

South Texas Aerospace Club

Level 1 Rocket Pre-Launch Checklist

This is STAC's pre-launch checklist as required for NAR Level 1 certification launch procedures. This checklist is to be used on launch day while preparing Class 2 HPR rockets for certification flights.

Motor Preparation

Prepare Motor

- Prepare motor per packaged instructions for launch.
- Verify that ejection charge was installed in the motor. If motor is already secured, take it out and visually verify.
- Select correct size igniter for engine. Inspect for continuity, resistance, and check pyrogen for cracks or flaws.
- Secure motor and igniter for later installation into rocket.
- DO NOT install igniter until rocket is secure on the pad.

Recovery System Preparation

Recovery System, Drogue Chute (If dual deployment. If not, skip this part.):

- Check shock cords for cuts, burns, and tangles.
- Check all shroud lines -- no tangles.
- Check drogue chute for tears and burns.
- Check deployment bag for tears.
- *Check all connections. Insure all devices are in good condition and properly secured:*
 - Avionics bay shock cord to drogue
 - Booster shock cord to drogue
- *Pack drogue chute in deployment bag, keep lines even and straight.*
 - Fold drogue chute per manufacturer's instructions.
 - Insure shroud lines are free from tangles.
 - Insure all quick links are secure.
 - Insert drogue bag/chute into aft recovery compartment .
 - Insert ejection charge protection.

Recovery System, Main Chute:

- Check shock cords for cuts, burns, and tangles.
- Check all shroud lines -- no tangles.
- Check main chute for tears and burns.
- Check deployment bag for tears.
- *Check all connections. Insure all devices are in good condition and properly secured:*
 - Nose Cone shock cord to drogue
 - Avionics bay shock cord to drogue
- *Pack main chute in deployment bag, keep lines even and straight.*
 - Fold main chute per manufacturer's instructions.

- ❑ Insure shroud lines are free from tangles.
- ❑ Insure all quick links are secure.
- ❑ Insert ejection charge protection.
- ❑ Insert main bag/chute into forward recovery compartment

Electronics Preparation (If applicable)

Prepare avionics #1

- ❑ Be sure all arming switches are off.
- ❑ Ohmmeter test of *NEW* battery under load
- ❑ Install battery in altimeter.
- ❑ Secure battery in place.
- ❑ Altimeter properly programmed and verified.
- ❑ Ready avionics bay for altimeter.
- ❑ Install altimeter in rocket.
- ❑ Insure all pyrotechnics are in disarmed mode during electronics final installation.

Prepare avionics #2

- ❑ Be sure all arming switches are off.
- ❑ Ohmmeter test of *NEW* battery under load
- ❑ Install battery in altimeter.
- ❑ Secure battery in place.
- ❑ Altimeter properly programmed and verified.
- ❑ Ready avionics bay for altimeter.
- ❑ Install altimeter in rocket.
- ❑ Insure all pyrotechnics are in disarmed mode during electronics final installation.

NOTE: All pyrotechnic devices must remain in an unarmed mode until rocket is on pad ready to launch.

Pyrotechnics, drogue

- ❑ Prepare aft deployment pyrotechnic device and ready for installation into rocket.
- ❑ Load aft charge into rocket, insure at all times the devices are safed until final launch readiness.
- ❑ Connect aft pyrotechnic leads to electronic deployment devices drogue chute connections.
- ❑ Utilizing external disarming mechanisms to insure all electronically discharged pyrotechnics are disabled until final launch readiness.

Pyrotechnics, main

- ❑ Prepare forward deployment pyrotechnic device and ready for installation into rocket.
- ❑ Load forward charge into rocket, insure at all times the devices are safed until final launch readiness.
- ❑ Connect forward pyrotechnic leads to electronic deployment devices main chute connections.
- ❑ Utilizing external disarming mechanisms to insure all electronically discharged pyrotechnics are disabled until final launch readiness.

Motor Installation

- ❑ Tape motor casing for snug fit in motor tube.
- ❑ Install motor.
- ❑ Install motor retaining devices.
- ❑ Insure all electronic deployment devices are in the non-dischargeable safed mode.

Final Launch Preparations

Load Rocket on Pad

- ❑ Prepare launch pad.
- ❑ Load rocket on launch rod.

Prepare Igniter

- ❑ Insert igniter. Be sure it is completely forward and touching fuel grain.
- ❑ Secure igniter in position
- ❑ Assure that launcher is not hot. Disconnect battery from relay box. Assure that key IS NOT remote device and that arming switch is off.
- ❑ Attach leads to ignition device.
- ❑ Be sure all connectors are clean.
- ❑ Be sure they don't touch each other or that circuit is not grounded by contact with metal parts.
- ❑ Check tower's position and be sure it is locked into place and ready for launch.
- ❑ Assure that key IS NOT in remote device and that arming switch is off.
- ❑ Connect battery to relay box.

Final Launch Sequence

- ❑ Arm all devices for launch.
- ❑ Insure Flight Witnesses are in place and ready for launch.
- ❑ Signal LCO & RSO that rocket is ready for launch.

Misfire Procedures

- ❑ Safe all pyrotechnic to pre-launch mode.
- ❑ Remove failed igniter.
- ❑ Resume checklist at "Final Launch Preparations/Prepare Igniters."

Post-Recovery Checklist

This is the post-flight checklist as required as part of the Certification Package. This checklist includes steps required to ensure the rocket is in a safe condition after completion of a flight.

Normal Post Flight Recovery

- Check for non-discharged pyrotechnics.
- Safe all ejection circuits.
- Remove any non-discharged pyrotechnics.

Flight Failure Checklist

- Disarm all non-fired pyrotechnic devices.
- Continue Normal Post Flight Recovery procedures.
- Fall on ass and cry.