)
  - ✓ Points award sheet (should have been sent back to you with approved sanction)

## Night before/day of contest

- Pack up paperwork (write down list of events)
- Pack up or confirm standard launch gear (pads, launcher, batteries, fire extinguisher, etc.)
- Pack/confirm contest-specific gear
  - ✓ Walkie-talkies
  - ✓ Stopwatches
  - ✓ 50+ foot tape measure (for OSL or RCRG)
  - ✓ Theodolites/altimeters (for altitude events)
  - ✓ Eggs/payloads (if applicable)
  - ✓ Calipers (for scale)
  - ✓ Laptop/Contest Manager software
- Pack up ribbons, trophies, prizes

## Post-Meet

- Get contest jury signatures on points award sheet (on field)
- Review flight cards, data entry (on field if possible)
- Award ribbons, trophies, prizes (on field if possible)
- Send paperwork, electronic results to regional contest chairman



## Event Weight Factors

Event	1/8A	1/4A	1/2A	A	B	C	D	E	F	G
Altitude	9	9	9	10	11	12	13	14	15	16
Boost Glider Duration	19	18	17	18	19	20	22	23	25	26
Cluster Altitude	12	12	14	16	18	20	-	-	-	-
Dual Egg Lofting Altitude	-	-	-	-	-	30	29	29	30	31
Dual Egg Lofting Duration	-	-	-	-	-	28	27	27	28	29
Egg Lofting Altitude	-	-	-	-	19	18	19	20	22	24
Egg Lofting Duration	-	-	-	-	17	16	17	18	20	22
Flex-Wing Glider Duration	19	18	17	18	19	20	22	23	25	26
Helicopter Duration	21	20	19	20	21	22	23	24	26	27
Parachute Duration	7	7	7	7	8	9	-	-	-	-
Payload	-	-	-	16	15	16	17	18	20	22
Rocket Glider Duration	21	20	19	20	21	22	24	25	27	28
Scale Altitude	25	26	27	28	29	30	31	32	33	34
Streamer Duration	8	8	8	8	9	10	11	12	13	14
Super-Roc Altitude	13	14	14	14	15	16	17	18	19	20
Super-Roc Duration	12	13	13	13	14	15	16	18	19	20

NOTE: Add 4 to Duration Weighting Factors for Multi-Round events.

Event	WF
Drag Race	2
Plastic Model Conversion	26
Predicted Altitude	8
Predicted Duration	8
Radio Controlled Glider	32
Random Altitude	10
Random Duration	10
Research and Development	36
Scale	32
Science Fiction and Future Scale	20
Set Altitude	8
Set Duration	8
Space Systems	28
Sport Scale	20
Spot Landing	4
Super Scale	40

## Application for Contest Sanction

Regional Contest Board Chairman

\_\_\_\_\_  
\_\_\_\_\_

(fill in the name and address of your current RCBC)

Contest Name: \_\_\_\_\_ Contest Date: \_\_\_\_\_

Type of Contest (Circle one):    Section          Local          Open          Regional          Record Trial

EVENTS PLANNED			
Event	<u>WE</u>	Event	<u>WE</u>
1. _____	___	7. _____	___
2. _____	___	8. _____	___
3. _____	___	9. _____	___
4. _____	___	10. _____	___
5. _____	___	11. _____	___
6. _____	___	12. _____	___

Special Provisions: \_\_\_\_\_

Contest Director: \_\_\_\_\_ NAR#: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: \_\_\_\_\_ E-mail (if applicable): \_\_\_\_\_

I hereby certify that this contest will be conducted in accordance with the current U.S. Model Rocket Sporting Code and the NAR Safety Code. I will notify the Regional Contest Board Chairman of any postponement of this meet due to weather or other factors.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

**Distribution:**

Send one copy of this form, plus a \$5 sanction fee to your Regional Contest Board Chairman. Your sanction must be postmarked at least 30 days prior to your contest.

Send one copy to the Sport Rocketry Magazine "Launch Windows" editor no later than 120 days prior to your contest date.

Send one copy to the editor of Sport Rocketry Magazine no later than 120 days prior to your contest date:

**CONTEST BOARD USE ONLY**

Date Received: \_\_\_\_\_ Fee Received (Check): \_\_\_\_\_ Sanction # Assigned: \_\_\_\_\_

Date Results Received: \_\_\_\_\_ Date Results Sent to National CB: \_\_\_\_\_

Comments: \_\_\_\_\_



**NATIONAL ASSOCIATION OF ROCKETRY**  
OFFICIAL CONTEST ENTRY BLANK

OFFICIAL  
USE ONLY  
ENTRY NUMBER  
FLIGHT SHEETS  
ISSUED BY

PLEASE ENTER ME IN THE FOLLOWING EVENTS	OFFICIAL USE ONLY		CONTESTANT DATA
EVENT	EVENT NO.	FLIGHT SHEET NO.	FULL NAME OF CONTESTANT
			STREET ADDRESS
			CITY
			STATE ZIP
			PHONE NO.
			NAR NUMBER
			AGE DIVISION (circle one) A B C T
			OFFICIAL NAME OF CONTEST
			SECTION NAME
			SECTION NUMBER
			NAR TEAM NO.
			DATE OF BIRTH
			REMARKS: (OVER)



**NATIONAL ASSOCIATION OF ROCKETRY**  
OFFICIAL CONTEST ENTRY BLANK

OFFICIAL  
USE ONLY  
ENTRY NUMBER  
FLIGHT SHEETS  
ISSUED BY

PLEASE ENTER ME IN THE FOLLOWING EVENTS	OFFICIAL USE ONLY		CONTESTANT DATA
EVENT	EVENT NO.	FLIGHT SHEET NO.	FULL NAME OF CONTESTANT
			STREET ADDRESS
			CITY
			STATE ZIP
			PHONE NO.
			NAR NUMBER
			AGE DIVISION (circle one) A B C T
			OFFICIAL NAME OF CONTEST
			SECTION NAME
			SECTION NUMBER
			NAR TEAM NO.
			DATE OF BIRTH
			REMARKS: (OVER)

NATIONAL ASSOCIATION OF ROCKETRY - OFFICIAL CONTEST FLIGHT CARD

NAME		NAR #	DIVISION	RESULTS	PLACE	POINTS
EVENT: <b>DURATION</b>		REMARKS:			WEIGHTING FACTOR _____ CONTEST FACTOR 1 2 3	
SAFETY	FLIGHT #1	FLIGHT #2	FLIGHT #3	FLIGHT #1	SUPER-ROC DURATION	FLIGHT #2
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LGTH (CM): _____		LGTH (CM): _____
ENGINE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AVG TIME (SEC): _____		AVG TIME (SEC): _____
PAD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TOTAL POINTS: _____		TOTAL POINTS: _____
TIMER 1	_____	_____	_____	PREDICTION: _____ ÷ INTO ACTUAL: _____		
TIMER 2	_____	_____	_____	X 100: _____ = ROUNDED SCORE: _____		
SUM	_____	_____	_____	SUBTRACT 100 OR SUBTRACT FROM 100		
AVERAGE	_____	_____	_____	FINAL SCORE: _____		
RETURN	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	FLT #1	EGGLOFT	FLT #2
DQ	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EGG ID: _____		EGG ID: _____
REASON	_____	_____	_____	BROKEN: <input type="checkbox"/>		BROKEN: <input type="checkbox"/>
				OK: <input type="checkbox"/>		OK: <input type="checkbox"/>
						SPOT LANDING
						METERS: _____
						RETURN: <input type="checkbox"/>
						DQ: <input type="checkbox"/>

NATIONAL ASSOCIATION OF ROCKETRY - OFFICIAL CONTEST FLIGHT CARD

NAME		NAR #	DIVISION	RESULTS	PLACE	POINTS
EVENT: <b>DURATION</b>		REMARKS:			WEIGHTING FACTOR _____ CONTEST FACTOR 1 2 3	
SAFETY	FLIGHT #1	FLIGHT #2	FLIGHT #3	FLIGHT #1	SUPER-ROC DURATION	FLIGHT #2
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LGTH (CM): _____		LGTH (CM): _____
ENGINE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AVG TIME (SEC): _____		AVG TIME (SEC): _____
PAD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TOTAL POINTS: _____		TOTAL POINTS: _____
TIMER 1	_____	_____	_____	PREDICTION: _____ ÷ INTO ACTUAL: _____		
TIMER 2	_____	_____	_____	X 100: _____ = ROUNDED SCORE: _____		
SUM	_____	_____	_____	SUBTRACT 100 OR SUBTRACT FROM 100		
AVERAGE	_____	_____	_____	FINAL SCORE: _____		
RETURN	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	FLT #1	EGGLOFT	FLT #2
DQ	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EGG ID: _____		EGG ID: _____
REASON	_____	_____	_____	BROKEN: <input type="checkbox"/>		BROKEN: <input type="checkbox"/>
				OK: <input type="checkbox"/>		OK: <input type="checkbox"/>
						SPOT LANDING
						METERS: _____
						RETURN: <input type="checkbox"/>
						DQ: <input type="checkbox"/>

**SCALE JUDGING GUIDE (CB - 8 - 80)**

**SCALE DATA: MAX 50 POINTS ( \_\_\_\_\_ )**

REQUIRED: 0 points

<input type="checkbox"/>	Scale Factor
<input type="checkbox"/>	Photograph
<input type="checkbox"/>	Color Pattern Documentation (may be color photo)
<input type="checkbox"/>	Substantiating data / drawing other than kit materials

A drawing or table containing each of the following measurements for both the prototype and the model:

Model	Prototype	Measurement
<input type="checkbox"/>	<input type="checkbox"/>	Photograph
<input type="checkbox"/>	<input type="checkbox"/>	Color Pattern Documentation (may be color photo)
<input type="checkbox"/>	<input type="checkbox"/>	Substantiating data / drawing other than kit materials

In addition, the model must have:

<input type="checkbox"/>	Any launching attachment to be used (lug, strap, etc.) ATTACHED
<input type="checkbox"/>	NAR number visible on exterior of model

If any of the above entries are not checked, the model is **DISQUALIFIED**

SOURCE OF INFORMATION: 10 points ( \_\_\_\_\_ )

10 Points	NARTS Scale Packs: prototype manufacturer's drawings or specifications, users' manuals
5 - 9 Points	NASA or military "data sheets", model magazine plans, technical books and journals
0 - 4 Points	Generalized information such as public relations material, sales data, general information plans from magazines (Space World, Look, Aviation Week, and so on, kit manufacturer's plan, others

ADDITIONAL SUBSTANTIATION: 15 points ( \_\_\_\_\_ )

Award 0 -15 points for data which facilitated you judging; including additional dimensions, substantiating data, affidavits, paint samples, detail photos, arrangement of data, and so on.

PHOTOGRAPHS: 15 points ( \_\_\_\_\_ )

At least one color photo supplied: 5 points. Award 5 points for each additional applicable photo to a maximum of 15 points.

PAINT PATTERN: 10 points ( \_\_\_\_\_ )

10 Points	Color and paint pattern over entire vehicle will be substantiated, including details
7 - 9 Points	Most of color and paint pattern substantiated
4 - 6 Points	Only one view of vehicle is substantiated.
2 - 3 Points	Difficult to determine colors
0 - 1 Points	Difficult to determine pattern

PERTINENCE / PRESENTATION **PENALTY**: -20 points < \_\_\_\_\_ >

Deduct up to 20 points at the judges' discretion for: primary data not applicable to vehicle or round modeled; data presented in a manner that hinders or complicates judging.

**ACCURACY OF MAJOR DIMENSIONS: MAX 200 POINTS ( \_\_\_\_\_ )**

Judges must measure overall length, main body diameter, and nose cone length; and two other dimensions of their choice. For each dimension measured, award points as follows:

Points	Accuracy	Overall length	Main body diameter	Nose Cone length	_____	_____
40	1% or better					
30	2% or better					
20	3% or better					
10	5% or better					
0	Less than 5%					

