

# NAR HIGH POWER LEVEL 3 CERTIFICATION APPLICATION

APPLICANT AND MOTOR INFORMATION (completed by applicant). TODAY'S DATE: \_\_\_/\_\_\_/\_\_\_

NAME: _____ FIRST LAST	BIRTH DATE: ___/___/___
ADDRESS: _____ STREET APT.	Eve. Phone: (___) _____
_____ CITY STATE ZIP	NAR No. _____
MEMBERSHIP EXPIRES: ___/___/___	EMAIL ADDRESS: _____
I, _____, certify that I am a Level 2 certified member in good standing of the National Association of Rocketry. I am 18 years old or older.	
SIGNED: _____	DATE: ___/___/___
MOTOR USED: _____	MANUFACTURER: _____

## CONSTRUCTION PACKAGE AFFIDAVIT (Completed by certification team).

I the undersigned, being a senior member of the NAR, distinct from the applicant, and a member of the NAR Level 3 Certification team have reviewed and confirm the applicant has followed and complied with accepted methods of construction in this Level 3 project. I believe this rocket is capable of safe flight with a motor in the Level 3 impulse class. My assessment is based on:

- Inspection during construction.
- Review and approval of Construction package documentation.
- Documented Level 2 test flight.
- Other: \_\_\_\_\_

Name (printed): \_\_\_\_\_ Signature: \_\_\_\_\_  
NAR No: \_\_\_\_\_ Membership expires: \_\_\_/\_\_\_/\_\_\_ Certification Level: \_\_\_\_

## RECOVERY PACKAGE AFFIDAVIT (Completed by certification team).

I the undersigned, being a senior member of the NAR, distinct from the applicant, and a member of the NAR Level 3 Certification team have reviewed and confirm the applicant has followed and complied with accepted guidelines in the design and implementation of a recovery system in this Level 3 project.

My assessment is based on:

- Reviewed recovery certification package and documentation flight demonstrating recovery systems.
- Reviewed recovery cert. package and documentation of the ground testing of the recovery systems.

Name (printed): \_\_\_\_\_ Signature: \_\_\_\_\_  
NAR No: \_\_\_\_\_ Membership expires: \_\_\_/\_\_\_/\_\_\_ Certification Level: \_\_\_\_

## LEVEL 3 FLIGHT CERTIFICATION AFFIDAVIT (Completed by certification team).

We, the undersigned, being senior members of the NAR, distinct from the applicant, have witnessed a demonstration by (NAME) \_\_\_\_\_, (NAR#) \_\_\_\_\_, of skills relative to the building and safe operation of a Level 3 High Power Rocket. We believe this member is qualified to build and operate high power models with a total installed impulse over 5120 N-seconds.

- Preflight and Post-flight inspection of rocket completed (See inspection list on page 2).
- Certification package has been reviewed, approved and signed off by Level 3 certification member(s).
- Rocket is angled away from spectators, inhabited areas and within NAR trajectory restrictions.
- Waiver is activated.
- Motor is Tripoli or NAR certified.
- Flyer is Level 2 certified.
- Rocket flight is stable and safe.
- At least 1 Level 3 Motor is being used.
- Rocket fully deploys recovery system.
- Rocket is not expected to exceed the waiver.
- Failure/Post flight checklist is available.

Name (printed): \_\_\_\_\_ Signature: \_\_\_\_\_ NAR No: \_\_\_\_\_  
Birth Date: \_\_\_/\_\_\_/\_\_\_ Membership expires: \_\_\_/\_\_\_/\_\_\_ Certification Level: \_\_\_\_ L3CC: \_\_\_\_

Name (printed): \_\_\_\_\_ Signature: \_\_\_\_\_ NAR No: \_\_\_\_\_  
Birth Date: \_\_\_/\_\_\_/\_\_\_ Membership expires: \_\_\_/\_\_\_/\_\_\_ Certification Level: \_\_\_\_ L3CC: \_\_\_\_

### LEVEL 3 PRE-FLIGHT INSPECTION CHECKLIST (completed by certification team).

- Are all pyrotechnics and electronic deployment devices "safed" when presented for inspection?  
(The rocket must have this capability to pass the safety inspection).
- Is the nosecone or payload shoulder sufficiently tight to prevent drag separation?
- Will the nosecone wobble side to side or separate from its own weight?
- Is there a vent hole to relieve pressure for high altitude flight?
- Is there pre-existing damage visible which may weaken the integrity of the model structure?
- If used, are all screws and fasteners secured tightly?
- If used, are the launch lugs securely fastened to the rocket?  
(Verify no cracking at adhesive joints. Taped on launch lugs are not permitted).
- If used, is the launch lug appropriately sized for the rocket, typically ¼ inch in diameter or larger?
- If used, will the launch lugs bind on the launch rod?
- Is the motor of sufficient impulse to safely fly the rocket?
- Is the motor NAR or Tripoli certified?
- Is the igniter being used suitable for use with the motor? Type of Igniter: \_\_\_\_\_
- Is the motor of sufficient impulse to safely fly the rocket?
- Is the motor firmly restrained in the rocket?
- Is the integrity of motor mount and retainer sufficient to prevent fly through or motor spitting?  
If friction fitted, test motor fit for tightness.
- Are the electronics functioning properly? New batteries installed? Safety switches present?
- When armed is the status indicator audible, visible or both?
- Does the modeler's pre-flight checklist remind to arm electronics and deployment devices?
- If Radio Control is used for flight or recovery functions, is the operating frequency in the 27, 50, 53, or 72 megahertz range? Use of 75 megahertz for flight functions is not permitted.
- Have all Radio Control devices been impounded to insure no accidental interference occurs?
- Is the antenna protected to prevent breakage (not flopping freely)?
- Are the fins securely fastened to the rocket (no wobbling or looseness)?
- Do the fin attachment joints show any cracking or signs of weakness?
- Do the fins have any signs of warpage that could lead to fin flutter?
- Is the rocket stable? Review CG/CP locations, ask the modeler how they were determined.
- Is the rocket's predicted altitude within FAA waiver restrictions?
- Ask the modeler how the altitude predictions were made. Require evidence is doubt exists.
- Inspect the recovery system. Insure all shock cords are free of burns and no fraying is visible.
- Is the shock cord and recovery system attachment sufficient for a safe recover if deployed during boost?
- Are there any sharp edges that could cut or weaken shock cords or shroud lines?  
If doubt exists pull test recovery lines and mounting attachments.
- Is sufficient wadding being used to protect recovery devices from ejection charges?
- If other protective devices are used are they sufficient to protect recovery devices from ejection charges?
- If doubts exist, check parachute for burns and tears which could spread during recovery.
- Is launch device sufficient and designed to launch a rocket of this size and impulse?
- Is launch ignition system sufficient to safely launch a rocket of this size and impulse?
- Is rocket angled away from spectators and inhabited areas?
- Is rocket's angle of trajectory within NAR guidelines?
- Is the FAA waiver in effect and has the FAA been notified for any extended altitude windows?

### LEVEL 3 IN-FLIGHT CHECKLIST (completed by certification team).

- Did the rocket make a stable and safe flight?
- Did the recovery system(s) deploy properly?
- Did the recovery system(s) deploy at or near apogee?
- Did the rocket remain intact during recovery deployment, with no separation of parts without recovery devices?
- Is the FAA waiver in effect and has the FAA been notified for any extended altitude windows?

### LEVEL 3 POST-FLIGHT CHECKLIST (completed by certification team).

- Have all pyrotechnic devices and electronic controls been "safed" for Post-Flight inspection?
- Has rocket been returned in good condition? Is there any visible damage?
- Did all launch deployment devices work as planned? (Note system failures on separate page and attach to Level 3 Certification package. Documents should be sent to NAR HQ with cert. package.
- Can rocket be flown again?

Comments:

# NAR HIGH POWER LEVEL 3 CERTIFICATION FORM

## LEVEL 3 CERTIFICATION FORM (completed by certification team).

Send completed forms and Level 3 Certification package to:

National Association of Rocketry  
P.O. Box 407  
Marion, IA 52302

Use temporary L3 certification until new Membership card arrives from NAR HQ.

<b>NAR HIGH POWER CERTIFICATION</b>	
NAR # _____	Expiration date: ___/___/___
Name: _____	
Certification date: ___/___/___	Level 3 Certified: _
Witnessed by: _____	
<small>Authorizing Signature</small>	
Witnessed by: _____	
<small>Authorizing Signature</small>	
<small>Void 1 year after certification date or on expiration date, whichever comes first.</small>	

## LEVEL 3 CERTIFICATION FAILURE FORM (completed by certification team).

In event of certification failure send this form and entire L3 Certification Form to NAR HQ.

The purpose of this form is not to document the modeler's failures. It is designed as a research tool to study and refine the Level 3 Certification program. The modeler's contact information is optional. Please explain reasons for failure and possible remedies thoroughly. Please use additional paper if required.

<b>LEVEL 3 CERTIFICATION FAILURE FORM (completed and mailed to NAR HQ by certification team).</b>	
Type of Failure: <input type="checkbox"/> Airframe (shred, separation).	<input type="checkbox"/> Motor (cato).
<input type="checkbox"/> Pyrotechnic Deployment ( no ejection, electronics).	<input type="checkbox"/> Recovery failure (chute, shock cord).
<input type="checkbox"/> Other (specify): _____	
<input type="checkbox"/> Was rocket available for post-flight inspection? <input type="checkbox"/> What could have been done to prevent failure?	
Explain: _____	
_____	
_____	
_____	
<b>Certification Team Witness:</b>	
Completed by: _____ Eve. Phone: _____ Email: _____	
<b>Modeler's Contact Information (optional)</b>	
Name: _____	NAR#: _____ DATE: ___/___/___
CONTACT PHONE: _____	EMAIL: _____
STREET: _____	CITY: _____ STATE: ___ ZIP: _____