

## **Vacuum Bagging Made Easy.**

*by Klaus Weiss*

Composite construction has been with us for many years now, but it still remains a mystery for many. Materials can be hard to source, in Australia, but they are available. I was at a loss to get good foam cores, when I first started cutting them, but now, five years and 1400 or so wing cores later, I can get pretty good results.

The composite models coming out of the U.S.A. and Europe, have set the standards for quality for the past decade or so, and how the manufacturers get the mirror finish glass sheeting and the airfoil accuracy, remains one of the dark arts to many. Production of top class sailplanes has gone up another notch, with the hollow glass, composite construction of both wings and fuselages, being carried out in CNC milled moulds. This method gives repeatable accuracy and identical parts for a whole run of models.

This review covers the production of foam core, composite glass/carbon wings, and is presented by one of America's top experts in vacuum bagging and wing manufacture. The double DVD disc set, is very comprehensive and gives a step by step tutorial from go to whoa, in the production of a composite foam core wing set. There is around four and a half hours worth of viewing, with a menu selection of the various steps. This allows you to go backwards or forwards to any part of the tutorial you desire. As a learning tool, it is invaluable, and gives everyone the opportunity to have a go at this method of wing production for their models.

Phil Barnes, the presenter, is an expert in the field of vacuum bagging composite model aircraft wings, and has spent many years learning and perfecting these talents. Many of us have owned and flown models, which have had the wings manufactured by Phil, even though we may not have been aware of the fact. Some of the models which have Phil's handiwork includes North East Sailplanes Fusion, Edge, SchpotDorker, and Lil' Dork, to name a few. Phil also produces wings for Pole Cat Aeroplane Works. He does the new XP3 wings, and a range of other hand launch wings as well.

Bill Haymaker, a regular contributor on RCSE internet forum, along with Phil Barnes, has produced this detailed 2-disk DVD set, and it is the most professional presentation that I have seen to date. I have several videos on vacuum bagging, but "Vacuum Bagging made Easy", is the best by far. There are no more secrets!

There is a wealth of information contained in the DVD, and anyone who has an interest in composite construction, should consider investing in this product. If you have little or no experience, then you can't afford to be without this DVD.

Despite having cut so many foam wing cores, I learnt a great deal from this DVD set, and wish it was available 5 years ago. I have only recently started vacuum bagging wings for my own models, so it has come to me right on time, for this part of the lesson.

Disc 1 covers 17 subjects and disc 2 has a further 12 subjects relating to the production of a vac bagged wing.



*This picture shows the Phil Barnes method of template construction. The templates on the left, are for cutting the spar and wiring holes, whilst the right hand ones are obviously the wing core templates.*

Just briefly, the DVD set starts with the raw materials, foam, fiberglass, carbon and epoxy. Some of these materials are quite expensive in Australia, but alternatives are available. Disc one continues on with foam cutting blanks, cores, spar and wire channels, joining multiple panels, and how to extend spar slots. The last topic on disk one is, cutting fabric and Mylar, and then shows the actual lay-up on a Fusion unlimited size sailplane wing.



*This core is cut from extruded polystyrene and shows the tube spar hole and wiring hole cut in. All is explained in the DVD.*

Disk two details the vacuum bagging process and how to do the final trims on the leading and trailing edges. Phil then shows how to cut servo holes, release the flying surfaces on the wings, and how to improve hinge flexibility when using Kevlar skin hinges.

Phil then explains the differences in lay-up and techniques used to produce Discus Launch Glider (DLG) wings, 3 Meter tails, 2 Meter Laser wings, slope wings, and more!

There is no reason a newcomer couldn't produce an acceptable set of wings after viewing this DVD set. These procedures aren't limited to sailplanes, but could also be used for power airplanes, electric, slope or any other sort of RC or free flight model.

The DVD set sells for \$US.55 plus \$US.15 shipping. That is a whopping \$Aud.113 but it provides over 10 years worth of expert experience. A double DVD set for a movie will cost as much, but this is a real investment in teaching and technology. Costs less than a cheap 2m glider. If you are interested in learning the process of vacuum bagging composite wings and tails, this double DVD set is for you.

Currently the set is produced in DVD+RW and DVD-R format, which is compatible with many newer DVD players. I have the DVD-R format which works just fine on mine and several other players I have tried.

I am eager to do a set of 2m span wings for the next round of the Millennium Cup, so have a look at the results. After viewing the DVD, I feel as though I have been entrusted with the secrets of composite construction, but it is available to anyone who has an interest in wing manufacture.

It is available from [hayman@paonline.com](mailto:hayman@paonline.com) or through Airsports R.C. in Australia.  
<http://www.users.bigpond.com/kkw1>

KKW.