

CRMRC Level 1 / 2 Requirements  
Howard Druckerman  
20230308

The best place to start is to read the [NAR certification requirements](#).

Note: the CRMRC is a NAR club and can only do NAR certifications. No Tripoli/TRA certifications.

Here is a rough outline of what you will need to certify:

1. Proof of current NAR membership
2. A rocket to fly, along with proof that
  - You built the rocket
  - The rocket design is stable
  - The rocket has an active recovery system (see NAR website for definition of active recovery)
  - The rocket was robustly constructed with appropriate materials and construction techniques
  - The rocket has a motor retention system
  - The rocket meets all requirements on the certification paperwork
  - The rocket will need to pass an on the field safety inspection
2. All parts and pieces of an "H" or "I" rocket motor for L1 or "J" or "K" or "L" rocket motor for L2 that is capable of powering the flight
  - The motor must be capable of ensuring the rocket speed is fast enough to have stable flight when the rocket leaves the rod or rail. This can be shown by simulation or by applying the appropriate ratio 3:1 on a calm day or 5:1 on a windy day.
3. Proof that the motor will not fly the rocket beyond the CRMRC waiver altitude, 10000 feet.
4. The following fully filled out paperwork
  - A paper copy of the latest NAR L1 or L2 paperwork from the NAR website.
  - A CRMRC flight card
5. Money to pay your launch fee

What to expect on launch day

- Fill out your NAR certification paperwork (could be done at home)
- Fully prep your rocket for launch
  - Pack your recovery system, assemble and install your rocket motor
- Take your completed rocket to the clubs weighing station
- Fill out a launch card (FYI blank cards are on the table or you can find them on our website)
- Weigh your rocket on the club scale and add the weight to your flight card
- Seek out a club certifier/witness to inspect your rocket for the certification flight
- If you haven't already paid your launch fees please do so now

- Seek out a Range Safety Officer (RSO) to inspect your rocket for safety. Once the RSO signs your launch card, he will move the card to Launch Control Officer (LCO)
- Enter a queue to wait for an available pad. (LCO will let you know when pads are safe to approach them)
  - For L1 certification flights we will accompany you to the pad to assist you with loading your rocket on the pad and installing the igniter. When you attempt your L2 certification flight we expect that you know how to load your rocket and install your igniter. We will provide advice when requested but do expect you to know what you are doing.
- When your rocket is on the pad and armed, always be prepared for it to be launched. While we call out which rocket is being launched, sometimes the wrong button is pushed
- LCO launches your rocket
- LCO will notify you when the pads are cold and you are permitted to retrieve your rocket
- Now retrieve your rocket and return it & your paperwork to your certifying/witness to inspect for damage. As long as there is no or minor damage (i.e. the rocket is safe to relaunch without having to repair it) then the certifier/witness will finish filling out your NAR Certification paperwork.
- Assuming successful certification flight, when you return home, make a copy of your paperwork and file digital copies to the NAR website per their instructions.

The CRMRC will provide people to work with for your certification

- L1: it takes one person to certify who is NAR certified to a higher level (L2 or L3) or two L1 NAR members to witness the flight and sign the paperwork
- L2: you will need to notify the club so that there will be L2 tests to take, and assuming you pass the test, it takes one NAR member certified to a higher level (L3) or two NAR members of the same certified level (L2) to witness the flight and sign the paperwork.

We will certainly work with you as our goal is to make you successful, but that does not absolve you of doing the work. The CRMRC typically flies the third weekend of the month, weather and field conditions permitting. This decision is made late on Thursday nights and posted on the web site on Friday, the day before the launch. Directions to the launch site are also on the CRMRC website.

For most of the summer, about 1/3 of our field is covered in corn, so it can make getting your rocket back a bit more difficult. Tracking devices are very helpful in finding a rocket.

Please come prepared for the environment that you will be launching in. Winters can be brutally cold. Summers can be brutally hot. The corn and grass fields have a number of pests like ticks with lyme disease and very large spiders.

Finally, one comment for everyone that flies a rockets:

If you are not willing to have your rocket burn up, crash into the ground, get stuck in a tree, or any of the myriad of things that cannot go wrong, then do not fly your rocket. Things do

go wrong so accept that there is a possibility of never being able to fly that rocket again before you send it up. Then be ecstatic when everything goes successfully and you get it back.