BRITISH GLIDING ASSOCIATION

TECHNICAL NEWS SHEET 11/12/76 - The last of the old year!

1. AIRWORTHINESS 'AGGRO'.

All items have been added to 1977 list.

1.1 V.T.C. - Cirrus (Flutter).

The B.G.A. issued a notice to owners 22nd July, 1976 reducing the Vne in response to an A.D. transmitted by C.A.A, from Yugoslavia. Subsequent investigations through Schemp-Hirth and Southern Sailplanes (R. Jones) indicate that two fatal accidents due to flutter, prompted the issue of the Yugoslavian A.D. Therefore, until further notice, or the embodiment of manufacturer's modifications:

a) the restricted Vne of 90 knots remains, and is to be placarded, and

b) inspections for excessive backlash are to be implemented as per attached notice from Southern Sailplanes.

1.2 Oly 2. Rudder hinge failure.

A case has been reported of the fracture of the lower hinge of an Oly 2, resulting in separation of the Rudder from the glider, on the ground.

1.3 Bendix Impulse Magneto Couplings.

On S.4, D.4, S.6, and D.6 Series Magnetos.

C.S.E. (Aircraft Services) Bulletin 2/76 reports in-flight failures, resulting in the destruction of the magneto drive-gear, on certain engine installations. Excessive wear around the axle holes in the fly weights may permit the fly-weight to pass the stop and jamb the magneto solid! The security of the washers peaned over the ends of the axles, should also be checked for security, by application of a moderate turning force with a pair of pliers.

Ref: C.S.E. Aviation Service Depot, Kidlington 4321.
Telex 83204.

Malfunction of Impulse Couplings on Bendix Magnetos - Independent of the above problem, these couplings may become magnetised, and fail to operate in the 'impulse' mode.

1.4 Pilatus B.4 Rudder Cables.

Can escape from 'key-hole' type fibre-fairleads under the floor, and then cut their way through structure. (P. Fletcher).

1.5 Scheibe SF25A/B.

Contamination of fuel tanks by sealants from the filler neck - LBA AD/76-297. Inspect for and remove contamination from fuel tanks.

1.6 Pirat Tailplane.

Shrinkage cracks in tailplane spar at location of fin attachment slot. (Eric Rolfe).

2. GENERAL MATTERS.

2.1 Foreign Objects in the Works.

Eric Rolfe has extracted a mangled coin of the realm from a Cirrus Tow-Hook. Besides being a federal offence, you may damage yourself and your glider, and be out of pocket in more ways than one!

2.2 Ceconite - Application.

The enclosed Ceconite Technical Bulletin, from R. F. Saywell of Shoreham Airport, Shoreham, Sussex, may be of interest. Piper aircraft also issue service letter No 608 (Tech. Library C.S.E. Oxford Airport, Kidlington). Hawker-Siddeley Aviation have also issued a Technical News-sheet on the application to Chipmunk aircraft.

2.3 Tow-Hook Installations - damage by overloading.

B.G.A. Safety Committee report two recent cases of damage due to overloading of glider tow hook installations. Weak links not exceeding 1000lbs are required in tow-ropes.

2.4 Conspicuity - Paint Schemes.

a) Gliders - Please refer to TNS 5/76 for paint schemes for gliders.

b) Propellers - The enclosed extract from Institute of Aviation Report Do. No. 2458/4 should be implemented on the front face of propellers on tugs and motor gliders. Alternatively, the spinner should be painted half black and half white (Glossy).

Please encourage Clubs/Owners/Operators to adopt these Safety Precautions.

2.5 B.G.A. Inspector Renewal Fees - due October, 1976.

This is the final reminder please, to all who have not responded to the reminder issued in TNS 10/76, and the subsequent Renewal Notice posted to each Registered Inspector.

Renewal Fee	£6.00.
52 CAIP Leaflets	£5.20.
Standard Repairs	£2.25.
Powerline Level Indicator	£2.50.

The 1977 list of Registered Inspectors is now being compiled for publication, and C of A renewals will not be accepted from those who fail to re-register by December, 1976. Technical News-sheets and the Mandatory Inspection Summary will not be mailed to unregistered Inspectors in 1977.

FINALLY - From the Technical Committee and C.T.O. a Happy Xmas and many thanks for contributing to the continued success of the largest private airworthiness operation in the WORLD!

DICK STRATTON.
Chief Technical Officer.

TNS 11/12/76.

PLEASE COMPLETE AND RETURN TO DICK STRATTON AT THE B.G.A. OFFICE.

B.G.A. A.G.M. PARTY AND CONFERENCE Long Mynd Hotel, Saturday, March, 12th, 1976.

The Technical Committee hope to integrate some form of technical symposium into the above event, in order to economise in transport, accommodation, and over-head expences.

Please indicate below, your wish to attend the above, and the subjects you would prefer to discuss:

1) G.R.P. Structures - Structural integrity inspections and repair. _____

2) Motor Glider Maintenance - Engines and Propellers. _____

3) D.I.Y. Kit Building - Supervision. _____

4) Tug Management and Maintenance. _____

5) Any other related subject.

NAME _____

ADDRESS _____

_____

_____

CLUB _____

NUMBER OF PERSONS ATTENDING _____

N.B. If you require accommodation or dance tickets etc. please apply separately to the organiser as advertised in the December issue of S & G.

Airworthiness Directive

76-297 Scheibe

Date of issue
November 10, 1976

Affected powered gliders:
SF 25A "Motorfalke"
all serial numbers and
SF 25B "Falke", serial numbers 4601 thru 4645.
(German Type Certificate no.653).

Affected:
Filler socket.

Reason:
Adhesive used as sealant between filler socket flange and tank may form a bulge when applied in excess. During refuelling, this bulge may get knocked off, fall into the tank and block the fuel lines.

Action and compliance:
The following must be accomplished prior to 1 March 1977:

1. Remove the fuel tank.
2. Check the inside of the filler socket for residual adhesive. If such residues are found they must be removed.
3. Pinse the tank with fuel.
4. Use a small mirror to check wheter the tank is clean.
5. Blow out the fuel lines so as to be sure that all dirt is removed. On this occasion, inspect the fuel lines for ageing and other damage.
6. Clean the fuel filter.
7. Reinstall the fuel tank and connect all lines.

In the SF 25B the transparent fuel indicator hose must be replaced. Proceed as outlined in Technical Note 653-1/76 (German Airworthiness Directive no. 76-40).

Technical information of the manufacturer:
Scheibe Technical Note no. 653-6/76 which becomes herewith part of this Airworthiness Directive.

Accomplishment and log book entry:
Action to be accomplished by an approved repair station and to be entered and certificated in the glider's log.

CECONITE TECHNICAL BULLETIN. (R.F. Saywell - Shoreham Report)

APPLICATION OF FABRIC TO AIR FRAME.

The method of attaching Ceconite to the Air Frame and the subsequent heat shrinkage is spelled out in Ceconite Procedure Manual # 101. However, the following is a more complete and detailed explanation. provided by a well experienced Ceconite customer and promoter.*

Before attempting to shrink a cover, take a scrap piece of Ceconite and tack it over frame or over a board. Tack, staple or cement all four sides. Use a home type electric iron with adjustable heat settings. Voltage varies with different locations and different irons are calibrated differently so select the lowest heat setting on your iron that will shrink the fabric. The lowest heat gives you more time to work. Too much heat will make your work too fast and can also burn a hole in the fabric.

Try a setting just below "wool", let the iron heat up and run it over the sample as if you were ironing a shirt. If it does not shrink move the setting up toward wool until you reach the setting where shrinking begins and use that setting. You can tell if the iron is too hot; it will begin to drag or stick on the fabric before it burns the fabric.

After you shrink the sample and get the feel of it take the point of your iron and touch the wrinkles, creases or puckers at the sides and corners and learn how to remove them. You are now ready to go to work but remember these principles. Ceconite will shrink as long as you leave the iron on it so don't fool around. Pass the iron briskly across the fabric and keep moving. Ceconite cannot be loosened up once it is shrunk unless you open a seam so be careful not to over tauten.

Apply the sheet or slip cover the same degree of slack as you would with grade A cotton or linen. That is, not baggy, not tight, just snug, but slightly on the loose side. This is not critical with Ceconite as it will draw up perfectly no matter how baggy the fabric is, however, a very loose fit will distort somewhat as it draws up and will result in the sewn seams being a little wavey instead of being straight. This will not hurt anything but won't look professional. Be sure your iron is set on the proper heat setting and give the entire surface a fast light pass, top and bottom. Don't try to do all the shrinking on the first pass. Bring the cover up to a point where the looseness is out of it but still not up to final tautness. At this point, remove creases and puckers. To avoid applying unnecessary heat on a light airplane frame (Cub or Aeronca, etc.) just run lightly the point of the iron or the edge of the iron over the crease or pucker and it will disappear without heating the fabric with the entire flat surface of the iron. Remember, the fabric shrinks only where the iron touches it. Bend down and sight across the fabric surface to see fine hair like creases and remove them as described above. Dope will not appreciably shrink Ceconite, therefore all imperfections should be removed before doping if you want to achieve a perfect professional looking job. Dope does have a slightly tautning effect on Ceconite, therefore if you are in doubt with regard to how tight, leave on the loose side or use non tautning dope porducts.

STEP 3 -

Accomplish necessary rib stitching and apply tapes and grommets. Tapes should be applied with nitrate dope over the nitrate base coat. To insure surface tapes that lie down and stay in place pre doped Ceconite surface tapes are recommended and the use of one quart of Super Seam to each gallon of nitrate dope is suggested. Rib Lacing Cord (D-693) is a necessity per Procedure Manual # 101.

STEP 4 - BUILD UP COATS.

Apply three to four coats of clear butyrate dope. The build up coats can be either sprayed or brushed. If brushing is desirable an easy brushing consistancy is recommended and brush coats should be alternated at right angles to insure uniformity. In general more coats of thinner dope provide a more durable finish than fewer coats of a heavy or unthinned dope.

STEP 5 - (Optional)

Ceconite is a smooth continuous filament fabric and therefore does not require sanding as does cotton, due to its characteristic of having a raising nap, which has to be removed through sanding. However, if cotton surfacing tape is used, or for some reason unwanted particles of dirt or dust, etc., appear in the build up coat, you may wish to sand lightly with # 320 wet or dry sand paper. It is important to make sure the surface is completely free of sandings before proceeding with Step 6. A method to insure a uniform sanding to the entire Aircraft is to apply one coat of aluminum dope and remove entirely with # 240 sand paper. Under normal conditions Step 5 is certainly optional and should be used moderately if not eliminated.

STEP 6 - ALUMINUM COATS.

Apply two to three spray or brush coats of aluminum dope over butyrate build up coats. The application of the aluminum dope coats will make the surface opaque to light. It will also give more depth to the color coat. The proper formulation for aluminum dope is 3 - 4 ounces (maximum) aluminum powder per gallon butyrate dope thinned to a proper brushing or spraying consistancy.

STEP 7 - COLOR COAT.

Three color coats are generally required. Gloss can be enhanced by adding 30 % butyrate retarder to the last pigmented color coat.

Enamel paint color coats have been used on Ceconite with a great deal of success. If a painted, rather than a pigmented, finish is desired normal methods of priming and painting should be used. It should be noted that there is no way of removing a painted surface without damaging the dope film and possibly the fabric. It is therefore impossible to rejuvenate and difficult to repair if necessary.

It should be noted slight variations to the above mentioned have been used quite satisfactorily. There is apparently a degree of latitude which can be used in applying dope to Ceconite or to any other fabric for that matter. After a great deal of research and practical experience the above was derived. We at Ceconite can insure the most satisfactory fabric and finish available to the Aircraft owner. If the above recommendations are followed.

CECONITE TECH[illegible] BULLETIN.

CECONITE FINISH PROCEDURE.

The method used for finishing Cecc[illegible]e is essentially the same as that used for the application of finish to grade A cotton or linen. Ceconite is, however, a man made synthetic fiber, whereas grade A cotton is a natural fiber. Ceconite fabric is made up of yarns which in turn are made up of strong continuous filaments. Cotton or linen yarns are made of short filaments which have been spun together to produce a continuous yarn. As a result Ceconite has no natural nap and thus it is essential to penetrate the Ceconite filaments thoroughly with dope to assure a good mechanical lock between fabric and finish.

It is a recognized fact that nitrate dope has better adhesion properties to fabric than butyrates. It is further understood that butyrate dopes are more durable having better flexibility and weathering properties. In addition butyrate is more desirable from a standpoint of flamability.

Based on the above mentioned facts the following is an incorporation of Ceconite finishing techniques with the accepted standard fabric dope process.

STEP 1.

Make sure temperature and humidity are condusive to proper application, Ideal temperature range is between 75° to 80°F, desirable humidity 45°/o to 50 °/o . It is also important that the temperature of the dope be close to the same as that of the dope room. A general clean condition must exist, i.e. free from dust, dirt, etc.

STEP 2 - PRIME COAT.

Apply first coat of dope using s semi rigid bristle brush, Make sure there is a thorough dope penetration of the fabric. Nitrate dope, depending on its initial consistancy is thinned 30 °/o to 50 °/o with nitrate thinner. For adhesion assurance a quart of Super Seam Cement added to each one gallon of nitrate is recommended on the prime coat. Prime coat dope should be of a good brushing consistancy and should not be of a viscosity to enable it to flow through the fabric on the reverse fabric's interior, thus causing spots. Before application of base coat make sure prime coat is thoroughly dry. Normal drying time will range between 30 minutes to one hour. Again, I would like to emphasize the importance of working the prime coat into the fabric to insure adhesion.

BASE COATS.

Apply two base coats over the prime coat, using nitrate dope of the same consistancy as that of the prime coat. The base coat should be brushed on the fabric. If good penetration is achieved on the prime coat, base coats do not have to be worked in to the fabric. The secondbase coat, along with all consecutive dope coats, should be brushed on rather than worked in. Here again, it is important to allow the previous coats of dope to dry thoroughly before any additional dope application.

Southern Sailplanes

(R. JONES)

MEMBURY AIRFIELD, LAMBOURN, BERKS.

Telephone: Lambourn (0488) 71774 VAT Reg. No. 199 6791 79

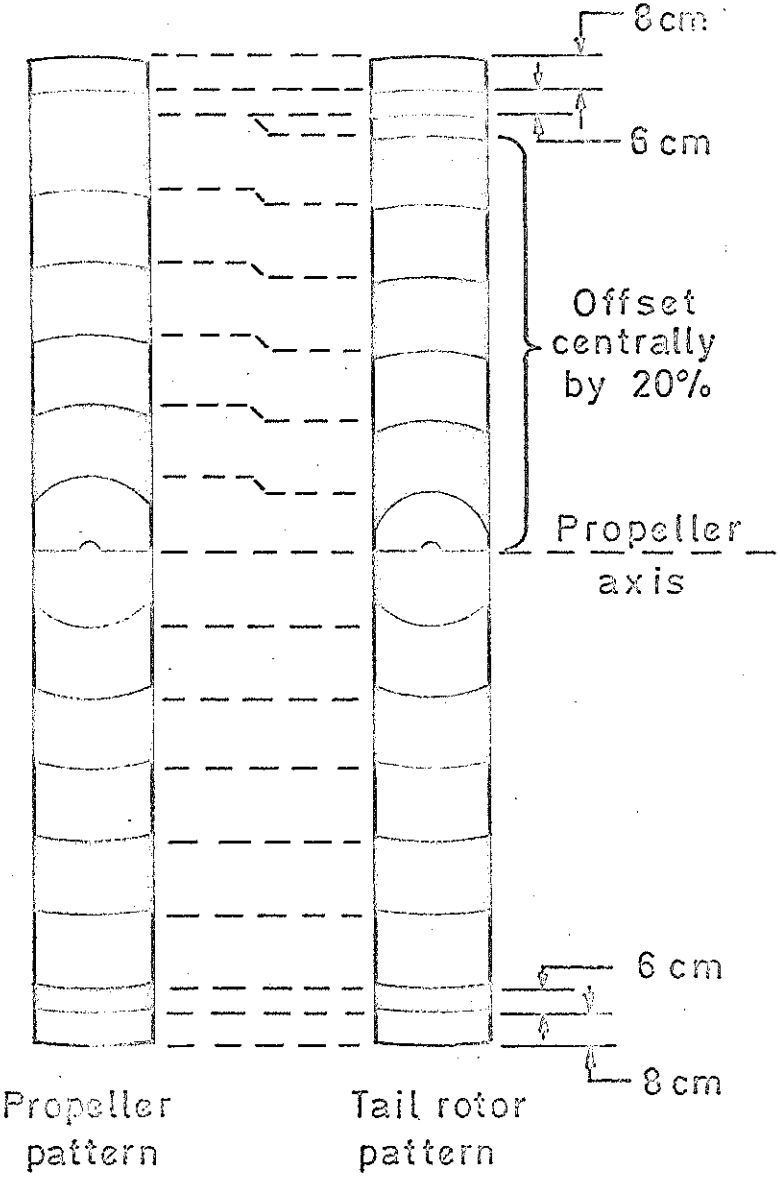
TO: ALL OPEN CLASS CIRRUS OWNERS

NOVEMBER 1976.

Dear Sir,

There have been two serious flutter accidents in Yugoslavia to V.T.C. Open Class Cirrus. These were caused by the presence of free play in the elevator control system and hinges. Will you please check your machine for wear on the elevator hinges and the drive tube which picks up the elevator at the inboard end. If there is wear present this must be eliminated immediately.

Yours faithfully,



A. Pattern for two bladed propellers

Blades for propeller	2	3	4	5	6
No. of adjacent blades in this pattern	1	2	2	3	3
No. of adjacent blades in this pattern	1	1	2	2	3

et cetera

B. Pattern for multiblade propellers

FIG. 5 PATTERN FOR TWO BLADE OR MULTI[illegible] PROPELLERS

MARKINGS ARE BLACK (GLOSSY) OR WHITE