

Monroe Launches in 2005 - FAQ

Frequently Asked Questions about Monroe Rocket Launches in 2005

Where is the Monroe Launch Facility?

Launches take place on a side road off of Highway 203, about 2.5 miles south of the city of Monroe. The range is mostly farmland owned by the Washington State Department of Corrections (DOC). By car, it takes 50 minutes to drive the 37 miles between downtown Seattle and the launch site.

Who sponsors and runs Monroe launches?

The Boeing Employees Model Rocket Club (BEMRC), also known as NAR (National Association of Rocketry) Section #627, organizes launches at the Monroe Launch Facility on the first Sunday every month from March through September. All Monroe flights are in accordance with current regulations including NAR safety codes, National Fire Protection Association codes 1122 and 1127, the Safe Explosives Act and the Homeland Security Act.

Who can attend, and who can launch rockets at Monroe?

The public and members of any rocket club are welcome to attend. Anyone can launch standard, low- and mid-power model rockets using motors of class A through G.

High power rockets with motors of class H, I, J or K can only be launched by certified, or certifying, NAR or Tripoli members following all the standard safety and legal guidelines. K is the limit for the Monroe Launch Facility.

Can I buy rockets and motors at the launch?

Yes, model rocket vendors usually attend Monroe launches, and we recommend supporting them with your purchases. Many a flier's day has been rescued by epoxy, parachutes or motors purchased from the on-site vendors.

Other sources for inexpensive (but selection-limited) low power rockets and motors include Toys R Us, Michaels and Wal-Mart. A huge assortment of rocket kits both large

and small are found at hobby shops specializing in rocketry, including All Hobbies in Puyallup (www.allhobbies.net) and Galaxy Hobby in Lynnwood (www.galaxyhobby.com).

When exactly do Monroe launches occur?

For 2005, launches are held on the first Sunday each month, March through September from 11:00 AM to 5:00 PM.

2005 Monroe Launch Calendar

All launches run from 11:00 AM until 5:00 PM

Sunday, March 6	Sunday, April 3
Sunday, May 1	Sunday, June 5
Sunday, July 3	Sunday, August 7
September 4	

What if the weather looks bad on launch day?

At Monroe, you can usually count on launches even when the weather report looks bad. Monroe's climate is rather unique, and launches often occur even when it's raining at your home. On launch mornings, no matter what the weather looks like, the Launch Director and supporting personnel travel to Monroe with all the necessary equipment. Only after an on-site assessment will they actually cancel a launch. Bad weather is often waited out until flying is possible.

How do I find the Monroe Launch Facility?

For precise directions, check out the Monroe directions page, or download the Monroe Launch Flyer available in PDF format from our web site at <http://www.bemrc.org>.

Are there any fees?

NO. There are no fees to attend or launch rockets at Monroe. However, volunteers are always needed.

What do volunteers do? How can I help?

Whether you're a beginning or experienced flier, assistance carrying launch equipment on and off the range, and with setting up or breaking down is always appreciated. No special skills are required. These tasks occur between 10:00 AM and 11:00 AM before launches and just after the event ends. See the Pad Manager or Launch Director to volunteer your services, or just show up.

Experienced volunteers serve as Launch Control Officers (LCO), Range Safety Officers (RSO) and Pad Managers. Shifts typically run one hour per launch, and are scheduled in advance. Training for the positions of LCO, RSO and Pad Manager are available for NAR and Tripoli members. To sign up, see or e-mail Monroe's Launch Director Dave Davis (ddavis@rocketlabs.com).

Experienced volunteers are also available to help beginners learn the hobby's basics.

It's everybody's responsibility to keep the launch site clear of waste paper and other debris. This includes picking up spent motors, igniters and flameproof wadding that's ejected when rockets deploy their parachutes. Leaving the site clean demonstrates our respect for the land and will help sustain our continued access to the property.

What do the LCO, RSO, Pad Managers and Launch Director do?

The *Launch Director* is responsible for the administration of the event and handles all contact with the FAA for launch waivers, and with the landowner for site permissions. At any time, the Launch Director may appoint a deputy director to assist with event management and coordination. The LCO, RSO and Pad Managers report to the Launch Director and/or his deputy.

The *Launch Control Officer* (LCO) sits at the launch control panel, arming and launching the rockets. Usually, the LCO is also the announcer. LCO shifts typically last one hour.

Range Safety Officers (RSO) monitor safety conditions at the launch site and have approval authority on flights of all rockets, particularly those using high power engines or combinations of engines of "H" and higher impulse. In that case, a detailed RSO inspection and sign-off is required prior to flight. When an RSO declares a rocket

unsafe, he or she will explain why and suggest modifications to make it flyable. RSO personnel will be roaming the prep areas and the general launch site.

The *Pad Manager* is responsible for assigning rockets to specific launch pads, and is usually alongside or near the LCO.

What are the site limits to motor size, vehicle weight and maximum altitude?

Based on our FAA waiver, and the size of the launch site, flights are limited to the following general guidelines.

- **Maximum Altitude:** 5,000 feet Above Ground Level (AGL).
- **Maximum Motor Size:** Total motor impulse \leq 2560 Newton-seconds (up to and including most K motors).
- **Maximum liftoff weight:** 20 pounds with motor(s) installed. Exceptions to this are on a case-by-case basis. See the Launch Director.

Are there other rules?

- In accordance with the event's insurance policy, only commercially manufactured motors with NAR or Tripoli certifications can be flown. When in doubt, ask.
- Keep in mind that any launch is subject to governmental inspection for compliance with regulations for low explosives, such as spacing between high power motor magazines and existence of the appropriate permits.
- *Drinking and use of illegal substances is strictly prohibited.*
- Children must not be left unattended.
- Everybody must be alert when rockets are launched. Sometimes an unstable rocket veers off course or a parachute fails to deploy, creating a high-energy "lawn dart".

- When the LCO uses the PA system to designate a launch as “Heads Up”, the element of danger is elevated. Everybody must stand and watch the particular rocket until it has been safely launched and the recovery device deployed. Children in particular should be standing alongside an attentive adult, parent or guardian.
- While “Heads Up” flights are uncommon, it’s very important to make note of them. For example, launches of rockets with clustered motors in the mid and high power class are typically declared “Heads Up”.

What kind of launch equipment is available?

Monroe’s typical launch pad arrangement includes:

- **Ten low power pads** for small model rockets requiring 1/8” and 3/16” rods.
- **Eight mid power pads** with 1/4” rods and baby Black Sky rails.
- **Four high power pads** supporting a collection of 3/8” though 3/4” rods, and standard rail systems.

There is no equipment available to support “Hybrid” launches. If your flight requires customized ground support or integration of your own launch equipment, contact the Launch Director in advance of the event to assess whether your needs can be supported.

What are the steps to launch my rocket?

Preparing for Low and Mid Power Launches. The process is very simple when your rocket falls into the low or mid power class. Low and mid power motors contain no more than 62.5 grams of propellant. “G” motors are generally the largest in the mid power class, and are exempt from most government regulations.

1. After you’ve prepared your low or mid power rocket for flight, you’ll need to fill out a flight card. Flight cards are available at our web site <http://www.bemrc.org> or on site from the Launch Director or Pad Manager. Fill the card out completely and when you’re ready to fly, present it to the Pad Manager for scheduling.

2. When it's your turn, the launch pad area will be declared "open." Simply carry the rocket out to your assigned pad, slip it on the rod or rail and attach the igniter wires to the pad's launch clips.
3. When going to your pad, it's a good idea to carry a back-up igniter wire and a small piece of fine-grit sandpaper. As needed, use the sandpaper to remove soot from the launch clips, ensuring a good electrical connection. Some people also carry a spent motor or clothes pin to lift their rocket a couple of inches above the metal flame deflector. This keeps igniter wires and launch clips from touching the metal and shorting out.
4. As soon as your rocket is ready, quickly leave the launch pad area and return to the viewing area behind the LCO. After the area is clear, the LCO declares the range "closed" or "clear".
5. After all the vehicles have been launched, the LCO will announce the range is again "open". You'll have a few minutes to recover your rocket while the next set of fliers rack up their birds. Please don't linger in the field. Flights can't resume until everyone is safely off the range.

Preparing for High Power Launches. If your assembled rocket motor contains more than 62.5 grams of propellant (H-class or above), you *must* have *all* the following documents on file with the Pad Manager before any flight can be allowed:

1. A filled out **flight card** (same as above).
2. A signed **liability wavier**. Blank liability waivers are also available at the launch site, or from our web site at <http://www.bemrc.org>.
3. A photocopy of your **NAR or Tripoli membership card** highlighting your certification level.
4. A signed photocopy of your **Low Explosives Users Permit (LEUP)** or **Limited Users Permit (LUP)** – either your own, or one held by a mentor, or supervisor who is with you while you technically "assist" him, or her, (as stated in current BATF policy) in the preparation and launch of a high power motor. If it is not your own permit, then your permit holding partners name needs also be on your rockets flight card.

5. **No exceptions:** Unless all four documents are on file, your high power flight cannot be allowed. Under both the new Homeland Security Act of May 2003 and the Safe Explosives Act, you or your supervisor / mentor must have one of these permits before purchasing, transporting or flying high power rocket motors. Compliance, is regulated by the federal Bureau of Alcohol, Tobacco, Firearms, and Explosives (BATFE or "ATF"). Local BATFE officials are aware of the Monroe launch schedules and may very well be present, either officially or quietly as interested guests who appreciate model rocketry like the rest of us. To learn how to get an LEUP, visit: <http://nar.org/cabinet/leuphints.html> or <http://www.atf.gov/forms/pdfs/f540013.pdf>.

Two clarifications: Be mindful of these interesting wrinkles.

1. Generally, when you fly a cluster or multi-stage vehicle in which no individual motor contains more than 62.5 grams, no LEUP or LUP is required.
2. When you fly a high power "Hybrid" motor, which uses a solid fuel with a pressurized, gaseous oxidizer, no LEUP or LUP is required.

In either of these special cases and because the rocket will be heavy, an RSO's inspection and flight-card signature are still required.

To summarize the process for launching high power rockets:

1. Photocopies of all four required documents are supplied to the Pad Manager.
2. Prepare your rocket for flight. *Do not install the igniter into the motor.* Under NFPA 1127, the igniter cannot be installed until the rocket is on the pad. Until that time, many fliers use tape to temporarily attach igniters to the outside of their rockets. This does *not* apply to motors of level G and smaller.
3. After preparations are complete, fill out a flight card.
4. Present the flight card and vehicle to a roving RSO for pre-flight approval.
5. The RSO inspects the rocket and if it passes, signs your flight card.
6. Present your photo identification and flight card to the Pad Manager, who then schedules your flight.

7. The process continues as outlined above for low and mid power rockets.

The Pad Manager has a list of all individuals who have supplied the necessary documents. Be prepared to present photo identification to the Pad Manager prior to the scheduling of your flight in the event that you are not recognized.

How does the PAD exemption effect the BEMRC Monroe launches?

PAD stands for Propellant Actuated Device, and is a point of contention in the lawsuit between NAR/TRA and the BATFE. Based on the documentation presented by parties at the October 15, 2004 Hearing and the October 19, 2004 ruling by the judge, APCP motors (composite propellant) with a mass of under 62.5 grams are exempt from BATFE regulations as they are PAD's. Motors in excess of 62.5 grams still require an LEUP/LUP for purchasing, storage, and use.

What other rules are there at BEMRC Monroe launches?

- **Parking on the grass is not allowed** because of underground irrigation equipment. Please park *only* along the fenced side of the gravel access road, or along either side of the main entrance road.
- **No smoking.** Official regulations bar smoking around ready-to-fly motors, reloadable motors under construction, igniters, or ejection charges.
- **On-board electronics.** If your rocket contains an on-board electronic ejection or other flight-controlling electronic system, do not arm it until after your vehicle is on the launch pad.
- **Permissible kinds of ejection wadding.** There is a total ban on using fiberglass insulation as recovery wadding. The landowner uses the field's grass cuttings as feed for local dairy cows. Flameproof cellulose wadding and fireproof paper wadding by Estes and other manufacturers is acceptable.
- **Garbage and debris.** Keeping the site clear of all debris is crucial to our ongoing access. If you see any waste or wadding anywhere on the range, please pick it up and take it with you, or place it in appropriate waste receptacles. We've promised to leave the launch site as clean as or cleaner than we find it.

Are there any other safety issues?

- **Walking outside the rocket range.** The Monroe site is in a very rural area. If you have to go outside the range to recover a rocket, please use the buddy system. Either take someone with you, or carry a walkie-talkie or cell phone in case you become injured or lost.
- **Safety in general.** While rocketry has a superb safety record, the sport is a potentially hazardous activity. An off-course or malfunctioning rocket can behave like a speeding projectile or a heavy falling mass, even after a parachute has been deployed. Please recognize the constant need for awareness, observation and common, sensible precautions.
- **Stay alert, be sensible.** Always be alert to what's happening above and around you. Keep track of your children. Keep behind the Launch Controller flight line except when setting up or retrieving your rocket. When in the pad area or on the range for rocket recovery, take only essential personnel with you.
- **Legal disclaimer.** Monroe's Flight Director, volunteer staff and the Boeing Employees Rocket Club remind everyone that attendance is at your own risk. By attending a Monroe launch, you are accepting personal responsibility for your own safety and for the safety of those who came with you. You are accepting responsibility for any damage to your vehicle or property. You agree to abide by all regulations established by NAR/Tripoli, the landowner, the state of Washington and federal government regarding the exercise of our hobby.

I'm planning to attempt a high power certification flight. What do I do?

Procedures depend on whether you're a member of NAR, or Tripoli.

For NAR certifications, visit www.nar.org for instructions, paperwork and guidelines. Since Monroe launches are operated by NAR Section 627, see or e-mail Monroe Launch Director Dave Davis (ddavis@rocketlabs.com) before your certification flight. If you do not already have an individual to approve your certification, Dave can help you find an experienced NAR Level 1 or Level 2 mentor who can provide advice, witness and approve your flight, and arrange for the necessary signatures.

NAR Level 2 written tests are available through the Launch Director. We recommend taking your NAR Level 2 written test before attempting your certification flight.

Tripoli certifications are also possible. Visit www.tripoli.org for Tripoli's procedures and paperwork. It's your responsibility to make sure an appropriate Tripoli Prefect, TAP or Board member is in attendance to witness your certification flight. Tripoli Level 2 written tests are available from any Tripoli Prefect.

If you are flying a motor containing APCP "composite" fuel, the most common type for high power motors, you, or the individual approving your certification, will also need to have an LEUP or LUP on file, including the support documentation, with the Pad Manager since these motors contain greater than 62.5 grams of propellant. Clusters of mid power motors do not qualify for certifications. For certification flights, both of your names are needed on the flight card.

While certified hybrid motors may be used for certification flights and don't require an LEUP or LUP, hybrid launches are complicated. Most certified hobbyists recommend following the KISS principle by keeping your certification flight as simple as possible. Simplicity limits the number of potential failure points and increases your probability of success.

Where can I get answers to additional questions?

Send email Launch Director Dave Davis, or see a volunteer staff member at any launch. You can also subscribe to the Email List at www.northwestrocketry.com for announcements and rocket talk. In this forum you can ask and get answers to just about any question regarding rocketry.