

## Training

In last month's training column we talked about making sure that the mechanical aspects of your airplane are properly assembled so that you can rely on the plane to fully support you during your time training and beyond. We also discussed some specific examples of what to do or not to do. Most importantly we said that these were just a few examples and that what is really important is to *learn to analyze the parts* and determine how to *make them work as intended by the designer*. This month we will review a few other similar "assembly" issues because you need to have a reliable aircraft during your flight training.

Lets talk about **wheels** for a moment. Yes, wheels do have a lot to do with the successful operation of your airplane! Consider for a second what happens to an airplane when it lands and one or more wheels is missing. The wire strut may snag the grass and be pulled loose or bent, or it may cause the plane to flip or tumble. Seldom does a plane survive without at least some damage from a landing with one or more wheels missing. There are some little tricks, not obvious to a new pilot, which can help prevent such problems.

The wheels on many planes are held on by small collars with one or two *very small* setscrews to lock them to the axle or strut. To the new pilot, these may seem to demand only a quick "tightening" to finish the build. Think again!! Those little monsters will loosen and disappear quicker than you can say "gone". Vibration and turbulence are significant factors on RC aircraft. To lock the collars tightly and reliably, it is often advisable to file a small "flat" on the axle and be sure the setscrew settles into that depression. Try to avoid making the flat all the way to the end of the axle. By doing this, you allow the screw to have a small step to help hold it on the axle. Also, it is very helpful to utilize a "thread locking" compound to help assure the little setscrew does not loosen. But, if you use a locking compound, practice using the tube or bottle first. You want to be able to apply just a very small amount to the threads. The last thing you want is to get this compound into the wheel bushing area. Sometimes it is helpful to apply the compound to the setscrew prior to threading it into the collar. Using this method allows any "extra" compound to drip off. Or, if too much remains, you can "dab it" with a towel or rag to remove the extra. A little practice first will help. Note also that the suggestions here apply also to other types of applications where a small setscrew is used. You may run into some on certain servo linkages, for example.

Another assembly issue to consider carefully is the installation of the electrical components such as the battery and receiver. While an "ARF" maker often suggests one way to do this, it may be based too much on considerations of cost and simplicity. Remember that the battery and receiver should be isolated from vibration as much as possible. Foam is commonly used for this isolation and is available from most hobby shops. Some probably came with your ARF, also. Here again you want to analyze the part and determine how best to proceed. The battery pack, for example, is rather heavy and needs to be held securely in place. But, you don't want to secure it so tightly that the foam is totally compressed and vibration again can attack the pack! Look over the options you have for mounting it in your particular plane and pick a method that will be the best of the options. Nylon tie-straps are often helpful here as are Velcro strips. Remember that the plane may soon fly inverted and even do loops and other maneuvers as your training proceeds. Make sure you consider this in your mounting scheme. You don't want a battery pack to come loose in flight!!

Your receiver is much lighter than a battery pack and can be mounted using some different logic. The wider types of “double-stick” tape can be helpful here, along with the foam and perhaps augmented with some elastic bands or similar. Remember that you need to be able to hold the receiver to plug and unplug servo and battery connectors. It is also helpful if you can see the connectors when the receiver is all mounted so you can frequently verify that the connectors are still properly “seated”. Remember also that there is nothing wrong with adding one or more small pieces of balsa or ply to better facilitate mounting, and when all of this is done, don’t forget to check the aircraft’s balance.

We hope these suggestions will help you have a reliable aircraft through your initial training and beyond. And until next month...

Remember to try something new each time you fly!

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