Radio Control Flyers Unlimited Flight Plan

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Volume 14, Issue 4

April 2015

www.rcflyersunlimited.com

Current News

We had our spring swap meet The weather was great and we had a good turnout. We collected over $250.

The upcoming T34 pylon races was discussed at the meeting. For each event we will need 15 volunteers to help. This will include setup, help with the races itself, and people to help with the lunch. The races are scheduled to be May 30th 31st, 2015 and August 22nd 23rd, 2015.

Please be aware that on April 1, 2015 the club will start enforcing flyers to have their membership card and AMA card in view on their persons. We have plastic holders with clips for members that want them.

The members of the Modesto soaring club have been invited to use their large gliders to fly at the field. These gliders are towed up using powered model aircraft. There will still be open flying but on a very limited scale. This event will be held on May 2nd, Saturday at the field.

We continued this meeting with the idea to have the field repaved. It has been over 20 years and the pavement looks pretty bad. We would like to pave over the existing runway and use it as a base for the new asphalt. This would include sealing the old pavement with a petroleum mat to prevent water from going into the soil and disturbing the clay material in the soil. One idea for this project is to ask for people to loan the club monies for the purpose of financing the runway project. We currently have $20k that we can use for the project but will need more for this project.

We have a rule that dictates the area that a model can fly. It was set up to be an infinite line along the pilot's fence unless prior permission has been granted based on a legitimate need. Upon discussion the club has decided that because of fewer flyers at the field that we allow flying on the east and west side of the field outside of the fence line restriction. This will be on a limited flying access and only if it is safe and there are no more that 3 planes in the air at one time.

PILOTS CORNER

A discussion on the merits of using an arming switch in an electric flying model.

By East Bay Radio Controllers

In the electric arena, new safety considerations come into play as compared to glow powered planes. One such area is the use of an arming switch. The goal of an arming switch is safe motor operation so that in no case can the prop engage unless at a flight station.

An arming switch is a means to disable the motor from outside the aircraft and independent of the ESC or transmitter. Motor disarming is important since, when the motor battery is connected to the control system, the motor can engage quickly just by a bump of the throttle stick. This is a safety hazard in the pits and why most clubs have a rule to arm only at the flight station. An arming switch is a **definitive and convenient** method to accomplish this end. In this case, the operative term is **definitive** because it relates to just how safe the system is. Other methods can accomplish a similar end but depend doing things in a sequence.

As the size of electric aircraft increase, the power also increases and the use of an arming switch becomes even more important. Power levels in

the 2000-3000 watt range are not at all uncommon these days. This is a lot of power to have at our finger tips. While this power level makes for a nice flying bird it also presents a significant injury risk so precautions are simply necessary.

To be clear, the ESC also has a motor arming function built in although this is less definitive than a separate arming switch because it is still under throttle stick control. On Castle ESCs for example, if you plug in the motor battery with some throttle on the control stick, say half or full throttle, the motor will not turn. However, once the throttle is brought to the idle position, the ESC beeps in a certain way which indicates the motor is armed and the motor will be engaged by further throttle movement. This is a good precaution, but still not a fully safe solution because the control stick can still make the motor turn. Other current day ESCs have a similar arming feature although the beep sequence varies from vendor to vendor. Using this ESC safety feature can accomplish the motor disable end, but it is not a definitive solution in and of itself so it is not as safe as a separate arming switch.

Procedural methods can be used to accomplish prop safety. If the motor battery is conveniently accessible, then the pilot can choose to only plug it in when at a flight station which achieves the safety requirement. In this case an arming switch is not strictly speaking required, but it remains a good additional precaution. This safety method requires that the pilot execute the same procedure each time and not get distracted. In a single battery case this means that both controls and motor become active only at a flight station.

Use of a dual battery system gives a little more latitude as flight controls can be verified in the pits with the use of an RX battery alone. The separate RX battery is inadequate in most cases to power the motor so safety is not sacrificed.

Overall, our goal is safe motor operation and there are a few methods to accomplish this. The first consideration is if the battery powering the motor is easily accessible without aircraft disassembly. In this case I would consider disassembly to mean taking off the wing, not just opening a hatch.

An arming switch is required if aircraft disassembly is required in order to get to the battery powering the motor.

1. **Single battery setup, arming switch required**. With arming switch disengaged, the battery can be plugged in when in theAssemble aircraft. When at a flight station, plug in the arming switch and fly.
2. **Dual battery setup, arming switch required.** With motor arming switch disengaged, plug in the RX/servo battery and the motor battery in the aircraft. Assemble the aircraft. When at a flight station, install the arming switch and fly.

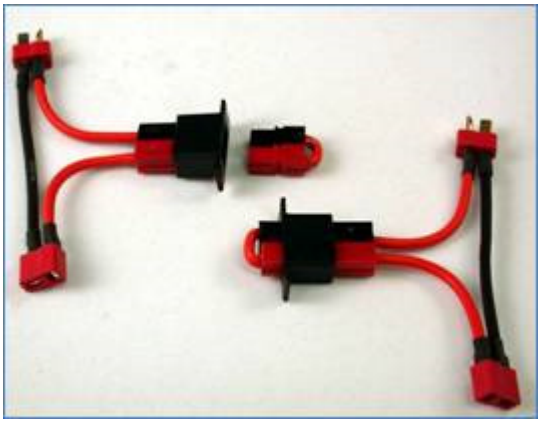
If aircraft disassembly is not required to get to the battery powering the motor, there are a few more choices.

1. **Single battery setup, no arming switch** Use the inherent battery connector and only plug it in when at the flight station. Inherently safe.
2. **Dual battery setup, no arming switch required.** Optionally plug in RX/servo battery in the pits, check control. Proceed to flight station. Only plug the motor battery in when at a flight station. Inherently safe.
3. **While an arming switch is not strictly** required in these two setups, an arming switch can be used as an additional layer of protection. Only plug in the arming switch when at a flight station.

Ok, so we've shown that an arming switch is not strictly required as long as good procedures are followed. However, an arming switch is never a bad idea and its use provides an additional safety layer. Following are some arming switch implementations.

Commercially Available Arming Switch

Below is a picture of a commercially available arming switch supplied by Maxx Products/RS Deans. Both 14GA and 12GA units are available and rated at 30A and 45A respectively.



Maxx Products Arming Switches

Ok, arming switches are good, but 45A hardly covers all the models out there. I have seen speed controls up to 160A.

It seems we are on our own above 45A.

For higher amperage arming plug, use connectors that can withstand the amperage you plan to use. These can be found on line at all of the popular aircraft modelling web sites. There are also many articles on building arming plugs. When you are going to build one, please ensure that all connectors, shorting wire, and solder joints will withstand the riggers of the high amperage flow through the plug.

While use of an arming switch/plug is not the only method to achieve motor safety in electric aircraft, it is a definitive method. Also, its use can increase the safety of any electric aircraft regardless of any other precautions taken. We can never be too safe especially as the power levels keep going up.

Cash Flow Report

Income		Expenses	
Club Revenue (including initiation fees, field assessment fees, Donations, and Events)	$200.00		
		Charter Dues	$90.00
		Misc Expenses	$30.00
		Portable Toilet	$140.00
Totals	$200.00		$260.00

Last Month's Total ……..	$6,226.84
Income ……..	$200.00
Expenses ……..	($260.00)
Balance ……	$6,166.84

The April Club meeting is scheduled for:
Wednesday, April 8, 2015 at 7:00 pm
at Casa De Modesto, 1745 Eldena Way, Modesto