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## **UKROC: Best Practice Guide - Safety**

Model Rocketry is a sport with an exemplary safety record. One reason is that participants have followed an established Model Rocketry Safety Code, which originated in the United States of America. The best practice notes below provide baseline standards for the launching of any model rocket in UKRoC.

Note that no launch or testing of a rocket is allowed in the absence of supervising adult or teacher.

### **1.Construction**

All rockets shall be made from lightweight materials, such as paper, wood, plastic and rubber, with only minimal metal parts. The model shall be soundly and accurately constructed and the stability must be checked before its first flight, unless of proven design.

### **2.Rocket Motors & Launch Weight**

Only motors shown on the list of approved motors are allowed\*. These motors must be stored and used in accordance with the relevant manufacturer's instructions. No modification of the case, nozzle, or contents shall be carried out, nor any reloading of single use motors undertaken. The motor manufacturer's guidance pertaining to Maximum Launch Weight for safe operation must be adhered to.

**\*Order early to ensure supplies are available.**

### **3.Preparation And Recovery**

All rockets must comply with the current UKRoC Rules and must have provision for, and contain at launch, a recovery system so that the model may be safely returned to the ground and be flown again. Great care in preparation must be employed to ensure that the recovery system deploys correctly and that any insulating recovery wadding is flameproof. No model shall carry an explosive, flammable, or live animal payload. No ballistic flights may be attempted, or any attempt to strike a target.

### **4.Launch Systems\*\***

All rockets must be launched from a rigid launch rod or rail to provide initial direction and stability and comply with the current UKRoC Rules. The launch system must incorporate a blast deflector to prevent motor exhaust from coming into direct contact with the ground.

### **5.Firing system\*\***

A model's rocket motor(s) must be ignited on the launch system using an electrical device (igniter/starter), according to the relevant manufacturer's instructions. The electrical system must allow the operator to place him / herself 10 meters from the rocket (single motor) or 20 meters (multiple motors). The system must include a Safety Key that will completely disconnect the battery when removed and shall possess an 'on' 'off' switch which is only activated immediately prior to the launch countdown. The Safety Key shall be inserted for the moment of launch and removed immediately afterwards.

A clearly audible countdown of at least 5 seconds shall be given before launching. In the event of an igniter misfire, no one shall approach the model until the safety key has been removed from the launching system, one minute has elapsed and until it is certain that there is no likelihood of ignition. No one is allowed to approach the model until authorized to do so by the supervising adult.

\*\* At Regional Finals and the National Final the launch and ignition system on the field will be provided by the organisers (ADS). If teams want to use their own equipment they must first seek the approval of the organisers (ADS) giving full details of the equipment they propose to use.

### **6.Launch Site and Safety Conditions**

Model rockets must be launched from open sites, away from buildings, livestock, railways and roads and in conditions of good visibility in clear air space. Launching should not be attempted in high wind conditions, where they could endanger full-size aircraft, flammable materials or in any situation that could cause a nuisance/danger to people or property. A water bucket and/or fire extinguisher shall be available at the range head to extinguish fires.

No attempt must be made to recover a model rocket from high-tension electricity cables or telephone lines. Great care must be exercised in the recovery of model rockets



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from high trees, water or any other potentially dangerous situation. In group flying sessions, with members of the public / onlookers present, a Range Safety Officer (RSO) shall be appointed. The RSO is responsible for the safe conduct of the flying model rockets and keeping all personnel away from the point of any launch and at the minimum distance specified in paragraph 5 above.

## **7. Controls**

It is a Civil Aviation Authority (CAA) requirement that all air users should be advised of unusual air activities that might be hazardous to other aircraft people or property. This includes model rocket launches. These notices are called NOTAMs. Instructions for writing a NOTAM can be found at <http://www.ukra.org.uk/notam>.

Ideally the rockets should be launched into uncontrolled airspace. If under controlled airspace the uncontrolled air space must go to 2000 feet.

If the site is with 5 nautical miles of an airfield or within controlled airspace then permission from air traffic control must be obtained before every launch.

Only fly on sites that are clear and open with adequate open space downwind of the launch point and in good visibility. No person shall launch a rocket unless he has reasonably satisfied himself that: (a) the flight can be safely made; and (b) the airspace within which the flight will take place is, and will throughout the flight remain, clear of any obstructions including any aircraft in flight.

Should you have any further queries call the UKROC helpdesk.

## **8. Insurance**

Teams are responsible for obtaining all the relevant and correct insurance for any launches and flights undertaken in relation to the UKRoC competition (see the UKRoC webpage).

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