

# SERVICE

# MEMO

650811

Service Memo No. 76

## SUGGESTED REFINISHING PROCEDURE FOR SYNTHETIC FIBERS, DACRON, ETC.

(As recommended by Randolph Products Company, Carlstadt, New Jersey)

There have been many experiments in recent years using different types of aircraft covering. One of the more popular is cloth manufactured from dacron fibers. These fibers are very smooth and present a challenge to the finishing operator as far as adhesion of the finishing film to the dacron is concerned. We believe that the procedure outlined below is the most practical as well as economical to use.

The tautening of this dacron fabric is controlled by the individual operator with some source of heat. Caution is advised that locally over-heating and fusing of the fibers does not occur. Randolph Clear Nitrate Dope #210 has produced satisfactory adhesion to dacron fibers. This adhesion is primarily one of mechanical bond (Nitrate film completely wraps around each individual strand of fiber). To accomplish this we suggest that--

- Step #1 - Prime all metal surfaces with Randolph Epibond Primer W-2248 (instructions for use on each can label). Allow the Epibond Primer to dry for 48 hours. With this length of drying time the Epibond becomes impervious to the softening action of the dope solvents.
- Step #2 - The fabric may be attached to the surface by brushing several coats of lacquer cement AN-C-121 Randolph #F-8294 on all of the structural members that will be used as fabric anchoring areas (longerons, leading and trailing edges of wings, control surfaces, etc.). After this adhesive has dried the fabric may be attached by brushing another coat of adhesive on the structural member and place the fabric in position.
- Step #3 - The supplier of the dacron fabric has already issued instructions as to the tautening procedure. As this is a heat conditioning, we suggest that you follow the instructions as given by the supplier of the fabric.
- Step #4 - After the fabric has been tautened by the heat we suggest that you brush one coat Randolph Nitrate Dope #210 thinned approximately 25% with Randolph Nitrate Thinner #286. Be sure that adequate penetration is accomplished.
- Step #5 - Allow this penetrating coat to thoroughly dry. Two hours or more is usually required. Then brush a second coat as heavily bodied as can be conveniently worked with a brush without pulling or roping.

Step #6 - Use Nitrate Tinted Build Up Coat as manufactured by Randolph #W-7868 which formulation has a slight increase in plasticizer over the clear nitrate dope and hence will not continue to tauten the covering excessively. The build up coat may be either brush applied or spray applied. However, a longer drying time between coats is recommended.

Step #7 - Spray one cross coat of aluminum nitrate dope. Allow to dry. Then wet sand to desired smoothness. Allow surface to completely dry and remove sanding dust before applying the final 2 or 3 coats of colored nitrate dope.

An alternate procedure is to follow Step #1 to Step #5 as outlined above and then proceed as follows--

Alternate Step #6 - Use Butyrate Tinted Build Up Coat as manufactured by Randolph Products #W-8350. This formulation has a slight increase in plasticizer over the clear butyrate dope and hence will not continue to tauten the covering excessively. The build up coat may be either brush applied or spray applied. However, a longer drying time between each coat is recommended.

Alternate Step #7 - Spray one cross coat of Butyrate Aluminum Dope. Allow to dry then wet sand to desired smoothness. Allow surface to completely dry and remove all sanding dust before applying the final two or three coats of colored butyrate dope.

#### SUGGESTIONS WHEN WORKING WITH FIBERGLASS AS A COVERING MATERIAL FOR AIRCRAFT STRUCTURES

In recent years a large number of aircraft have been recovered using various brands of fiberglass cloth. Some have been pretreated with a butyrate material others have not.

The threads forming the cloth in fiberglass fabric are easily disturbed by pulling or in general rather mild handling. Hence, the attaching procedure has been modified by a number of recovering operators and we offer the following procedure--

Step #1 - Prime all metal surfaces with Randolph Epibond Primer W-2248 (instructions for use on each can label). Allow the Epibond Primer to dry for 48 hours. With this length of drying time the Epibond becomes impervious to the softening action of the dope solvents.

Step #2 - Brush several coats of full bodied Clear Nitrate Dope (Randolph #210) on all of the structural members that will be used as fabric anchoring points (Longerons, leading and trailing edges of wings, control surfaces, etc.). After this multiple coating of Clear Nitrate Dope has dried, attach the fiberglass to the surface. Clear Butyrate Dope may be used as the adhesive agent.

- Step #3 - Wherever there is a seam or lap joint required do not brush the dope on the fiberglass surface, use a spray gun to apply the dope film. This reduces the tendency to distort and pull the fiberglass strands out of shape (once they are distorted it is almost impossible to remove the wrinkle or other distortion).
- Step #4 - As fiberglass is rather porous it will take more dope to fill than the cotton or linen cloth. It is suggested that the first four coats of Butyrate Dope be sprayed on the newly attached fiberglass (brushing tends to distort the fiberglass weave). After the fourth coat has thoroughly dried several more coats may be brushed full body. These brush coats are normally considered build up coats and a number of operators have incorporated 1 oz. by weight of Aluminum Powder to a gallon of clear unthinned butyrate dope.
- Step #5 - Allow the final brush coats to thoroughly dry, sand to the desired smoothness, remove all sanding dust (if wet sanded be sure all moisture has been removed) and finish off with two or three coats of the desired color in Randolph All Purpose Butyrate Dope.

An alternate procedure after the fourth spray coat (see Step #4) has thoroughly dried--

Apply several coats of Randolph Tinted Butyrate Build Up Coat W-2283. (At your discretion 1 oz. by weight of Aluminum Powder may be added to each gallon of Build Up during this operation.)

The above procedure eliminates the necessity of several intermediate coats of aluminum butyrate. Sand as required. After the desired build up has been reached (this is an individual choice) we suggest two or three coats of butyrate colored dope be sprayed on the surface.