NAR LEVEL 2 HIGH POWER CERTIFICATION APPLICATION

| APPLICA | NT INFORMATION | V (Completed by Applicant, Pri | int clearly , failure to | do so will delay certification.) | |
|------------------------------|---|--|--|---|--|
| Name | First | Last | Email: | | |
| Address | | | | in Code | |
| Birth Date | / / Phone (| State) NAI | Z R Number | Expiration Date | |
| Mo | onth Day Year | | | | |
| I, of Rocketry. | I am 18 years of age or olde | , certify that I am a memer er and I understand that I must of | nber in good stand comply with all applic | ing of the National Association cable federal, state, and local laws | |
| or regulation | ns during and after this cert | ification attempt. | | | |
| Signed | Date | | | | |
| | | | | | |
| Preflight: | □ Applicant is Level 1 ce | cation leam—Use this section for Prtified Level 2 □ Written Exam | or Level 2 Certification m passed (within one | on Attempts.) e vear) on / / | |
| i reingita | Motor Used | (At least one | motor must be a J, k | <, or L impulse motor.) | |
| | \Box Motor is certified \Box | FAA COA activated \Box Safety | checklist completed | (see back) | |
| Flight: | \Box Flight was stable \Box | Recovery system deployed | Safe Recovery | " is accontable | |
| Post Flight: | Verify motor present | lamage is present. Minor impac | Success | sful Flight? □Yes □No | |
| | 5 1 | | | 5 | |
| CERTIFICA | TION AFFIDAVIT | | | | |
| The undersig | ined, being members of the | e National Association of Rocket | try have witnessed a | flight by | |
| | | NAR NI | umber | of skills relative to the | |
| building and | safe operation of High Pov | ver Rockets. We attest that the | applicant is 18 years | of age or older and a member in | |
| good standir impulse up t | ng of the NAR. We believe t o 5120 N-sec. Level 2. | his member is qualified to build | and operate High Po | ower Rockets with a total installed | |
| Name | | Signature | | NAR # | |
| Fmail | | Members | hin Expires | HPR Cert Level | |
| Namo | | (identities | | | |
| | | Signature | hin Frankra | | |
| | | Members | nip Expires | HPR Cert. Level | |
| F011 | | a by Certification Ap | | | |
| | NAR HPR | LEVEL 2 | Т | | |
| TEMPORARY CERTIFICATION | | | | LEVEL 2 CERTIFICATION | |
| | has been co | mpleted by | Go t | o NAR.org and log into your | |
| | | | ассон | unt. From the main Member | |
| | Nar | ne | | esources page, fill out the | |
| NAR Number | | Certification Date | | 2 Digital Certification Form. | |
| | | | 1 10 10 10 | es of this paper form must be | |
| | | | att | es of this paper form must be rached to the digital form. | |

Cut along dotted lines.

NAR HIGH POWER CERTIFICATION CHECKLIST

Answer "YES", "NO" or "N/A" (not applicable).

| 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 tight 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 snugly 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 rail buttons properly sized (for 1010 rail or larger), positioned and aligned correctly, and securely fastened to the airframe? For launch lugs, are they properly sized for the model (typically 1/4 inch dia. or larger), positioned and aligned correctly, and securely fastened to the airframe (taped on 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 2 Certification is being attempted, does the rocket model contain at least one 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 motor(s) either NAR, Tripoli or CAR certified? Motors must be currently certified to be used. | |
| 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 for flight functions (e.g. recovery), is 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 their 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 their 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. | |
| Is the model in compliance with the FAA Certificate of Waiver or Authorization (COA)? 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 this determination was made (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 is 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. | |