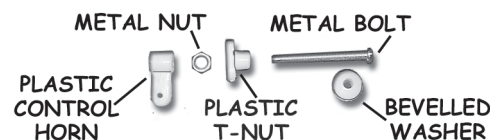


# HINTS & TIPS

## DeHAVILLAND BEAVER 120 ARF

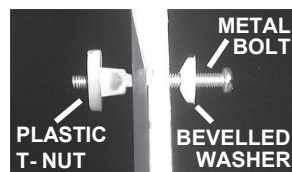
OUR CONTROL HORNS are unique. They do not look like most of the control horns you have seen before and you may think they are missing. They are in the control horn parts bag inside the master bag of hardware and consist of a metal bolt, metal nut, beveled white plastic washer, a white plastic T-nut and the white plastic control horn itself that connects to a clevis or rod.

**Control Horn Set Before Installation.** Note 5 parts make up the set.



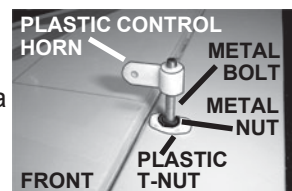
### Control Horn Set Partially Installed

Note that the bevelled washer has the bevel side facing the control surface and the flat side against the head of the metal bolt.



### Control Horn Set Fully Installed.

Note that the metal nut has been tightened down snugly against the top of the T-Nut as a safety lock. Then the plastic control horn is threaded on to the metal bolt as shown.



For more information that may be relevant to this model please visit us at [www.richmondrc.com/support.htm](http://www.richmondrc.com/support.htm)

### WING STRUTS MUST BE USED

Do NOT fly the Beaver 120 ARF without installing and properly connecting the wing struts to the underside of the wing and the side of the fuselage.

Make sure all screws are well attached, repair any stripped holes or poorly fitting screws before flying.

We strongly suggest wicking medium thick CA such as PACER ZAP-A-GAP or VCA+ into the strut screw holes initially to harden the wood and periodically thereafter to ensure that the wood around the screw holes does not strip or soften with repeated use.

The wing struts are ESSENTIAL for the safe operation of the Beaver 120 ARF.

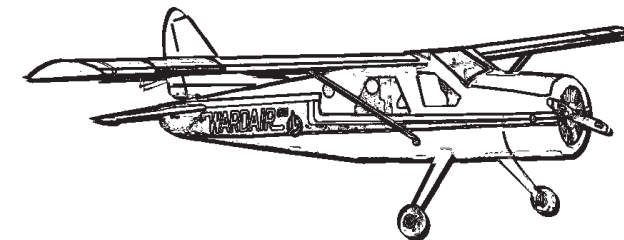
We have had one report of an attempt to fly the Beaver 120ARF without the wing struts. The wing failed in flight and the entire model was lost.

Do NOT fly the Beaver 120 ARF without installing and properly connecting the wing struts.

***If the wing struts are not properly installed using all screws properly threaded into the attachment points, the Beaver 120 ARF wing WILL FAIL IN FLIGHT!***

# IMPORTANT INFORMATION ABOUT VMAR BEAVER 120 ARF

## #VMA-B190C



## PLEASE READ THIS BEFORE ASSEMBLY!



Model airplanes, model engines, model engine fuel, propellers and related accessories, tools and equipment can be hazardous if improperly used. Be cautious and follow all safety recommendations when using your VMAR model airplane. Keep hands, tools, clothing and all foreign objects well clear of engines when they are operating. Take particular care to safeguard and protect your eyes and fingers and the eyes and fingers of other persons who may be nearby. Use only a good quality propeller that has no cracks or flaws. Stay clear of the propeller and stay clear of the plane of rotation defined by the propeller.

The Manufacturer, Distributor, Retailer and/or other suppliers of this product expressly disclaim any warranties or representations, either expressed or implied, including but not limited to implied warranties of fitness for the purposes of achieving and sustaining remotely controlled flight.

In no event will the Manufacturer, Distributor, Retailer and/or other suppliers of this product have any obligation arising from contract or tort, or for loss of revenue or profit, or for indirect, special, incidental, consequential or other damages arising from the use of this product.

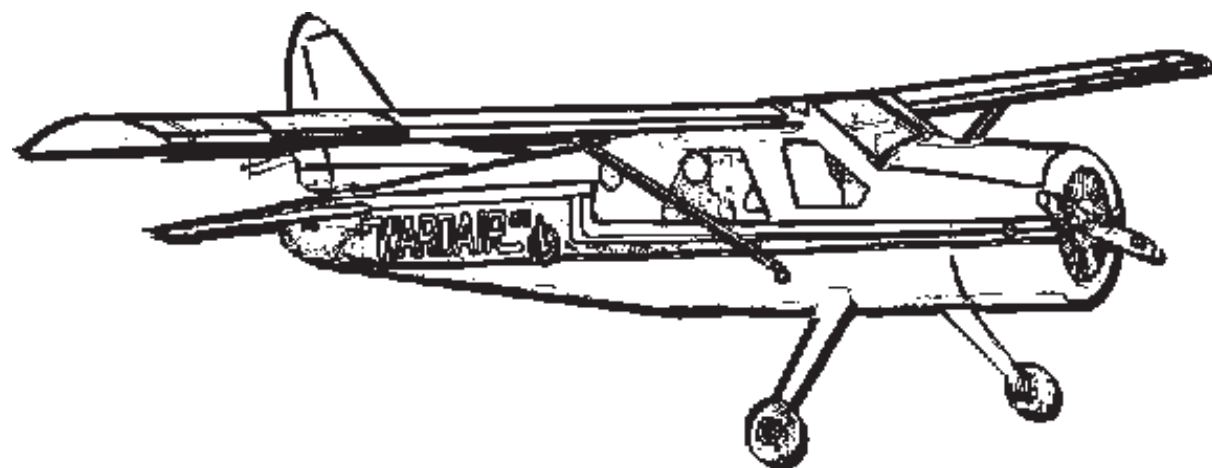
In purchasing and/or using this product, the user accepts all responsibility for its use and accepts all liability associated with such use.

**Proceeding with assembly and use of this product indicates Agreement With and Acceptance of the Liability Disclaimer.**

### CAUTION

A Remote Control Model Aircraft is not a toy. It is a flying model that functions much like a full size airplane. If you do not assemble and operate this product properly you can cause injury to yourself and others and damage property. DO NOT FLY this model if you are not qualified.

You are ultimately responsible for the mechanical, aeronautical and electrical integrity of this model and its structure, control surfaces, hinges, linkages, covering, engine, radio, wiring, battery and all other components. Check all components before and after each flight. Don't fly until it's right!



**PLEASE READ EVERYTHING BEFORE ASSEMBLY!**

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## CARE & MAINTENANCE OF V-COTE™ COVERING.

V-COTE covering is engineered in Canada & available only from VMAR. V-COTE is a thermally reactive film that shrinks well with standard hobby heat guns and hobby irons intended for model airplane covering. We bond the graphic elements to the rugged thermal film using a proprietary process that results in an economical highly detailed finish without the need for decals, layers, strips or stripes! Best of all, you get the detailing without having to put in hours and hours of work... we've done it all for you! With VMAR models and V-COTE covering you will spend more time flying and less time building and detailing! Here are a few tips to make it easy to keep your V-COTE covering looking it's best!

**REMOVING & USING TAPE:** Tape may be used to hold control surfaces or other parts in place during shipping. When removing tape from V-COTE, peel the tape back on itself so that the pulling is parallel to the surface of the covering. If the tape is near or across a seam or an edge, peel towards the edge or seam. Do NOT pull the tape up at right angles to the covering or away from a seam or edge. If you use tape during the assembly process use a low tack masking tape and remove it using the procedure noted above.

**CLEANING INITIALLY:** V-COTE has very few seams and we use our SURE SEAL system to really lock the seams down. Upon initial inspection if you see a thin streaky film on any of the covering when looked at under bright light this is a residue from the SURE SEAL process. Use alcohol with a paper towel and wipe the residue away. V-COTE and the graphics detailing are resistant to alcohol but it is always a good idea to test alcohol or any other cleaner or solvent you are using on a small out of the way area first! Change towels frequently. If you want to accentuate the gloss of V-COTE even more, use a bit of Armorrall and buff shiny with a clean paper towel. Test the Armorrall on a small out of the way area first! Discard all soiled paper towels into a metal garbage can stored outdoors.

**CLEANING AFTER FLYING:** To clean V-COTE after flying we recommend Fantastic household cleaner and disposable paper towels. You can use other similar cleaners but avoid cleaners with solvents or abrasives. It is a good idea to always test a small out of the way spot first. Wipe along seams, not across. To really show off your V-COTE covering, after cleaning with Fantastic... use a bit of Armorrall and buff dry & shiny.

**CARE:** Avoid puncturing. Avoid leaving your model in a closed car exposed to direct heating from the sun for lengthy periods. Temperatures under such conditions can exceed 50C (122F) and sagging may occur. V-COTE is resistant to fuels having up to 15% nitro methane. If you must use higher nitro fuels, avoid spilling raw fuel onto the V-COTE covering and remove fuel residue as soon as possible using soft paper towels and gentle wiping when doing so. Some color bleeding and deterioration may be experienced with prolonged exposure to high nitro fuels.

**TIGHTENING:** To tighten V-COTE we recommend using a medium-high temperature heat gun. Work with the gun set at 250-300F. Experiment on small areas first to get comfortable with the temperature and the process described below.

**a) To seal and bond the seams, edges, around perimeters and over solid surfaces** use a heat gun set at 250F and a soft cotton cloth or glove. Heat a small area of the covering and then press the warm covering down firmly with a soft cotton cloth to bond the covering to the underlying substrate. Avoid hard rubbing side to side while the covering is warm. Higher temperatures may assist with complex curved surfaces. Avoid using more heat than required to prevent bubbles from forming beneath the covering. Be patient and work systematically starting with a small out of the way area first to gain experience.

**b) To shrink V-COTE over open bays** use a medium-high temperature heat gun set at 250-300F. Practise on a single bay on the bottom of a less noticeable section first. Heat the V-COTE until it is warm and sags slightly then remove the heat and the V-COTE will shrink tight. Try this repeatedly until the covering over the open bay is tight. Be patient and work systematically. As you gain experience you will be able to judge better how much heat to apply and for how long. You will likely only have to tighten V-COTE once or twice to accommodate any shrinkage of the airframe in dry hot conditions.

**RESEALING SEAMS:** V-COTE seams are sealed with our SURE SEAL system and will not normally lift. If you find a loose edge, thoroughly clean any oil residue from the area and the edge and reseal with thin CA.

**PATCHING:** If you puncture V-COTE, thoroughly clean any oil residue from the area of the puncture. We clean using Fantastic and a paper towel. Once you have all the oil residue removed, wipe the area again with a fresh clean towel moistened with water or plain alcohol. The patch should be 1/2" bigger than the hole on all sides. We recommend using the V-COTE patch sheets provided with your model or after market V-COTE patch material. You can also use polyester covering such as POLYCOTE, ULTRACOTE or ORACOVER. Monokote or SolarFilm covering material will also work. Cut the patch with rounded corners. Seal the patch in place with a heat iron set at 250F first and then tighten the patch and the original covering around the patch using a heat gun as outlined in the tightening section above. To repair larger more extensive damage areas, you may wish to obtain the appropriate V-COTE covering set for this model.

**CUTTING:** V-COTE is made from a thermally reactive film. Where possible, use scissors to cut V-COTE. Scissors work well. Otherwise use a new sharp #11 Blade. **The blade must be SHARP.**

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Check for updates and more information about V-COTE at [www.richmondrc.com/support.htm](http://www.richmondrc.com/support.htm)

B190C\_Important\_Info\_20021007.pmd



## ERRORS & OMISSIONS

Related to the First Edition of the Beaver 120 ARF Assembly and Operations Manual 20010126

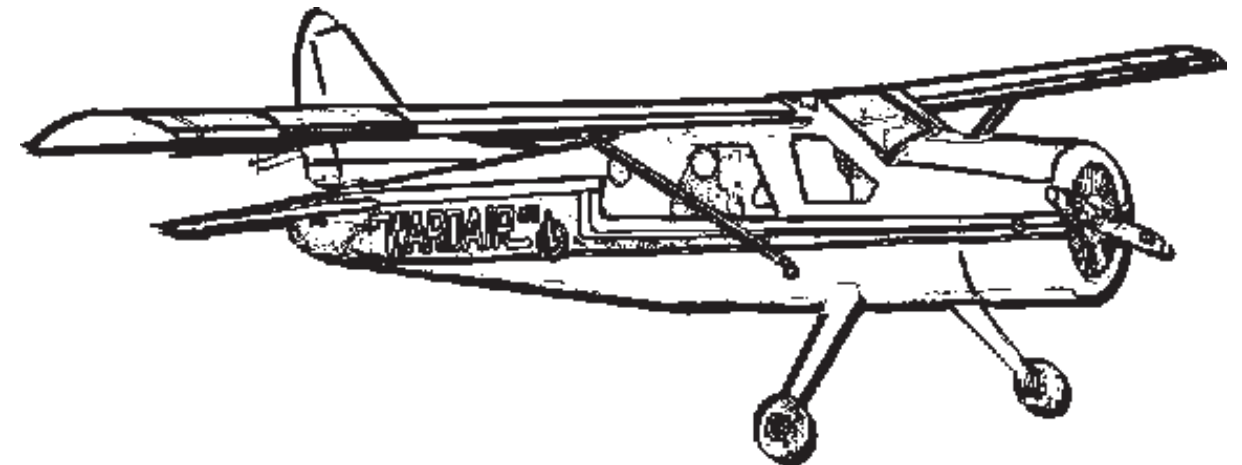
Step 2.2 on Page 6 of the Manual is entitled "Dry Assembly of the Wing Halves" The final paragraph of Step 2.2 refers to "... the second larger wing spar joiner.. approximately 3/4 x 10-1/4 in."

### Add the following...

Step 2.2.1 During flight preparations, it is possible to install the second larger wing spar joiner incorrectly by inserting it too far into one wing half and not far enough into the other wing half. This could lead to wing failure under load. To prevent incorrect insertion of the second larger wing spar joiner at a later date, we recommend that it be epoxied into either the left or right wing half at this time before beginning Step 2.3. Very carefully mark the spar joiner at it's mid point and using ONLY 30 MINUTE EPOXY permanently install the second larger wing spar joiner. Use plenty of 30 MINUTE EPOXY... do not skimp. Insert the spar joiner only to the mark you have made at the centre of the spar joiner. Carefully remove any excess epoxy that may run out onto the face of the wing root or onto the exposed portion of the wing spar joiner.

## AFTER MARKET PARTS FOR THIS MODEL

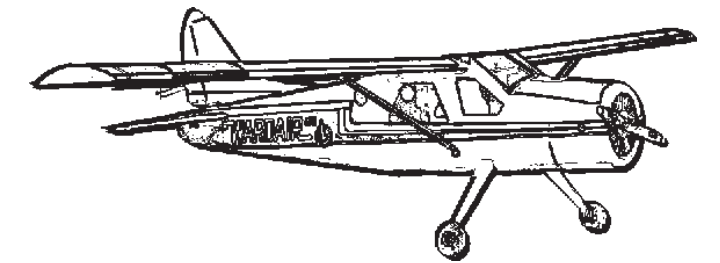
If you have damaged or lost something or had what we call an "uncontrolled flight" into terrain and pranged your model, don't panic! We can probably help! Visit our web site at [www.richmondrc.com](http://www.richmondrc.com) and check out the VMAR On-Line store for a full listing of replacement parts or contact us by email at [sales@richmondrc.com](mailto:sales@richmondrc.com).



### PLEASE READ EVERYTHING BEFORE ASSEMBLY!

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For more information that may be relevant to this model please visit us at [www.richmondrc.com/support.htm](http://www.richmondrc.com/support.htm)



### Please note that...

- There are NO aileron wiring extensions included with the Beaver 120 ARF.
- The cockpit set is now included at now extra charge. The cockpit set consists of two full body pilots, seats and a set of fabric cabin liners.

### ASSEMBLY MANUAL INFO

Please see the Assembly Manual for...  
Components & Parts Supplied... Page 4  
Tools & Shop Materials... Page 5  
Assembly Procedure... Page 6-16  
Setup Information... Page 17