

High Power Safety Code

The following is a condensed version of the TRIPOLI HIGH POWER SAFETY CODE. The complete code can be found in your handbook. The entire safety code will be published here at a later date.

1. Only a person who is a certified flyer shall operate or fly a high power rocket.
2. Must comply with United States Code 1348, "Airspace Control and Facilities", Federal Aviation Act of 1958 and other applicable federal, state, and local laws, rules, regulations, statutes, and ordinances.
3. A person shall fly a high power rocket only if it has been inspected and approved for flight by a Safety Monitor for compliance with the applicable provisions of this code.
4. Motors
 - I. Use only certified commercially made rocket motors.
 - II. Do not dismantle, reload, or alter a disposable or expendable high power rocket motor, not alter the components of a reloadable high power rocket motor or use the contents of a reloadable rocket motor reloading kit for a purpose other than that specified by the manufacture in the rocket motor or reloading kit instructions.
5. A high power rocket shall be constructed to withstand the operating stresses and retain structural integrity under conditions expected or known to be encountered in flight.
6. A high power rocket vehicle intended to be propelled by one or more high power solid propellant rocket motor(s) shall be constructed using lightweight materials such as paper, wood, plastic, fiberglass, or, when necessary, ductile metal so that the rocket conforms to the other requirements of this code.
7. A person intending to operate a high power rocket shall determine its stability before flight, providing documentation of the location of the center of pressure and center of gravity of the high power rocket to the Safety Monitor, if requested.
8. Weight and Power Limits.
 - I. Ensure that the rocket weighs less than the rocket motor manufacturer's recommended maximum liftoff weight for the rocket motor(s) used for the flight. During pre-flight inspection, The Safety Monitor may request documentary proof of compliance.
 - II. Do not install a rocket motor or combination of rocket motors that will produce more than 40,960 newton-seconds of total impulse (4.448 newtons equals 1.0 pound).
9. Recovery.
 - I. Fly a high power rocket only if it contains a recovery system that will return all parts of it safely to the ground so that it may be flown again.
 - II. Install only flame resistant recovery wadding if wadding is required by the design of the rocket.
 - III. Do not attempt to catch a high power rocket as it approaches the ground.
 - IV. Do not attempt to retrieve a high power rocket from a place that is hazardous to people.
10. Payloads
 - I. Do not install or incorporate in a high power rocket a payload that is intended to be flammable, explosive, or cause harm.
 - II. Do not fly a vertebrate animal in a high power rocket.
11. Launching Devices
 - I. Launch from a stable device that provides rigid guidance until the rocket has reached a speed adequate to ensure a safe flight path.
 - II. Incorporate a jet deflector device if necessary to prevent the rocket motor exhaust from

impinging directly on flammable materials.

III. A launching device shall not be capable of launching a rocket at an angle more than 20 degrees from vertical.

IV. Place the end of the launch rod or rail above eye level or cap it to prevent accidental eye injury. Store the launch rod or rail so it is capped, cased, or left in a condition where it cannot cause injury.

12. Ignition Systems

I. Use an ignition system that is remotely controlled, electrically operated, and contains a launching switch that will return to "off" when released.

II. The ignition system shall contain a removable safety interlock device in series with the launch switch.

III. The launch system and igniter combination shall be designed, installed, and operated so the liftoff of the rocket shall occur within three (3) seconds of actuation of the launch system. If the rocket is propelled by a cluster of rocket motors designed to be ignited simultaneously, install an ignition scheme that has either been previously tested or has a demonstrated capability of igniting all rocket motors intended for launch ignition within one second following ignition system activation.

IV. Install an ignition device in a high power rocket motor only at the launch site and at the last practical moment before the rocket is placed on the launcher.

13. Launch Site.

I. Launch a high power rocket only in an outdoor area where tall trees, power lines, and buildings will not present a hazard to the safe flight operation of a high power rocket in the opinion of the Safety Monitor.

II. Do not locate a launcher closer to the edge of the flying field (launch site) than one-half the radius of the minimum launch site dimension.

III. The flying field (launch site) shall be at least as large as the stated in Table 1. *or* Not less than one-half the maximum altitude expected, calculated, or simulated, or as granted by an FAA waiver or the authority having jurisdiction.

14. Launcher Location

I. Locate the launcher more than 1,500 feet from any occupied building.

II. Ensure that the ground for a radius of 10 feet around the launcher is clear of brown grass, dry weeds, or other easy-to-burn materials that could be ignited during launch by the exhaust of the rocket motor.

15. Safe Distances

I. No person shall be closer to the launch of a high power rocket than the person actually launching the rocket and those authorized by the Safety Monitor.

II. All spectators shall remain within an area determined by the Safety Monitor and behind the Safety Monitor and the person launching the rocket.

III. A person shall not be closer to the launch of a high power rocket than the applicable minimum safe distance set forth in Table 2.

16. Launch Operations.

I. Do not ignite and launch a high power rocket horizontally, at a target, or so the rocket's flight path goes into clouds or beyond the boundaries of the flying field (launch site).

II. Do not launch a high power rocket if the surface wind at the launcher is more than twenty (20) miles per hour.

III. Do not operate a high power rocket in a manner that is hazardous to aircraft.

17. Launch Control.

I. Launch a high power rocket only with the immediate knowledge, permission, and attention of the Safety Monitor.

- II. All persons in the launching, spectator, and parking areas during a countdown and launch shall be standing and facing the launcher if requested to do so by the Safety Monitor.
- III. Precede the launch with a five (5) second countdown audible throughout the launching, spectator, and parking areas. This countdown shall be given by the person launching the rocket, the Safety Monitor, or other flying site operating personnel.
- IV. Do not approach a high power rocket that has misfired until the safety inter-lock has been removed or the battery has been disconnected from the ignition system, one minute has passed, and the Safety Monitor has given permission for only a single person to approach the misfired rocket to inspect it.

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TABLE 1: LAUNCH SITE DIMENSIONS

Installed Total Impulse (N-sec)	Equivalent Motor Type	Minimum Site Distance (feet)	Equivalent Distance (miles)
160.01 - 320.00	H	1,500	.28
320.01 - 640.00	I	2,500	.50
640.01 - 1280.00	J	5,280	1.00
1280.01 - 2560.00	K	5,280	1.00
2560.01 - 5120.00	L	10,560	2.00
5120.01 - 10240.00	M	15,480	3.00
10240.01 - 20480.00	N	21,120	4.00
20480.01 - 40960.00	O	26,400	5.00

TABLE 2: SAFE DISTANCE

Installed Total Impulse (N-sec)	Equivalent Motor Type	Minimum Safe Distance (feet)	Complex Minimum Safe Distance (feet)
160.01 - 320.00	H	50	100
320.01 - 640.00	I	100	200
640.01 - 1280.00	J	100	200
1280.01 - 2560.00	K	200	300
2560.01 - 5120.00	L	300	500
5120.01 - 10240.00	M	500	1,000
10240.01 - 20480.00	N	1,000	1,500

20480.01 - 40960.00

O

1,500

2,000