

Launch Sequence

T-1 week

Launch announcement to university and public.

T-24 hours and counting

Review of flight systems (recovery system, telemetry and avionics, propulsion).

Launch brief including safety procedures.

Launch site selection and preparation.

Propellant casting.

Igniter preparation.

T-3 hours

Complete vehicle airframe inspection (Ensure the rocket and recovery system are properly installed.

Check that all rocket parts are aligned and secured.)

Load SRM into the rocket. (Insert engine and igniters. *Note:* One of the most common reasons a rocket will not launch is because the igniters are not pushed all the way into the engine. When launched, the spark does not reach the engine fuel, and nothing happens.)

Load avionics and telemetry systems.

Complete launch pad inspection.

T-5 min

Slide the launch rod through the launch lug on the rocket.

Carefully inspect the recovery system to insure its safe deployment.

Attach alligator clips from the batteries to the igniter wires. Make sure they don't touch each other.

Activate avionics.

Ensure spectators are at least 10 meters away.

Clear launch pad of all non-essential things/personnel.

No low flying aircraft overhead.

Wind conditions are favorable (wind speeds no greater than 20 km per hour)

Configure N-1 for flight

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T-10

N-1 go for launch call. Initiate countdown from 10.

T-0

Solid rocket motor ignition and liftoff.

Don safety glasses.

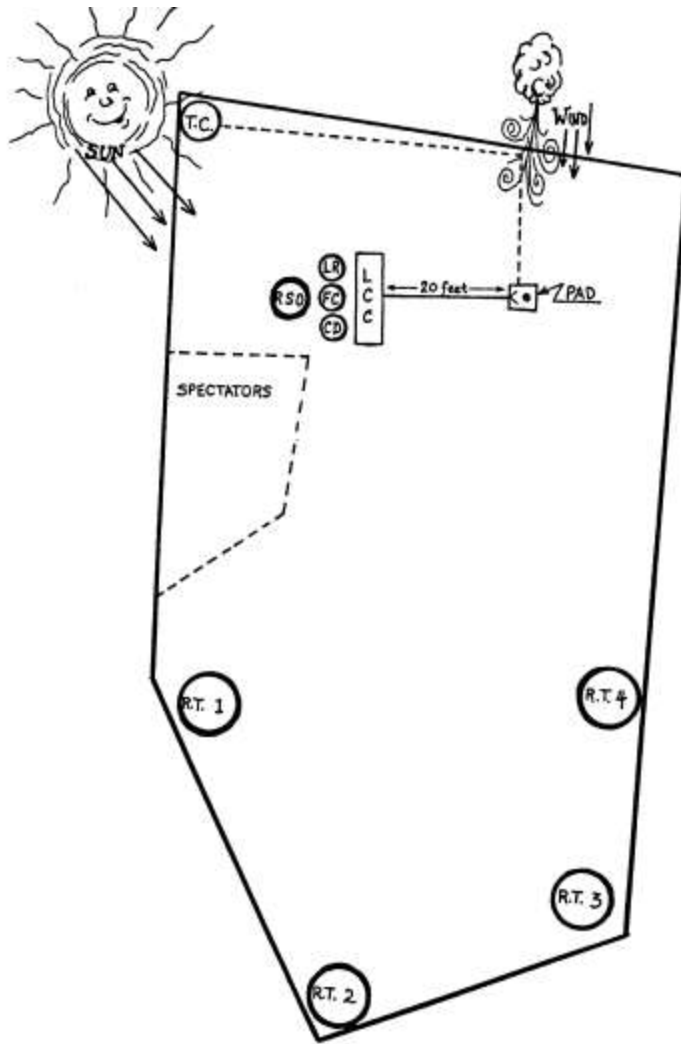
Launch Personnel and Their Duties

1. RSO—The Range Safety Officer is in charge of the entire project. The RSO's duty is to see that all safety procedures are followed during launch days. The RSO has the power to hold, postpone, or completely refuse to OK any rocket felt to be unsatisfactory until the fault is corrected. The RSO will call attention to the model to be launched and the name of the builder.

2. FC—the Flight Commander is in charge of loading and firing the rocket. The FC has the right to call a hold in the countdown if trouble develops.

3. LR—The Launch Recorder records the launch.

4. RT— The Recovery Team.



1. The Launch Recorder then fills in the date of launch; engine use; total rocket weight; angle of launch; wind speed and direction. The LR reports he is **GO** and puts a check in the proper space.
 2. The Flight Controller conducts final checks on the recovery system, the engine and the igniter wire. Then the FC reports “**Rocket is GO**” and the LR checks the space.
 3. The FC checks the pad and reports “**Pad is GO.**”
 4. The tracking team reports “**Tracking is GO.**” The recovery team reports “**Recovery is GO.**”
- Everyone at Launch Control Centre is ready, so “**LC is GO.**”

5. The RSO gives “**Range is GO**”. The FC reports “**All systems GO for launch**” and countdown begins at “T-minus 10-9-8-7-6-5-4-3-2-1- Ignition.” On ignition, the FC pushes the button and the rocket soars off the pad.

6. The FC reports “**Lift-off has occurred**” and “**Recovery system is GO**” upon successful parachute ejection.

Nakuja N-1 Rocket Launch Sheet

Flight Commander:.....

Rocket Name:.....

Weight:.....

Recovery method:.....

Date of launch:.....

Engine used:.....

<u>Launch Number</u>	<u>no. 1</u>	<u>no.2</u>	<u>no.3</u>
Launch recorder (LR)
Total weight
Angle of launch
Wind velocity and direction
Temperature and visibility
Launch recorder is GO
Rocket is GO
Launch pad is GO
Tracking is GO

Recovery is GO

Launch control is GO

Range is GO

All systems GO for launch

T-minus 10-9-8-7-6-5-4-3-2-1-Ignition

Lift off has occurred

Recovery system is GO

Expected apogee

Achieved Apogee

Flight duration

Flight performance