What You Need at the Flying Field

The following items are considered necessary for the R/C pilot to have available in the field. Several of the items are needed right away and others might be needed at a later time. If you don't have the necessary items with you and if someone else at the field doesn't have what you need, you may have to cut your flying time short and return home.

Field boxes

The first thing you need to buy is a field box to hold all of your equipment. There are many different types and brands available. I recommend getting one that has several compartments built into it for storing fuel, 12 volt starter battery, other equipment or batteries if flying with electric motor(s). It is certainly better to get a box that is too large than one that is too small.

There are a few types of boxes that are pre-built. Others are offered as kits. Most of these kits are easy to build and only take a little of your time. Be sure to fuel proof your box. You can use a few coats of fuel proof sanding sealer and a clear coat for a nice finish.

12 Volt battery (for glow or gas engines)

You will need to get a 12-volt battery. This battery will be used to power your electric starter, which is used to start your aircraft. This battery can also provide power to the glow plug on your engine. Finally, the battery can also be used to run an electric fuel pump.

Small motorcycle batteries can be purchased at most variety stores. I prefer the sealed batteries myself. There is no acid to add or spill, they hold their charge for years and require no maintenance. Be sure to also buy a charger for your battery and use it when you notice a power drop when using your starter.

Power panels (glow and gas engines)

Power panels are not usually considered a necessary device for RC modelers but I consider them very handy. These panels are directly connected to a 12-volt battery and have a number of functions. First, you can plug your electric starter directly to the panel by way of special plugs that usually come with a power panel. Next, you need to purchase a locking connector with the appropriate wiring in order to provide power to the glow plug. A special meter that is connected to this circuit will instantly show you the condition of your plug when it is attached to the glow plug. This is important because you need to know if your plug is working before you apply an electric starter on your plane. Finally, you can use a special port on your panel to power an electric fuel pump if you choose to use one. Most panels have a special control for electric fuel pumps that allow you to turn the pump on and off and to control the direction of fuel flow. You may want to use a cheaper hand pump now and add an electric pump later. A power panel allows you to make that choice at any time.

Shop around. There are several very good power panels available. Be sure to get one that has a meter and a small dial that you can use to vary the amount of power going to your glow plug. This is very helpful especially in airplanes that use a remote glow plug port. You can easily supply an extra amount of electricity to these hard to ignite installations.

Electric Starters (glow and gas engines)

Never start an airplane with your fingers! There are many different types and styles of electric starters for airplanes. The first thing you must look for is the strength or torque rating of the starter itself. Don't settle on a cheaper standard type of starter. You will be wishing you had spent a few more dollars for a heavy-duty starter on a cold day when your starter can't turn your engine over.

Plan on paying a little more and get a more powerful and reliable starter. You will be glad that you did. Also, be sure to pick up a 'chicken stick" at your hobby shop for easier to start engines and when your field box isn't handy. I always keep a glow starter and stick handy in my pocket when I am at the flying field.

Fuel Pump (glow and gas engines)

There are many types of fuel pumps that you can buy. The cheapest, most time consuming and difficult to use are filler bulbs. These large rubber bulbs have a spout on one end, which connects to the fuel line in a fuel can. You squeeze it and then allow the suction to draw the fuel into the bulb. You then transfer the fuel by connecting it to your aircraft fuel line. Squeezing the bulb causes the fuel to flow into your tank.

There is an upgraded version with a one-way valve built in so you can connect the fuel container to the aircraft line. I really don't recommend either of these because though they are less likely to break, they are very slow and inefficient. For the same price as the upgraded version, you can purchase a good hand pump. Several companies manufacture these pumps. They attach to your fuel can and come with the appropriate fittings. Simply attach the fill line to your aircraft carburetor line and turn the handle in the correct direction. To remove the fuel from you craft, attach the same lines and turn the handle in the opposite direction.

The last type of pump is electric. Again, several brands are available and most are quite good. There was a time many years ago when I refused to use electric pumps because they didn't last very long. The manufacturers have corrected the problems with the earlier pumps. Some pumps now come with one or two year warranties. The cost is a bit more than the hand pumps but are well worth the cost in efficiency. You should have a power panel anyway and these pumps plug right in.

Once you acquire a pump, be sure to install the fuel fittings properly to the fuel container and your pump. Use an extra long piece of tubing to connect your pump to the fueling line fitting that attaches to you airplane. This will make fueling much easier because you won't have to move your plane so uncomfortably close to the fuel container.

Fuel and Fuel Container

There are many types of fuel that can be used in aircraft. Different brands can use different types of lubricants in different amount. The standard lubricant that has been used in fuels for years is castor oil. It is great for providing lubrications but it has one big disadvantage. It varnishes and stains engines and mufflers a dingy brown color. Most of the fuels today are available with either a combination of castor and synthetic oils or synthetic oil alone. Each has an advantage. Some feel that nonringed engines should only be run using fuel that contains at least a little castor oil. Others feel that the synthetic oils are so good now, that castor oil will soon be a thing of the past as far as RC models are concerned.

I personally feel that you should consult the engine manufacturer's recommendations as to the type and percentage of oil you use in your aircraft. You can't go wrong when using their advice. Each of these types of fuels also comes with different percentages of nitromethane, which is better known as nitro. The amount of nitro in your fuel can make a big difference. Again, consult the engine manufacturer's recommendations carefully.

Even though higher amounts of nitro give added performance, there is a limit to its' benefit. Higher percentages if nitro in the 30% or greater amounts can greatly decrease engine life and lead to some unanticipated dead stick landings. Nitro is also very expensive. If you are just learning to fly, I would recommend using no more than 10-15% nitro containing fuel. As you become more experienced, you can add a tuned pipe, additional head shims, expensive glow plugs and other options in order to get the most available power from your engine (with a much lower engine life expectancy of course!).

Consult your engine manual and your local hobby dealer in order to select the fuel that is best for your engine. I have flown all types of aircraft using Morgan Fuels Cool Power line with great success. This fuel contains the purest of ingredients along with a very good synthetic lubricant. If in doubt about which fuel to use, pick up some Cool Power.

Now that you have selected some fuel, it is time to get a container for it. The type needed is dependent upon the type of flight box you have. Most boxes have a rectangular shaped bay. A one-gallon rectangular paint or gas can works well in this situation. Go to your local hardware or paint supply store to get one of these cans. Be sure that the can you select hasn't had anything in it and that it is new. You don't want to contaminate you fuel with anything that may be harmful to your engine or fuel system. Also make sure that the can has a metal lid that screws on tightly.

Your second option is to simply use the plastic bottle that your fuel comes in. The disadvantage is that you may not be able to fit the container into your field box. Most newer field boxes allow any one to easily change the fuel bottle with ease. Be sure to connect all of the fittings that come with your pump to the container's lid. The pickup line that goes into your container should be connected to a fuel strainer or filter. If one is not included, be sure to pick one up and connect it to the pickup line. Use an extra long piece of fuel tubing to connect the pickup fitting to fueling coupler that connects to the aircraft's fueling line.

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