



The Impakt RC Rocket Launch Control

DISCLAIMER: This circuit comes with no guarantees or warranties whatsoever be they explicit or implied. You construct this circuit entirely at your own risk! I cannot be held responsible for your workmanship or ability to follow instructions or make rational judgements. I cannot be held responsible for injury or death resulting from the use of this circuit. I cannot be held responsible for damage to property caused by the use of this circuit. If you do not agree with this statement, then DO NOT attempt to construct this circuit.

Firstly, I haven't built or tested this yet as I've just now finished designing it. Secondly, some people will think or say that an RC launch controller is not safe, yet as you will see, it is just as safe as any commercial launch system.

Overview

A 12v battery, such as a car battery, is placed at the launch pad. You have a box that has the launch circuit inside it, which works in the following manner:

The radio is a simple two channel radio for an RC car or whatever. The joysticks on these radios return to the centre position when not pressed – **This acts as a momentary action switch, just like your standard launch button.**

The radio should have removable crystals, located at an easily accessible position (like the front of the radio) – **this acts as your removable key!**

The servo, located in the electronics box which is placed at the launch pad with the battery, has a horn on it which you attach to a slide switch, thus turning the switch on and off as the servo moves.

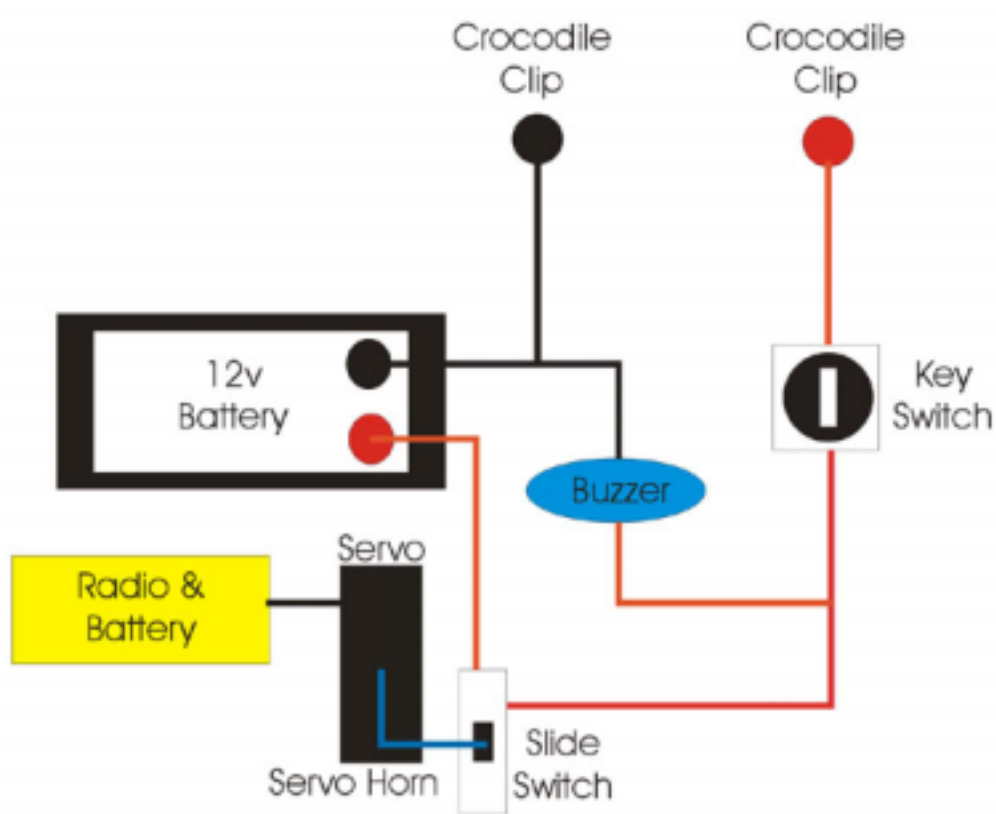
The slide switch then goes to a key switch and the key switch goes to the other ignitor lead. This switch is your friend at the pad – putting it on 'safe' will prevent an accident (like if a little kid starts messing with the radio while you're at the pad).

There is a buzzer that goes from the negative of the battery and joins to the live side of the slide switch. **If this buzzer is making a noise, the launch circuit is armed!** So if you're at the pad and you have the key switch on 'safe' and the buzzer is going, DO NOT turn the key switch to 'armed' – if you do, the rocket will launch! You could also connect a large light in the same way you connect the buzzer – but you probably won't see it in good light anyway.

That's basically it. The radio uses a servo to turn a switch on and off, forming a circuit.

The safety features are:

- Key Switch at the pad which prevents positive clip from being live.
- Buzzer (& optional light) which warns if the radio switch is armed.
- Crystals can be removed from the radio, simulating a key or pin used in most commercial launch systems.
- Radio has a master power switch.
- Receiver has a master power switch.
- Allows you to be much further away from the pad when launching high impulse motors.



Launch Procedure

- Make sure radio is off and crystals are removed. There should be no noise from the buzzer – if there is, the circuit is armed!
- Approach the pad, make sure the receiver is off and the key switch is on 'safe'.
- Attach crocodile clips.
- Turn on receiver.
- If the buzzer remains silent, turn the key switch to 'armed'.

- Go to your launch position and put the crystals back in the radio. Turn the radio on and announce your intent to launch.
- Move whatever joystick is necessary to the required position and hold until ignition. At this point, you should also hear the buzzer and see the warning light if you installed it. The rocket takes off.
- Turn the radio off.
- Remove the crystals.
- Before you wander off to recover your rocket, go to the pad and turn the receiver off and put the key switch back on 'safe'.

Deviate from this procedure at your own risk.

Benefits

- Because the battery is close to the pad, you don't get the resistance caused by long cables.
- Less cables = less mess and less traffic hazards to feet.
- Allows to be much further away from the pad when you launch, without the problems of long cables.
- It's just a good way to launch a rocket – Did I mention cables being a problem?