

By Kenny Blalock

"A little humor never hurts! - let's have fun"

Well another year has come and gone! I have been contacted by many folks last year who were doing a recovering job on their airplane; some were first timers; and, some were old timers; or, they had done fabric covering in the past but did not remember some basic things. I decided to sit down and scratch out a few things about some basic fabric covering problems that I was asked about.

The most asked question about fabric covering an aircraft is which process should I use? I will try not to answer this question showing too much favoritism toward the Air-Tech Fabric Covering Process, because it is the only process that we use here at Special Products Aviation, even though we have used other processes.

All fabric covering process have the same basic ingredients and almost identical installation steps. The first ingredient we have to have is an approved fabric, and there is only one kind of fabric that we are all familiar with and that is DACRON fabric. There are several brands of Dacron and all are manufactured and distributed to only a few companies which in turn offer three different weights of fabric ranging from 1.4 ounce to 3.6 ounce. As far as I know there is no certified FAA/PMA approved grade A available today. The major brands of FAA/PMA approved dacron fabrics are Ceconite, Stits, and Super Flite.

The second ingredient is an adhesive. Now this is where it get a little touchy when it comes to what the FAA considers legal and not legal. Each dacron fabric covering process system owner, such as, Air-Tech, Ceconite, Stits and Super Flite for example, has designed their own attaching adhesive for the FAA approved dacron fabric. They must prove to the FAA, by actual testing in their presence, their adhesive meets the minimum FAA required breaking strength for safety and longevity as well as being able to prove to the FAA that they have the ability and facility to manufacture, produce, catalog, trace, record, lot label, can, store and maintain production consistency in accordance with a PMA, (Parts Manufacturing Authorization), as required by the Federal Aviation Regulations. In short an FAA approved fabric adhesive must meet the same approval process as an approved aircraft fastener, such as an AN bolt or AN nut, because it is a fastener also. Catch number two, be sure that this FAA approved adhesive is only used with the STC'd fabric covering process for which it is associated with. You cannot mix fabric covering processes and be legal, you must, follow the STC holders FAA approved fabric covering procedures manual unless you get an FAA field approval to deviate, and this very rarely happens. Packaged adhesives that are legal will be properly marked FAA/PMA approved, with an STC number, Part Number ###-##, Batch Number, Shelf life or use before date, and reference to an eligibility list, as well as any warnings and instructions. Be aware that there are several fabric adhesives in the market place that do not meet these guidelines. You as the end user are responsible to see that they meet the FAA requirements. One big question that always comes up, with some seasoned aircraft mechanics, I always use Mil. Spec. products when I do my fabric job! This is good because you are using products that meets a standard, but, that does not mean that these products are approved for the STC'd fabric covering process you are using. One must use the products and materials that are spelled out in the STC holders instruction manual and if

they called out using a particular Mil. Spec. product then that would be legal.--- The use of products or materials that are not approved by the STC holder for their installation and or application is considered by the FAA as an unapproved part.

I have had several conversations with mechanics about the use of fabric attaching rivets. I can buy these same rivets locally; why can't I use them? I had a complaint from a mechanic once who said his fabric was coming loose around his fabric attaching rivets and he did not know why. On close examination of his assembly we found an acceptable fabric covering job, but his fabric was pulled through around the fabric attaching rivets. After we removed several rivets and examined them, and checking with the fabric process supplier, we found out that he had purchased off the shelf big headed rivets that looked like an approved rivet, but they were concave around the edges. When pulled the outer edges of the rivet would act as a hole punch which was cutting through the reinforcement tape as well as the fabric. Remember the fabric attaching rivets used for fabric attachment has a different design than most rivets. The fabric attaching rivet spelled out in the STC holders procedure manual is the rivet to use. All fabric covering procedures manuals state you must attach the new fabric the same way it was done when the aircraft was manufactured. Now there are exceptions, in some cases the FAA will allow a field approval to be implemented to use an approved fabric rivet in place of pk screws/washer and martin clips, but it is up to the mechanic to prove to his FAA inspector that this is equal to or better than.

Fabric shrinking is virtually the same on all aircraft dacron fabric, some procedure manuals may vary a few degrees one way or the other, but they all have to be heat shrunk in accordance with the FAA approved STC holders procedures manual. Follow the directions of the manual and you can't go wrong. Shrinking the fabric properly is an age old problem because this is how the dacron fabric remains stabilized for life. Low heat shrinking leaves the fabric loose for life, or you could over heat it and the dacron fabric will go from tight to loose again and be unstable for life.

As you can see, first we have to have a fabric, next we must attach it with an adhesive and now we shrink it. All fabric covering processes are the same up to this point. Of course there is some in between knowledge we need to know such as where to apply the adhesive, how thick, what kind of adhesive reducer? What kind of brush?

I know of people who give top dollar for a fabric covering kit and then they go and buy a \$.29 cent paint brush to do the job. Get a good brush! A good brush! I prefer a 1 1/2 inch professional oil base paint brush, which will cost you about \$7 dollars give or take a buck. I have been using the same one for several fabric covering jobs.

Where do you brush foundation adhesive? Here is how I would answer that -- any place that the fabric will touch, just that simple. How thick do I mix my attaching adhesive --- about like hot pancake syrup or varnish.

Adhesive reducers are another problem area. I have people call me and say -- can I reduce my adhesive with lacquer thinner or enamel reducer cause I can get that locally? No No No --- remember here again the adhesive reducer is an FAA/PMA part also, just check out the container and consult you STC application manual and it will tell you what the part number is and mixing

ratios. Several adhesive reducers are of the MEK, (methyl Ethel keytone), base family, be sure and use caution here because MEK is hazardous to your health and causes liver problems ---- read the label. Air-Tech adhesive uses an acetone based reducer for their adhesive and acetone is an exempt solvent. All chemicals are to be used with caution and according to the label or directions. FAA/PMA approved adhesive reducers that are manufactured by the STC holder use special blends of such things as drying agents, flow inhibitors, retards and etc.. Locally bought Hardware store aquired Acetone or MEK will not give you the performance and longevity necessary to do the job correctly. These products are great for cleaning up you brushes and containers but do not use or mix them in your FAA/PMA approved adhesives.

Chemical technology has come a long way in the last 10 years. Advances in having the ability to test these chemicals make it possible for the real serious companies to continue to improve their products while other companies do not want to change from the old ways. I find it very sad that someone who is doing a complete fabric recovering of their aircraft does not properly repair or preserve the super structure to the best degree possible so it will last at least as long as the fabric covering system that they are installing. With metal and wood preservatives chemicals and products that are available in the market place today, there is no excuse not to demand the best.

Should I use a pre-sewed envelope or the blanket method? This is your judgement call because both are acceptable standards. The only reason that we have used the slip covers in the past is because our fabric only came 48" wide and we had to sew it together to have enough fabric to do the job. It is legal for the mechanic to sew up his or her own fabric, but be sure and use the correct stitching techniques and threads listed in AC 43.13. I have seen several marketed pre sewn slip covers that are not sewn up using the correct sewing techniques as required, so stay on guard for this. With the 70 fabric, that is available today, the blanket covering method is more widely used and does not leave the unsightly sewn seams that we all hated, plus it allows us to double cover the leading edges.

Check back in a couple of weeks and I will have more

Week TWO

Here comes some more

Questions about rib stitching has always been a favorite by lot of new comers and old timers alike. On my airplane I am going to use closer spacing than the factory and I am going to use the hidden rib stitch knot also. The closer spacing will be just fine if you like to rib stitch, but check out the original factory spacing and use that unless you have increased the Vne, then consult with A.C. 43.13. The hidden rib stitch knot may not be legal to use on your airplane so consult the manufactures maintenance manual and see what they say. The Staggerwing maintenance manual has a complete section on how to tie the hidden knot and it is also addressed in some of the STC holders installation manuals, so be sure that this is what you should do. I have never herd of an FAA inspector condemning anyone who tied a hidden knot. Attaching the fabric by methods other than that specified by the original aircraft manufacturer does require approval by the FAA. With modern technology and product advancements that we have today the flat pre waxed nylon or dacron rib lacing cords have been approved by the STC holders for use with their FAA approved process. Rib lacing cord falls in the category of being a fastener just like the AN bolts

and nuts that we mentioned earlier and must meet the requirements of A. C. 43.13 and be FAA/PMA approved with a part number, lot number and required dates. If you do not tie the correct legal locking rib stitch knot you may as well not use approved AN elastic or steel lock nuts on your other hardware. Proper tying of the rib stitch is designed so if any one cord breaks it will not let any of the other rib stitch knots become loose. Why do I need to put down rib stitching reinforcement tape before I rib stitch?? The reinforcement tape is to keep the fabric from tearing if for some reason some fabric came loose during flight. Rib lacing without the reinforcement tape is like a perforated piece of paper in a spiral bound notebook, once it starts tearing it just keeps on going. The question has been asked when I removed my old fabric, I noticed all the ribs were X tied with some kind of flat fabric material, what is this for?? This flat fabric material is used to keep the ribs lined up from front to rear. Years ago when grade A cotton was used the cotton was sized snugly over the assemblies to be covered, then tautening dope was applied to shrink the cotton. As the dope dried it had a tendency to pull the ribs one way or another because the cotton glued itself to the top of the ribs and they could not slide around under the cotton. Today with the modern dacron fabric this is not such an issue because as the fabric is heat shrunk properly the dacron will slide over the ribs and not have the tendency to carry the ribs with it. It is still common practice to use the rib tie to hold your ribs into place and does offer some rigidity and uniformity before the dacron is installed. Noting is more detracting than ribs that have an S look when finished. In some cases I have had to make a complete fabric bay repair and I found that the rib tie helped hold my good bays of fabric in place while the repair was being made. For all practical reasoning once the ribs have been properly rib stitched, the rib cannot move.

Which tape do you like the best, straight or pinked edge?? I like the pinked edge tape over the straight tapes because the pinked edge tape has better edge holding power than the straight tapes. If you could stretch out the edge of a pinked edge tape you would have more glue area so therefore the pinked edge tapes has better edge holding qualities because the adhesive saturated more area. Pinked edge tapes will not ravel out and they have a smooth edge, where straight tapes are heat cut and they have a hard edge. Straight tapes will give satisfactory results but pinked edge tapes hold better and just look correct, of course that is my opinion and yours may differ. While we are on the subject of tapes, I have been ask which tape works the best, light weight tapes or the standard tapes? Both works just great, the light weight tapes takes less adhesive to use and lays down much flatter. I prefer the heavier pinked edge tapes when I use the heavy weight fabric on utility type aircraft, such as ag planes, bush planes, or heavy duty operation aircraft. If you have decided to paint your aircraft, when completed using a dark color, it is highly suggested that you use the regular tapes over the light weight tapes, and preshrink your tapes with an iron to eliminate the possibility of heat absorption by the sun which may cause a slight shrinking of the tapes. All fabric covering process manuals or bulletins give written cautions about this as well as preventive measures you should take.

The following is a recap of a few things that people have called me about when they have an emergency and don't know what to do next or what to do.

I mixed up too much Air-Tech primer/filler and I don't have any thing to spray it on and I hate to dump it. I have had this happen to me when using the Air-Tech primer/filler as well as Air-Tech paint. There are two ways to keep catalyzed liquids from setting up, (1) keep it agitated or (2)

refrigerate it. Put the left over primer/filler or paint in the freezer compartment of a refrigerator or put it in a deep freeze, then when I am ready to use it stir it real well and just add a little more reducer. Do not make a habit using this tip as I have had success most of the time but after a long time the material will still set up.

I understand that there are flexing chemicals that can be added to paints to help keep them "flexible? Yes several paint companies sell a flexing additive for their paints, but when this material is used it makes the dried finish very vulnerable to scratching and with age the paint will chalk up and oxidize much quicker, if you don't use it, the dried finish becomes brittle and causes cracks when the fabric is flexed. Air-Tech Coatings, inc. is the only company, that I know of, that manufactures flexible paints and primers requiring no flexatives.

I can see light through my Air-Tech primer/filler/uv and it is not silver like other primer fillers? There are two ways to take care of the ultra violet light problem, one is to reflect it and this is why you remember seeing fabric covered components silver in color, the silver would reflect the sun light. The second way to take care of the ultra violet problem is to block it. To give you an example --- when you apply a sun blocker on your body it is not silver, but you could also spray or paint your body silver and do the same thing --- which would you do? Ultra violet was a big problem when we used grade A cotton, but synthetic dacron fabrics are much more stable when subjected to the ultra violet rays of the sun and is not near the issue as it use to be.

Is there a chemical adhesive product that will permanently stick to dacron fabric? No nothing actually sticks to dacron fabric, some products adhere to dacron better than others and that is why your major fabric coating STC holders have put so much research into their products. Dacron peel-ply is used in the fiberglass airplane building process to wick and shape out with epoxies and when the epoxy is cured you just peel it off, so as you can see epoxy adhesives will not stick to it.

FUNNY – Phone Call --I painted my wing three days ago and it is not dry yet!! answer -How much catalyst did you add to the paint?. BYE.

The company that cuts my N numbers using the exterior peel and stick plastic lettering do not have the color I want, where can I find the color I need?? The lettering company can supply you peel and stick product that you can paint. We just get 3 or 4 foot of this material and paint it as we are doing our painting, then we return it to them, and they cut out what ever lettering we need, now you have the exact color.

I can't get my masking tape to stick to my paint very well and I have bought good tape? Two part polyurethane paints have a tendency as they are curing to have a slight boil off oily residue and you will need to wipe this invisible residue off with alcohol.

Week 3

So here goes

My acetate inspection rings appears to have shrunk and the edges rolled up what happened? You used too much adhesive and you used it too thin, as the adhesive reducer attacked the acetate and caused it to go limp and stay soft too long and when the adhesive dried it caused the acetate

inspection ring to roll up around the edges. Brush two coats of thinned adhesive in the area you want the inspection rings installed, then apply a good brush coat of adhesive on the down side of the acetate reinforcement ring and lay it into place. Using the plastic top from a one gallon coffee can I mark out my round fabric covers for my inspection rings, then I apply another coat of adhesive over the ring and fabric area and lay the round fabric cover into place and brush on another coat of adhesive and remove all air bubbles. After this dries apply another coat of thinned adhesive. I suggest using several coats of over thinned adhesive verses a couple of coats of thick adhesive, as this eliminates brush marking when dry.

Here is a trick to sharpen you scissors ---- use a glass coke bottle and act as if you are trying to cut the top off the coke bottle with the scissors ---- this will reshape the cutting edges of the scissors ---- give this a try and you will find that it sure does help. There are special scissors for cutting Dacron material and they have a different angle cut on the scissor blades, but they are expensive also. Also it helps to clean the glue off the scissors from time to time.

Tip !!! With a good foundation of adhesive on the assembly you are going to cover, lay out you dacron on the assembly and then using straight Air-Tech adhesive REDUCER and a clean cloth and dampen just the edges you want glued down ----- this will cause the dacron to adhere to the assembly and not move around as you size it, or hold it so you can turn it over..

Tip !!! Don't throw away that dried Air-Tech Adhesive that has attached itself to the plastic container you are using. ----- peel it off the container and put it into a fresh container with some straight Air-Tech Reducer and the next day it will be dissolve and you are ready to use it again. (CHEAP Skate TRICK)

Tip !!!! Make your own bias tape ----- lay out a piece of fabric and mark and cut out your tape at a 45 degree angle to the weave.

Tip !!! Make your own rib lacing needles using a 1/16" welding rod. Just hammer a flat spot on one end and drill it and sharpen the other end ----- This is a throw away model---

NO ! NO ! Ball point ink pens. Lead pencil only.

Tip !!! Keep a roll of wax paper around for laying over glued on reinforcements that refuses to lay down, then stack some weight on top of the wax paper and let it dry.

Tip !!! Keep a cheap pencil point soldering iron around to burn you drain grommet holes with, or use a high speed dremil and a small pointed rock grinder or do both. I like to melt the raw edges of the dacron hole to element fuzzing.

"Question" How big do I need to make my drain holes ?

"Answer" Kill a Dirt Dobber, (a spieces that lives in your area --- some areas have smaller or larger ones) then using a micrometer measure his head and make you drain hole is aproximately .003 thousands smaller. If he can't get his head in then he can't get in. (How is that for being technical)!!

Tip !!! If you are not sure where to locate the inspection rings on a wing ---- cover the bottom first using the blanket method and then turn you wing over and looking through the uncovered side you can locate all your areas that may need to have an inspection ring installed. Remember it is better to have an inspection ring and not use it, than later need it and not have it.

I Got more so check in next week!
Send me your comments

Dark Colored Aircraft

When applying surface tapes to your aircraft you should be aware that all tapes are supplied in a virgin or unshrunk condition. This normally presents no problems when covering as the temperatures encountered by a finished aircraft are less than that required to cause the fabric tapes to shrink, there is, however, an exception to this rule. Dark colored surfaces in direct sunlight can experience temperatures of 240 F or 115 C!! For this reason we do not recommend dark colors ie., black, dark blue, dark green as a base color coat on, fabric aircraft.

Keep in mind when a dark color is chosen for the final aircraft finish the temperatures the surface can reach are above the minimum shrinking temperature of the fabric tapes. This will induce thermal stress in the taped areas as the tape is trying to shrink but the glue is keeping it from it. The situation is more often noticed when the light weight (1.7 oz) tapes are used. It becomes a Struggle between the glue strength and the stresses in the tape. If the gluing job is a good one no problem will result. On the other hand if the glue job on the tapes is marginal the tapes in fact may shrink a little and expose a white line along one edge or the other. If this happens one can normally just iron the tapes and ensure the glue joint is good and then repaint the area. The worst case would be to replace the tapes and repaint. To avoid this problem it would be wise to preshrink the tapes by ironing them at a temperature above anything to be encountered in the environment, say 250 F, This will preshrink them and eliminate any possibility of later shrinking after the job is done. It is only necessary to do this to tapes which will be exposed to direct solar radiation ie. tops of wings, etc. Other tapes which are on the underside of the aircraft will see no excessive temperatures. If you do use a dark base color use only Regular weight (2.7 oz) tapes not the light weight variety. If you have any questions on this or any other aspect of the fabric covering process please call us at 1-800-325-1650.

TECHNICAL ARTICLES

FABRIC COVERING TECHNIQUES

My name is Kenny Blalock and I am the owner of SPECIAL PRODUCTS AVIATION INC. We are a CLASS I F.A.A. Repair Station, SPDR118K, and we are located in Conway, Arkansas, and one of the very few full fabric aircraft rebuilding facilities left in the USA..

I was asked by several Short Wing Piper aircraft owners to put out some information about the AIR-TECH fabric covering process and share some thoughts about just what is out there and my feelings on other fabric covering systems, so I decided to include parts of the article I wrote for the "CUB CLUES", published in the September 1997 newsletter.

So far this year Special Products Aviation, Inc. has installed over 1000 yards of fabric. We at

Special Products Aviation only install the Air Tech fabric covering system on all aircraft, standard, restricted and experimental category. So far we have refurbished over 38 Piper Cubs, Super Cubs, and Pacer mixes within the last nine years, not including other fabric covered aircraft and or components. We at Special Products Aviation recover and refurbish fabric covered aircraft for our living and if it were not for Air Tech Coatings, Inc. we would not be in business today making a profit. The Air Tech fabric covering system has allowed us to refurbish a fabric covered aircraft with a labor savings to the customer.

Grant you the old Butyrate fabric covering system has serviced the aircraft industry well but it does not fit the demands of the customer today. I know Mr. Piper never intended for some of the aircraft to even be around today, but they are and the customer peer pressure demands a better looking and longer lasting fabric covered aircraft that the factory built aircraft in their day and technology.

The AIR-TECH covering process is not new, it has been in use for over 15 years and has proved that modern chemical technology can produce a good looking, flexible easy to apply pure polyurethane system that exceeds the FAA requirements of a fabric covering system for use on production built aircraft. It is a fact that nothing will adhere to dacron fabric, so with that known fact the next best thing is to design a product that will give you the best adhesion possible using present day affordable chemicals. This is what AIR-TECH did with the close eye of the FAA looking on. First, all fabric systems must have an attaching adhesive, so adhesive experts were called on to work with Air Tech to invent an adhesive concentrate that was affordable and could be reduced using reducers that were user friendly, unlike others that use MEK based reducers. AIR-TECH UA-55 adhesive comes as a concentrate and is reduced in varying ratios depending on where it is applied. The UA 55 adhesive is also used to apply all surfacing tapes, grommets, and reinforcements, (pinked edge tapes is all we use) Also it is clear and does not leave that pink rusty look when viewed from the inside. Once dry the adhesive can be thermally softened with a small iron in order to further smooth out the pinked tape edge areas. AIR-TECH had to prove to the FAA that this adhesive would meet the required pull test no matter what the fabric used; over 600 different pull tests ranging from zero degrees to 120 degrees fahrenheit using every FAA approved fabric and every weight of fabric and grade A cotton. A comparison was made to all the current FAA approved adhesives. The Air Tech adhesive registered no premature failures; in fact in all cases the fabric failed before the glued joint. The AIR-TECH UA-55 passed all 1/8 inch mandrel flex tests at or below zero degrees where others failed. The services of an FAA certified aircraft fabric burn station were acquired and it was found that on a horizontal burn test only the Air Tech system and the Stitts would not support combustion. Boy did the nitrate/butyrate go up in flames. With all these tests completed the FAA awarded Air Tech an STC and PMA(parts manufacturing authorization). This means we have a product that is the same each and every time we use it. It becomes a certified aircraft part with traceability.

AIR-TECH flexible primer/filler/UV barrier is the fabric coverer's dream. Just mix and spray, no brushing, three double cross coats and if you like what you see paint it using Air Tech flexible

polyurethane color of your choice, or sand wet or dry to the perfection or look you want. Here again the FAA had to put their stamp of approval on the Air Tech primer/filler/UV barrier. Knowing all fabric coatings must fill the weave and give UV protection as well as produce a surface to accept paint and still remain flexible through the temperature extremes, with superior adhesion, and not support combustion, Air Tech embarked on a development project. With these demands in hand Air Tech developed the products with the help of Dupont, 3M, PPG Industrial and others. Adhesion of the Air Tech primer is gained by using its catalyzation -- once mixed, the material is sprayed on the virgin dacron, all three cross coats one after the other allowing flash time only between coats. The primer soaks into the dacron and cures giving adhesion not matched by any other chemical. The ultraviolet protection is already incorporated into the primer/filler and works on the modern technology to UV blockers and light stabilizers unlike the silver dopes which use the reflection principle. The flexing agents are also built into the primer/filler/UV - the flexing ability comes from the same chemicals used in patent leather, etc. The fillers are of high solids and low VOC to keep the EPA happy, and the fire blocker chemicals make the dried primer filler unable to support combustion.

With the primer filler perfected the FAA was notified and testing began. It was proved to the FAA that just one double cross coat of the Air Tech primer/filler/UV blocker gave more than the required UV protection. It was also proved that the cured P/F/UV will not support fungus and mold growth on the inside of the covered components. This does frequently happen when using butyrate/nitrate chemicals. Material adhesion to dacron was tested by using a comparison with other fillers and a tape snatch test. It was found the Air Tech primer/filler/UV almost impossible to remove from the dacron, unlike the full saturated silver primer/fillers in present use, Butyrate being the poorest adhesion of all. Doing a certified horizontal burn test of the cured Air Tech primer/filler/UV it would not support combustion, where butyrate and nitrate filler/UV flashed and burned instantly. Test spraying under high humidity it was proved to the FAA that only the Air Tech primer/filler would not blush. All other fabric primer/fillers depended on external added chemicals to reduce blushing. Here again this tells us at Special Products we can use this product year round under any conditions. In fact, we welcome a rainy day to help hold dust down. Next we had to know how flexible the Air Tech product was with age. It was proven after artificially aging the samples of Air Tech and other processes that only Air Tech would pass the mandrel flex tests after an equivalent of 15 year aging, cold or hot. The FAA issued to Air Tech a PMA making this product a certified aircraft part.

Painting is so easy, Air Tech flexible polyurethane is the answer, just mix according to the directions and spray two coats of flexible color using normal spraying techniques and you will have a flexible, chemical resistant, and wet looking aircraft that all my customers demand and like. The pigments in the Air Tech colors are high hiding and there is no need for multiple coats beyond the two recommended. All the paints are non-bleeders. Air Tech paints once cured will not support combustion due to their chemical makeup. No more sheet metal or fiberglass color mismatch to fabric color. The flexible Air Tech polyurethane color is used on all parts; you get

the same color and wet look. If the high gloss wet look is not what you are looking for Air Tech has a flattening agent to hold down the shine like the sheen on an old warbird. Air Tech flexible polyurethane can be buffed if you do it within 12 to 20 hours after application, but after that it is too tough for buffing.

I know what everyone says about patching - so easy - repairs are made on top of the Air Tech finish, there is no need to remove it down to the fabric, just lightly sand around the hole, glue on a repair patch using UA 55 adhesive, brush prime using the Air Tech primer/filler, feather edge sand and spot paint. We at Special Products have made many repairs to damaged fabric and they cannot be found by most people. This comes with years of experience, of course.

Mr. Piper did not make his aircraft this shiny but he did not have the technology in those days as we do now, but I bet if he did he could have set himself apart from all else and be proud. Here again labor saving with a great look and longevity is what has kept us so busy for the past 20 years here at Special Products Aviation. The use of automotive urethanes and polyurethane enamels should be outlawed, they have caused a lot of problems also. I have had many people who paint tell us that they added a flex agent to their enamel or polyurethane, but what they do not realize is that this gives only short lived flexibility which bakes out with age and is really vulnerable to surface scratching for the rest of its life.

I am a stickler on surface tapes also, but with the Air Tech adhesive and the Air Tech primer/filler I get that edge you would like also with very little labor. About the Stits silver, the customer would go broke buying chemicals and paying labor to get the base fabric and taped out areas correct prior to paint, but with the Air Tech system fabric installation time through primer filler is almost cut in half compared to the Stits process, this means quite a number of manhours saved for the customer, plus I did not have to pick my spraying weather conditions and got a smoother virtually non-sanding paint surface.

The Blue River process, I agree, I don't seen how it was ever approved, Air Tech told us that when they were doing their comparison testing the Blue River was dropped off the list because they could not even make good test samples for comparison. Piper Aircraft did cover several production Super Cubs with Blue River and we at Special Products did several contract redos for them using Air Tech. I could not believe my eyes when we removed the Blue River process. Just a little trivia here -- Piper elected the Air Tech covering process on the last 100 Super Cubs that were produced at Vero Beach and the Air Tech covering process is listed on the Type Certificate Data Sheet as the factory approved process, so if they go back into production the Air Tech covering process will be the factory choice.

I have seen some terrible cracking problems on Ag aircraft and others, because automotive enamel and polyurethane was sprayed over butyrate finish trying to get that chemical resistance

or wet look. They got terrible cracking instead. As everyone should know the cosmetic finish coats on any fabric covering process is not part of the approved fabric covering process, but one should use a topcoat made for fabric also. Just another work of trivia here - the Air Tech fabric covering process is the only process approved in Canada for restricted category aircraft.

I have seen many butyrate covering jobs that have cracked or peeled and many that have not, but close examination of the ones that have cracked or peeled revealed one most important characteristic that is common to most cracking or peeling problems and that is material buildup. Material buildup is the evil of a fabric covering job no matter what system is used, so beware of stacking up material as it also gains weight and will not give you the full life you expect. I feel that all standard category aircraft should be recovered every 20 years and all restricted and acrobatic category or working aircraft should be recovered every 10 years, not because of the fabric deterioration but because of the needed structural upkeep inside of the aircraft.

I hope all of this is of some use to everyone and just remember that is why there is vanilla and chocolate and if your system works for you and you are making money, saving time, enjoy sanding, waiting for the correct weather conditions and your customer is happy don't change - keep up the good work.

I will be glad to share with anyone ideas and thoughts in making any fabric covering system better and I can truly accept constructive suggestions -- Give me a call, I like new ideas and helpful hints also.

KENNY BLALOCK

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