NAR HIGH POWER CERTIFICATION APPLICATION

APPLICANT INFORMATION (Completed by applicant)

Name: _____ Birth Date _____/_____/_____
First Last

Address: _____ NAR No.: _____
Street Apt.

_____ Expiration Date: _____
City State Zip Is membership current?

Evening phone no.: (_____)_____ Cell phone no.: (_____)_____ (Optional)

I, _____, certify that I am a member in good standing of the National Association of Rocketry. I am 18 years of age or older. I understand that I must comply with all applicable federal, state, and local laws or regulations during and after this certification attempt.

Signed:_____, Date:_____, Location:_____

HPR LEVEL 1 CERTIFICATION CHECKLIST (Certification Team - Use this section Only for HPR Level 1 Certification Attempts)

Preflight: Motor(s) used: _____ (At least one motor must be an H or I Impulse Motor)
☐ Motor is certified ☐ FAA Waiver available (if required) ☐ Safety checklist complete (see back)

Flight: ☐ Model is stable ☐ Recovery system deployed ☐ Safe recovery

Post Flight: ☐ Verify that no major damage is Present Minor impact damage or "zipper" is acceptable
☐ Verify motor(s) is (are) present **Successful flight?** ☐ Yes ☐ No

HPR LEVEL 2 CERTIFICATION CHECKLIST (Certification Team - Use this section Only for HPR Level 2 Certification Attempts)

Preflight: Motor(s) used: _____ (At least one motor must be an J, K or L Impulse Motor)
☐ Motor is certified ☐ FAA Waiver available (if required) ☐ Safety checklist complete (see back)
☐ Applicant is Level 1 certified ☐ Level 2 Written Exam passed within one year on ____/____/____
Month Day Year

Flight: ☐ Model is stable ☐ Recovery system deployed ☐ Safety recovery

Post Flight: ☐ Verify that no major damage is Present Minor impact damage or "zipper" is acceptable
☐ Verify motor(s) is (are) present **Successful flight?** ☐ Yes ☐ No

CERTIFICATION AFFIDAVIT (Successful attempts only, completed by certification team)

We, the undersigned, being members of the National Association of Rocketry distinct from the applicant, have witnessed a demonstration by (Name) _____ (NAR#)_____, of skills relative to the building and safe operation of High Power Rockets. We attest that the applicant is 18 years of age or older and a member in good standing of the NAR. We believe this member is qualified to build and operate High Power rockets with a total installed impulse up to: ☐ 640 N-sec. (Level 1) ☐ 5120 N-sec. (Level 2)

Name (Printed): _____ Signature: _____ NAR No: _____
Birth Date: _____/_____/_____ Membership Expiration Date: _____/_____/_____ Certification Level: _____
Name (Printed): _____ Signature: _____ NAR No: _____
Birth Date: _____/_____/_____ Membership Expiration Date: _____/_____/_____ Certification Level: _____

NAR HIGH POWER CERTIFICATION

Name (Printed): _____
NAR No.: _____ Cert Level: ☐"1" ☐"2"
Certification Date: _____/_____/_____
Witnessed By: _____
Witnessed By: _____

This card is void 60 days after Certification Date

Cut Along Dotted Line

1) Request individual Level 2 Written Exams from
NAR HQ
PO Box 407
Marion, IA 52302
Certification Teams or Section Leaders wishing to obtain multiple copies of the of the Level 2 Written Exams can send an email to the current NAR Chairman of Sport Services listed on the NAR Website for a soft copy of the files
2) Send completed forms (with exams, if applicable) to the NAR HQ address listed above

Revision 2-Oct-2010, File - hpappl

NAR HIGH POWER ROCKETRY CERTIFICATION CHECKLIST

Has the rocket model that is being used for the certification attempt been built by the applicant requesting certification?	
Is the nosecone or payload shoulder sufficiently light to prevent drag separation? The nosecone or payload should not wobble side to side or separate from its own weight. Is a vent hole needed to relieve pressure for high altitude flight? Do stage couplers fit snuggly to prevent bending or separation during flight? Is the body tube thickness adequate to withstand high power flight (typically .050 inch walls or thicker)? Is there pre-existing damage which may weaken the model structure (e.g. tube crimps)? Are screws and fasteners tight, if used?	
Are the launch lugs securely fastened to the model? Verify no cracking of adhesive joints. Is the launch lug(s) appropriately sized for the model, typically 1/4 inch or larger diameter? Will the launch lugs bind on the launch rod? Taped on launch lugs are not permitted.	
On cluster models are the spaces between the motor tubes filled to prevent ejection pressure leakage? If mixing black powder and composite motors does the modeler assure composite motor ignition before black powder motor ignition (composite motors ignite more slowly than black powder motors)? If the cluster model is not using all of its motors are the unused motor tubes plugged to prevent ejection blow-by?	
If a Level 1 Certification is being attempted, does the rocket model contain at least one single H or I impulse motor? If a Level 2 Certification is being attempted, does the rocket model contain at least one single J, K or L impulse motor?	
Is (are) the motor(s) sufficient to safely fly the model? Use motor manufacturer's recommendations or recommended motor lists for similarly sized models as a starting point (Also consider, model weight, configuration, and finish when evaluating motor capabilities). Is (are) the either NAR, Tripoli or CAR certified? Motors must be currently certified to be used. Low current igniter? ☐ Yes ☐ No	
Is (are) the rocket motor(s) firmly restrained in the model? Check for engine mount integrity to prevent a "fly through" (Is a thrust ring used?). Check for a motor hook or similar motor restraint. Carefully check taped or friction fit motors for tightness. Ask the modeler what adhesives were used during assembly. Are clusters wired in parallel?	
If electronics are used, is the battery secured against "g" loads? Will electrical connections fail or loosen from acceleration forces? Will igniters stay fully inserted in rocket motors during boost? Is the user protected against inadvertent operation, e.g. is the circuit remotely armed, are safety switches present, is an armed status indicator used (visual or audible)? Does the modeler have a checklist or reminder to arm or operate the system prior to flight?	
If radio control is used, is for flight functions (e.g. recovery) the operating frequency in the 27, 50, 53, or 72 megahertz bands? Use of 75 megahertz for flight functions is not permitted. Is the antenna protected from breakage (not flopping freely)? Did the operator range check his equipment?	
Are the fins fully secured to the model? Check for looseness or cracking at the fin to body tube junction. "Thru the wall" construction is recommended for high power models. Is the fin material compatible with the motor thrust range (1/8 inch minimum plywood is recommended for high power models)? Ask the modeler how his fins are mounted, what adhesives were used (epoxy is preferred), and what fin material was used. Are the fins mounted parallel to the roll axis of the model? Are any warps present which may cause erratic flight?	
Is the model stable? If stability is in doubt require proof of the CG and CP locations (remember CG should be forward of the CP by approximately 1.0 body tube diameters). Ask the modeler to show the CG and CP locations and how they were determined. Verify that the modeler shows the CG with the motor(s) intended for flight and not a smaller motor or fewer motors (clusters). Ask the modeler to show CG and CP for the complete model and less each stage for a staged model. Require evidence of CP calculations if further doubt exists.	
Will the model "bust" the FAA waiver? Verify compliance by comparing model weight and power with charts/tables (if available) or by calculation. Ask the modeler what the expected performance is and how he made his determination (e.g. computer simulation, similar models).	
Does the recovery system being used follow the requirements of an Active Recovery deployment system required for certifying? Inspect the recovery system. Verify that the shock cord is not cut or frayed and free of burns. Are the shock cord mounts securely mounted to the model? Are sharp edges present which may cut shock cords, parachute risers, and suspension lines? Is hardware, e.g. swivels, screw eyes, sufficiently strong to withstand recovery loads. If required, perform a pull test on the recovery system. Is parachute protection (e.g. wadding) adequate? Check for parachute damage, e.g. tears, burns, which may spread during recovery.	