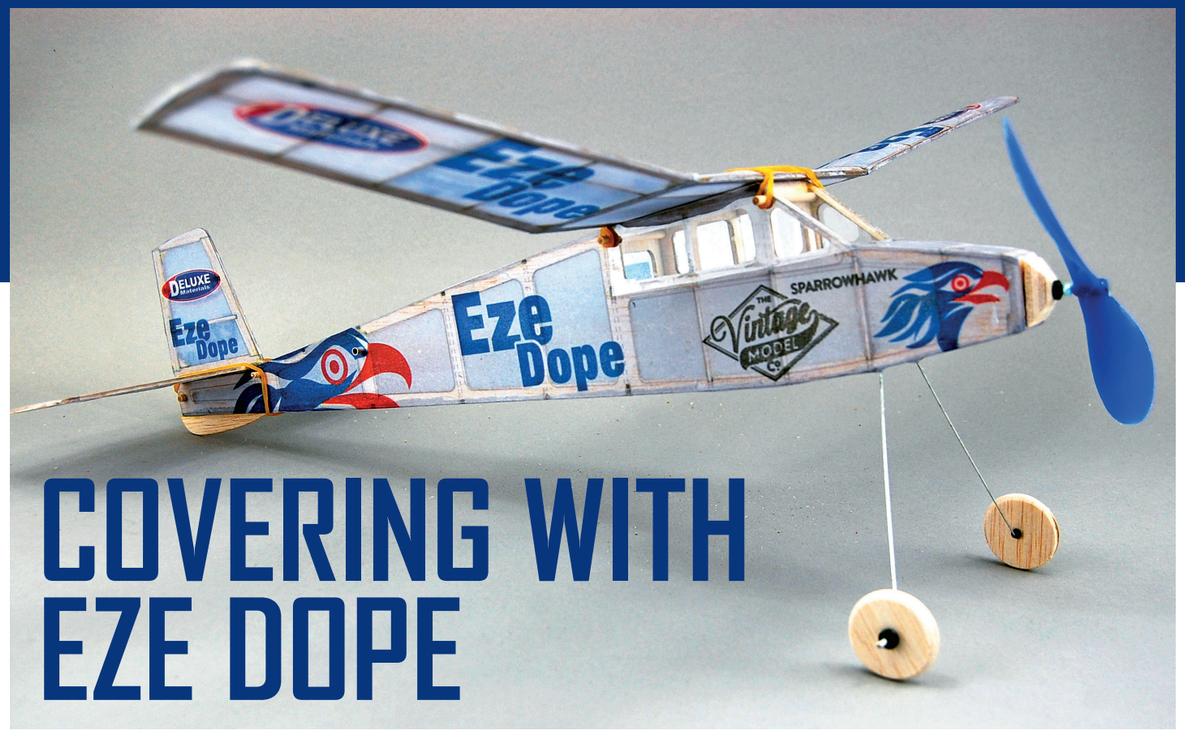


COVERING WITH EZE DOPE

Stuart Marsden builds a VMC Sparrowhawk to illustrate the best use of some popular Deluxe Materials products

words & photos » Stuart Marsden

This article is based on the construction of a simple free flight model produced by the Vintage Model Company. However, the methods described are applicable to other built-up balsa models, including R/C aeroplanes. The Sparrowhawk was built using several Deluxe Materials products, including adhesives, but this article principally focuses on the use of EZE Dope. EZE Dope has been around for some time now and many aeromodellers use it exclusively, while others have kept on using cellulose based dopes and coatings.

ADHESIVE CHOICE

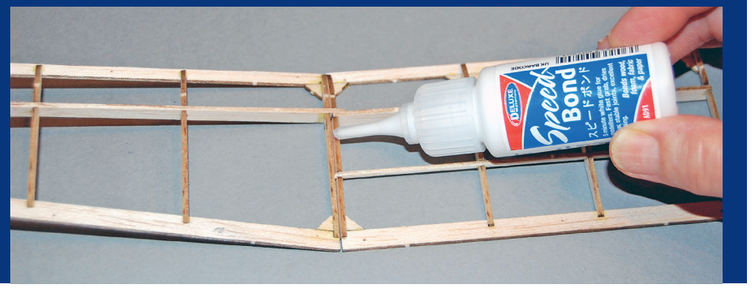
The four main adhesives used in the construction of the Sparrowhawk were: Speedbond, Super Phatic, Roket Hot and Speed Epoxy.

Speedbond is used for general sticking of balsa to balsa. In this case I have illustrated it by showing the centre panel and one of the wing tips. The image is set up with the panels uncovered. But actually, where possible, I prefer to join the wing panels after covering and doping.

Speedbond is an excellent white glue. You may wish to describe it as a PVA, but where it differs from most - and particularly from the cheap PVA glues sold in discount shops - is quite remarkable. Many modellers building from balsa prefer Aliphatic glues, mainly because the joints are sandable, whereas most PVA glues drag rubber like strands from the join. But Speedbond is both sandable, very strong and has a fast grab time. It gets my vote every time.

Super'Phatic! and Roket Hot can be used as alternatives to each other. They do have different uses with regards to other materials but principally both of these glues are great at getting into tight spaces and joints. The Sparrowhawk, like many kits these days, is laser cut and offers fantastic accuracy, allowing the wings etc. to be assembled as a dry fit. But please do not force the pieces together; take your time and use an emery nail board to make sure all the joints are a neat fit. Always try to avoid putting stress into an airframe. Some modellers who are sensitive to cyano can try Super'Phatic!

Spread of kit parts with the Deluxe Materials products used in its construction.



Speedbond is used for general sticking of balsa to balsa.

Speed Epoxy was used to stick the wire undercarriage to the Sparrowhawk.

Speed Epoxy was only used for sticking the wire undercarriage to the Sparrowhawk. You don't need much as it is heavier than the other glues, but it is very strong without being too brittle.

Once the model was constructed the vital sanding took place to remove as much as possible of the burn marks created by the laser cutting of the parts. To create a perfect burn free finish, you should really sand every part before construction. For a super scale model, I would do this, but it does take a long time.

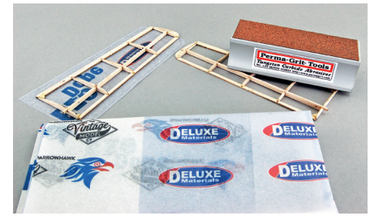
If you are covering in an opaque material it doesn't matter at all, but you do still need to sand the airframe to get a neat, bump free finish before covering it in any material.

COVERING

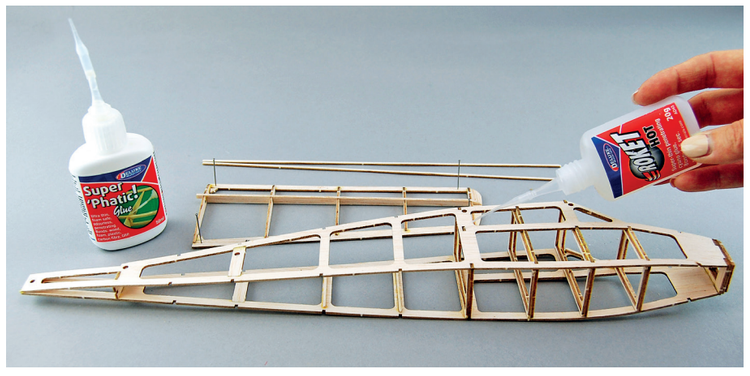
I needed to select a tissue which would take printed logos and also have a good wet and dry strength. I have shown images of both wet and dry covering.

Tissue generally has a grain and holding it up to the light is usually is enough to show which way it is running. Another way is to tear a corner, and this will also show you which way the fibres run.

Tissue shrinks when it is wet and then dried. This fact is going to influence how we go about things.



Lightly sand the airframe to get a neat, bump free finish before covering.



Super'Phatic! and Roket Hot are great at getting into tight spaces and joints. Use Super'Phatic! if you are sensitive to cyanoacrylates.

Whether wet or dry, you need to use Tissue Paste to apply your tissue. Squeeze a thin bead on the outer perimeter of each section.

Dry tissue covering using Tissue Paste.

Wet tissue covering. Be prepared and get your materials ready before starting to cover.

Cellulose dopes and coatings don't always shrink tissue, but some do. In the case of cellulose, you tend to stick your tissue to the framework, either wet or dry. If you use the wet method the tissue does most of its shrinking as it dries and is usually followed by several layers of non-shrinking dope. If you dry cover then you either use steam or use a fine mist of water to shrink the tissue. If you use shrinking dope it can continue to shrink the tissue and easily introduce warps, by creating too much tension over the airframe. This is why we must always avoid joints which are in poor alignment or are too tight with each other.

Often, when flying on a damp morning with a model coated in cellulose non-shrinking dope the tissue will go baggy. Some aeromodellers use a banana oil coat to stop this happening. In my experience it only goes a little way to help and my aircraft still sag when the air is damp, or it picks up some moisture when landing in a damp field.

In any event, when we cover our models and shrink the tissue, we need to pin them down in a way which doesn't damage the tissue or structure. This is the same for Cellulose or EZE Dope.

USING EZE DOPE

Wet covering is often preferable when you have to ease the tissue around corners, at a wing tip, for instance. I generally dry cover, which may mean using a separate piece of tissue at the wing tip and another where the wing runs parallel (but not always). Whichever method you prefer the same principals apply, with a slight twist or two for wet covering;

- EZE Dope is concentrated so you get loads for your money. A single bottle should cover many small models.
- You will need some distilled or de-ionised water. Available at your local supermarket or DIY store, it is sold for steam irons etc. Or you could simply use some water cooled from a boiled kettle.
- Whether wet or dry, you need to use tissue paste to apply your tissue. I have found none better than Deluxe Products Tissue Paste. Just squeeze a thin bead on the outer perimeter of each section. If you have under cambered ribs, then you need to apply tissue paste to each of these as well.
- If you are wet covering, make a mixture of 5% EZE dope and 95% distilled water. Soak your tissue and squeeze out any excess before laying this over the area to be covered, which has already had its bead of tissue paste. Ease it out from all sides until you have no major wrinkles left. Before the area is completely dry do the same on the other side and hold it down on non-stick pads. Use whichever method you prefer; I tend to use coins of the realm, pennies for small models and 50p pieces for larger. Allow to dry completely before you release it from your flat surface.
- If dry fitting do the same but there's no need to rush; the tissue won't shrink until you apply the same 5% to 95% mix. I tend to let each side dry thoroughly before moving to the opposite side. Then allow to dry again before shrinking, pinning the part down using your preferred method until it is completely dry.
- With the dry method, I tried using a spray bottle, which worked but I found it left slight speckling. For best results I found that a very soft one-inch brush, used very lightly, gave me the best results. I also experimented using 90% distilled water and 10% EZE dope for the first shrink but found that this led to slight pooling on later coats. So, stick to what it says on the bottle - 5% EZE dope with 95% distilled water.
- Once dry - and I mean completely dry - we move on to additional coats of 30% EZE dope and 70% distilled water, again lightly applied with a soft brush. You must pin down your wings or tail at every stage. You cannot do this for the fuselage, of course, so make sure you apply the mixture over the whole fuselage every time and leave it to dry completely between coats. I found no need to add any more than two coats after the initial shrinking treatment.

Support the airframe once first doped and after every Eze Dope coat thereafter. Coins make good weights.

Painting on the Eze Dope mix with a very soft brush.

Applying tissue transfers.

Sparrowhawk parts after covering and ready to assemble.

- Using this method, I ended up with a nice, taught covered model that doesn't sag when it is damp. And my tests have shown that less weight is added to the model than when using cellulose.

One final note. EZE Dope continues to shrink the tissue as each coat is applied and dried. However, the shrinkage is slight after the initial shrinking, but do pin down the parts down each time until they are completely dry.

FINISHING THE SPARROWHAWK

Finding an adhesive that bonds a clear plastic canopy to wood and paint is important. Adding windshields has always been challenging for me, whether it be to a large R/C model or a small free flighter. The glue ends up all over your fingers and, what is worse, some ends up on the front screen as well - disaster! To cap this, it often doesn't stick properly and then flies off in flight...

If this rings a bell, then you will welcome the RC Modellers Canopy Glue and Pin Point Syringe Kit.

To use it make a thin card template for the sides and front windshield, 1mm smaller all around. Then cut out some celluloid using this template.

To use the Pin Point Syringe Kit, fill the syringe with some Canopy Glue (remove the plunger and fill with Canopy Glue, then replace the plunger) and squeeze a thin bead in the centre of the balsa frame. From here I used a small blue plastic glue spreader, which is also available from Deluxe. Make sure to leave an almost clear smear of glue.

Carefully, with clean dry fingers, place your clear panel and once you are satisfied

The Pin Point Syringe kit and RC Modellers Canopy Glue is perfect for attaching the windshield.

Pre-tensioned rubber showing just how much is needed for a 6-gram motor. Eze Wind was used as a lubricant.

PROS AND CONS

Pros of cellulose dope

- It's traditional
- Available from model shops
- If you like the smell of nail varnish...
- You can get a good finish

Cons of cellulose dope

- Has a strong smell
- Cannot be sent by post (special delivery only)
- Sags when flying and stored in damp conditions
- It's slightly heavier than Eze Dope (in my experience)

Pros of Eze Dope

- Easy and safe to use
- Available from model shops
- No smell (I do all my Eze Doping in my home workshop)
- Doesn't sag inside or out
- When applied correctly it is lighter

Cons of Eze Dope

- Needs a little practise to get perfect but use very thin, light coats
- Needs to dry completely between coats
- Must be coated on both sides at once and pinned down

that it is the correct position smooth it down softly with a dry tissue. You can use water to clean up any excess glue, if needed.

The wheels, nose block and skid were coated with two coats of 30% EZE Dope and 70% distilled water, rubbed down lightly between dry coats.

My Sparrowhawk, with its propeller, motor peg and everything, less the rubber motor, came to exactly 20 grams. I didn't count the motor, but I made this up of 6 grams of 1/8th Tan 2 rubber, pre-tensioned and treated with Deluxe Materials Easy Wind.

I am now waiting for lockdown to be eased, some good light wind and, of course, lots of Keil Kraft length grass!

KIT INFORMATION

The Sparrowhawk from the Vintage Model Company is priced at £34.99 and it can be viewed on the VMC website: **www.vintagemodelcompany.com/sparrowhawk-sports-flier.html**

Deluxe Materials products are available from all good model shops and are distributed by Ripmax. Have a look at the Deluxe Materials website and see how many glues are available for all modelling activities: **deluxematerials.co.uk**

Sparrowhawk finished and resplendent in her Deluxe Materials and Eze Dope livery. Lockdown was still in effect at the time of writing so the flying field still awaits.