Tripoli Altitude Record "Classes" and "Events"

Under construction - this has been modified to remove the old categories. This is not the current document and there may be other changes.

Discontinued Record Classes: The following competition events were discontinued from the most recent version of the Contest and Records Handbook (Version 11/00). No new record applications will be accepted in these categories. However, the current records will be maintained in the event that one or more of these record categories are reintroduced in the future.

7.0 Cluster Altitude
8.0 Cluster Duration
9.0 High Power Duration

Tripoli Competition Events

1.0 Introduction:

The following competition events have been selected to be held at high power launches. Launch organizers are encouraged to hold one of these events at their launches. Individuals may participate in these events when they are held at launches, or attempt to set the record for the event on their own when no competition event has been chosen for the launch. Records for each event in the classes indicated will be maintained by the Tripoli Contest and Records Committee.

2.0 General Information:

2.1 For events which are based on total impulse, the motor class will be determined by the total impulse of all motor(s) as tested and not the manufacturer's designation or estimated total impulse.

2.2 Only certified motors may be used to set Tripoli Records and the total impulse of all motors must not exceed 40,960 newton-seconds.

2.3 For every event, rockets must successfully deploy their recovery device(s) and have a safe descent. The same standards used in certification flights shall apply to Tripoli Records. Physically recovering (finding) the rocket is not required.

2.4 For altitude events, the closure shall not exceed 10.0% for optical tracking and the altimeters shall be accurate to 5%. For duration events, at least two stopwatches accurate to 0.1 seconds are required.

2.5 Requirements for setting a Tripoli Record (in addition to the above)

A. Tripoli Competition Record form must be completed (the older Tripoli Altitude Record Application is acceptable, but clearly write the event, class a top)

B. A clear photograph of the rocket

C. Include a $5.00 filing fee payable to Tripoli

D. Send all of the above to the Contest and Records Committee within 30 day

E. New record must exceed previous record by 2.0%

F. Only one record application should be completed per flight. The Contest and Records Committee will assign records in more than one event or class if applicable.

3.0 Open Altitude Competition

Tripoli altitude records will be established to recognize individuals whose rockets have attained the highest altitudes. Separate records will be kept based on the total impulse of the motor(s) used. Records based on motor class allow similarly sized and powerful rockets to be in separate categories and provide a larger number of members an opportunity to set a record.

The following altitude record classes will be maintained:

F	40.01	to	80 newton-seconds
G	80.01	to	160 newton-seconds
H	160.01	to	320 newton-seconds
I	320.01	to	640 newton-seconds
J	640.01	to	1280 newton-seconds
K	1280.01	to	2560 newton-seconds
L	2560.01	to	5120 newton-seconds
M	5120.01	to	10240 newton-seconds
N	10240.01	to	20480 newton-seconds
O	20480.01	to	40960 newton-seconds

The purpose of the open altitude competition is to obtain the greatest altitude possible for a given total impulse. The event is open to all rockets using certified motors. The motor class will be determined based on the total impulse of all motor(s) as tested.

Record Information: Records are established in the F through O motor classes. To set a record in this event is to set a Tripoli Altitude Record. No changes will be made to existing Tripoli Altitude Records.

4.0 Hybrid Altitude Competition

Due to the recent introduction and popularity of hybrid motors, a separate record category has been created. Any hybrid record may also set one of the open altitude records should it qualify in the particular motor class. It is not the intent of hybrid altitude competition to permit solid propellant motors which utilize an additional oxidizer tank to increase total impulse of the solid propellant motor. These types of motors should participate in the open altitude competition. However, hybrid motors which contain a small amount of solid propellant intended primarily for special effects are permitted in the open class.

4.1 Restricted Class:

This event is for rockets powered by a single, certified hybrid motor. The maximum total impulse for a hybrid motor in the restricted class is 1280.00 newton-seconds. Any rocket which qualifies for the restricted class qualifies for the open class as well, but not vice versa.

4.2 Open Class:

There is no restriction on the number or total impulse of the hybrid motors used. Staging and clustering of motors is allowed provided only hybrid motors are used. Motors which contain a small amount of solid propellant (not to exceed per motor the lesser of 150 grams or 25% of the total oxidizer mass) intended primarily for special effects may be used in the open class.

Record Information: Two separate hybrid altitude records will be maintained. They will be the Tripoli Hybrid Altitude Record/Restricted Class and the Tripoli Hybrid Altitude Record/Open Class.

5.0 Black Powder Altitude Competition

The black powder altitude event is for any rocket powered only by black powder motor(s). There is no limit on the number of motors used, or total impulse. All of the motors must be certified and the total impulse of all motor(s) must not exceed 40,960 newton-seconds. Clustering and staging of motors is permitted.

Record Information: The record for this class of rockets will be the Tripoli Black Powder Altitude Record.

6.0 Large Rocket Altitude

The purpose of the large rocket altitude competition is to achieve the greatest possible altitude when there are restrictions on both the total impulse used and the minimum rocket diameter. This event should also appeal to those who fly on limited sized fields and allow a large number of rockets flown at typical launches which are not minimum diameter to be competitive. By restricting both the total impulse and diameter of a rocket, the emphasis must be shifted towards modifying weight, drag and design to increase altitude.

The intent is to allow as many rockets as possible to participate in the event. The minimum length ensures that rockets with transitions, boattails and multiple diameters may participate provided they have the required minimum diameter for the specified length.

6.1 The classes have been chosen to reflect industry standard tubing sizes. They are slightly below the standard diameters and have been rounded down to the nearest quarter of an inch. Note: the diameter listed is the minimum diameter, not the maximum diameter.

G Class -- Minimum diameter of 2.50 inches for at least 2 feet
Maximum total impulse of 160.00 newton-seconds

H Class -- Minimum diameter of 3.75 inches for at least 3 feet
Maximum total impulse of 320.00 newton-seconds

I Class -- Minimum diameter of 3.75 inches for at least 3 feet
Maximum total impulse of 640.00 newton-seconds

J Class -- Minimum diameter of 5.00 inches for at least 5 feet
Maximum total impulse of 1280.00 newton-seconds

K Class -- Minimum diameter of 5.00 inches for at least 5 feet
Maximum total impulse of 2560.00 newton-seconds

If a multistage rocket is used, then the uppermost stage must conform to the above diameter and length restrictions. This does not exclude the use of multistage rockets, but does not provide them with an advantage over single stage rockets.

Record Information: The records for this event will be the Tripoli Large Rocket Altitude Record in the "G", "H", "I", "J" and "K" motor classes. Each motor class has the diameter restrictions as listed above. While unlikely to occur, rockets which set a large rocket altitude record are eligible to set an open altitude record.

7.0 Tripoli Research Competition

One of the reasons for the existence of Tripoli is research and education. The purpose of this event is for members to engage in research or technical development of some aspect or application of high powered rocketry and educate the membership by preparing a report of their work. The requirements are intentionally left open ended to encourage a wide variety of reports. Examples of possible topics include, but are not limited to, composite construction techniques, altitude prediction, parachute design, electronic payloads, guidance systems etc.

There are no restrictions on the type of report to be submitted. The Contest and Records Committee will judge the projects and the results will be announced at LDRS. At its discretion, the Contest and Records Committee may ask Tripoli members to assist with the judging of projects depending on their area of expertise. Winners will be encouraged to publish their reports (or a condensed version) in a Tripoli publication and/or make their results available to the membership.

Project reports should be submitted to the Contest and Records Committee at least 30 days prior to LDRS. This is to allow sufficient time to judge the projects. Projects submitted after this date are not guaranteed to be judged in time for LDRS and may have to wait until the next year's LDRS.

Record Information: There is no record for this event, although a list of the yearly winners will be maintained along with the other records.

8.0 High Power Scale Competition

The purpose of this event is to fly a scale or semi-scale rocket. These types of rockets have become increasingly popular at launches. The following three classes are suggestions for types of scale competition to be held at launches.

8.1 Classes of Competition

Historic Class -- The rocket should be a scale model of a U.S. or foreign rocket, missile or spacecraft which is (or was) used for either civilian or military purposes.

Kit Class -- The rocket should be an upscale or scale model of an

available or previously available model rocket or high power rocket kit.

Creative Class -- The rocket should be a scale model of an imaginary rocket, missile or spacecraft used in either the past, present or future. The rocket may be an original design or be built from a kit.

How rockets are judged is left to those at individual launches. Suggestions include the more formal process of obtaining of volunteer judges to inspect each scale rocket or the informal process of having people vote on the winners.

Record Information: There is no record for this event. However, the Contest and Records Committee may select the top rocket flown in each class based on launch articles, descriptions and nominations received on an annual basis.