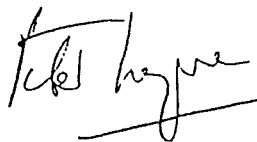


TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

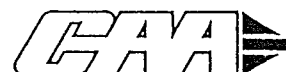
NOTIFICATION OF A CAA AIRWORTHINESS DIRECTIVE

I attach, below, a copy of a recent CAA Airworthiness Directive which is self-explanatory:-

Peter Lovegrove
Chief Inspector to the BMAA
31 October 1988



Civil Aviation Authority
Safety Regulation Group
Aviation House
South Area
Gatwick Airport
Gatwick
West Sussex RH6 0YR
Tel: Switchboard 0293 567171
Direct Dial 0293 573144
Telex: 878753 Fax: 0293 573999



Maintenance Standards Department

British Microlight Aircraft Association
Bullring
Deddington
Oxford
OX5 4TT

9/97/CtAw/151

10 October 1988

Dear Sir

NOTIFICATION OF A CAA AIRWORTHINESS DIRECTIVE

Please be advised that the Civil Aviation Authority has classified compliance with the following directive as mandatory for aircraft on the United Kingdom Civil Register.


CAA AIRWORTHINESS DIRECTIVE 001-10-88

APPLICABILITY Hornet Dual Trainer Raven microlight aircraft.

SUBJECT - DESCRIPTION Propeller - Replacement of Attachment Bolts

COMPLIANCE - REQUIREMENT (SUMMARY) Compliance is required with Hornet Service Bulletin S1006 prior to next flight. This action replaces existing chrome plated propeller attachment bolts with zinc plated bolts following cases of bolt failures due to embrittlement occurring.

Yours faithfully



PP A T DALTON
Maintenance Approvals

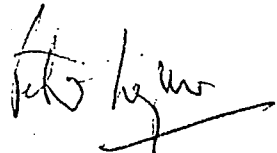
TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

EMBRITTELEMENT OF HIGH-TENSILE BOLTS

The attached document issued by Hornet Microlights is reproduced in its entirety, with their agreement, because it refers to a very important topic, about which owners/pilots should be warned.

I confess to being astonished to learn that a British Standard specification for high-tension bolts fails to call for de-hydrogenation after chrome plating. I learned, long ago, that electro-plating was an excellent way to sow the seeds of embrittlement. To fail to execute the necessary treatment is to court disaster.

Until that particular BS specification gets amended, we would all be wise to follow Hornet's lead and avoid chromium-plated bolts.



Peter Lovegrove
Chief Inspector to the BMAA

24 October 1988

Hornet Microlights
(TEMPLEWARD LTD)

PERSEVERANCE MILLS

MILL STREET

WIBSEY

BRADFORD BD6 3HR

TEL: BRADFORD 0274-691283

DATE: 7th, October 1988.

NUMBER: S1006

SERVICE BULLETIN

MODEL AFFECTED: Hornet Dual Trainer Raven

SUBJECT: Propeller Attachment Bolts, Modification HR110

CLASSIFICATION: This Service Bulletin has been classified as
Mandatory by the Civil Aviation Authority.

AIRCRAFT AFFECTED: All Aircraft

COMPLIANCE: The Zinc plated bolts supplied must be fitted before
next flight.

DESCRIPTION: The chromium plated propeller attachment bolts have
been found to suffer from embrittlement, which has
resulted in the failure of a number of bolts. The
failure occurring at the point where the thread enters
the engine hub plate. On at least one occasion the
resultant vibration caused the remaining bolts to
also shear, resulting in the loss of the propeller!

ACTION: Owner-Replace chrome plated bolts with new zinc plated bolts supplied.

PARTS REQUIRED: As supplied

SPECIAL TOOLS: None

WEIGHT & BALANCE: Not Affected

PUBLICATIONS AFFECTED: None


ACCOMPLISHMENT PROCEDURE

and INSTRUCTIONS: Prior to removing the old bolts ensure that the ignition is switched off, the spark plug leads disconnected and the spark plugs removed. To remove the bolts the nyloc nut should be released first and then the bolt itself. All six bolts should be removed, and the propeller checked for balance as per the Operators Manual, page 61. When refitting the propeller ensure that the propeller is tracked properly as detailed in the Operators Manual, page 60, and that the bolts have been sufficiently tightened, without crushing the wood, prior to tightening the

ACCOMPLISHMENT PROCEDURE

and INSTRUCTIONS.(cont)

nyloc which acts as a lock nut only. A full Category A Maintenance should now be carried out prior to the next flight. Finally an entry should be made in the Engine/Airframe Log Book that the modification has been completed.

Signature: 

Position: Chief Inspector.

CAA Approvals Ref: DAI/8910/84

Note: If ownership of the aeroplane has changed, please forward this bulletin to the new owner, and please send details of change of ownership to the factory.

TELEPHONE:
(0840) 213322
FACSIMILE:
(0840) 212637
TELEX:
45122 KEYORG.G.



UNIT 3B
HIGHFIELD ROAD
INDUSTRIAL ESTATE
CAMELFORD
CORNWALL PL32 9RA
UNITED KINGDOM

C.A.A. COMPANY APPROVAL No. DAI/8986/85
MANUFACTURERS OF HIGH QUALITY LIGHT AIRCRAFT

16th November 1988

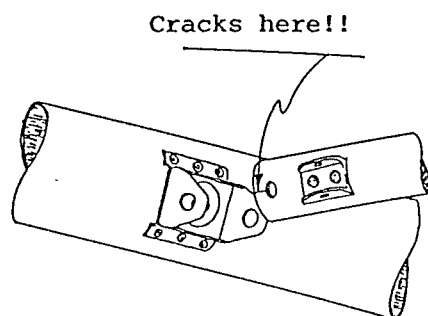
Ref: PAH/RT

SERVICE LETTER NO. 6

TO ALL OWNERS OF THRUSTER TST AIRCRAFT

SUBJECT WING TRAILING EDGE ROOT ATTACHMENT

Operational experience has indicated that a problem may occur on the root end of the wing trailing edge tube on some machines. Loads applied in flight can cause a crack to occur on the front face of this tube between the root and the actual fixing hole where the spar is bolted to the fuselage tube bracket.



No evidence suggests that the inner sleeve is also cracking and thus there is no suggestion of a potential catastrophe; the rear side of the tube is not suffering in the same way. However it is ESSENTIAL that the aircraft is checked immediately before further flight.

Examine the tube closely, at least with an inspection glass, with the wing disconnected from the fuselage bracket. Check for any sign of a crack at the point indicated. If there is a crack, do not fly until the item is fixed. Enter the check in your aircraft log book. IF IN DOUBT get your inspector to check this for you.

A simple reinforcement is being prepared to overcome the problem and as soon as it is approved, we will advise you further.

Yours sincerely,

A handwritten signature in cursive script that reads "Peter A. Houghton".

Peter Houghton,
Managing Director.

Copies to: All Thruster Owners,

TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

Thruster TST Trailing-Edge Cracking

Thruster Aircraft (UK) Ltd have issued the Service Letter No 6, reproduced in its entirety overleaf:

Inspectors and Safety Officers are asked to do all they can to ensure that owners of these machines act as the letter instructs.



Peter Lovegrove
Chief Inspector to the BMAA

22 November 1988

TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

ROTAX ENGINES TYPE 462 & 532: WATER-PUMP IMPELLORS.

Cyclone Hovercraft Ltd have just issued the following safety Bulletin:

"Some cases have been reported of failure of the plastic water-pump impellor on recent liquid-cooled engines. The problem has been isolated to heating of the impellor-shaft, due to additional friction of a recently introduced sealing-system. In some cases, this has caused the plastic impellor to soften and lose its drive, which is through a toothed or serrated friction-washer and a flat on the shaft. The consequence of such a failure is a fairly rapid over-heating of the engine. Engine failure and, possibly, severe engine-damage will result if the over-heating is not detected quickly and the engine power reduced to idle.

This problem affects only the following engines:-

462 engines from No 3642690

532 engines from No 3722150.

Since becoming aware of the problem, Roatx have produced impellers of a material of much higher softening temperature, which must be retro-fitted to all affected engines. Owners are requested not to fly their aircraft until this has been carried out.

Owners are advised to contact their aircraft manufacturer to have a new impellor retro-fitted, or to contact Cyclone Hovercraft Ltd or Cyclone Airports, who will carry out the replacement free of charge, if the aircraft are taken to them.

Impellor replacement procedure; dismantling. (See illustration overleaf).

Drain water.

Remove hose from water-pump housing.

Remove water-pump housing by loosening four Taptite screws.

Remove lock-nut securing impellor, followed by washer and the impellor itself. The friction washer and thrust washer behind the impellor may also come off with the impellor.

Re-fitting the Pump Impellor and Pump Housing. (See illustration overleaf).

Place thrust washer, followed by toothed friction-washer, on shaft, teeth (serrations) towards impellor. Slide impellor on shaft, followed by washer. Apply Loktite 648 to thread on shaft. Fit lock-nut. Torque to 8-10 Nm (6-7.5 lb.ft) Replace gasket if necessary. Refit housing with four Taptite screws, after applying Likhtite 221 or 222 to threads. Torque to 5 - 6 Nm (3.8 - 4.4 lb.ft). Replace hose and refill system with water.

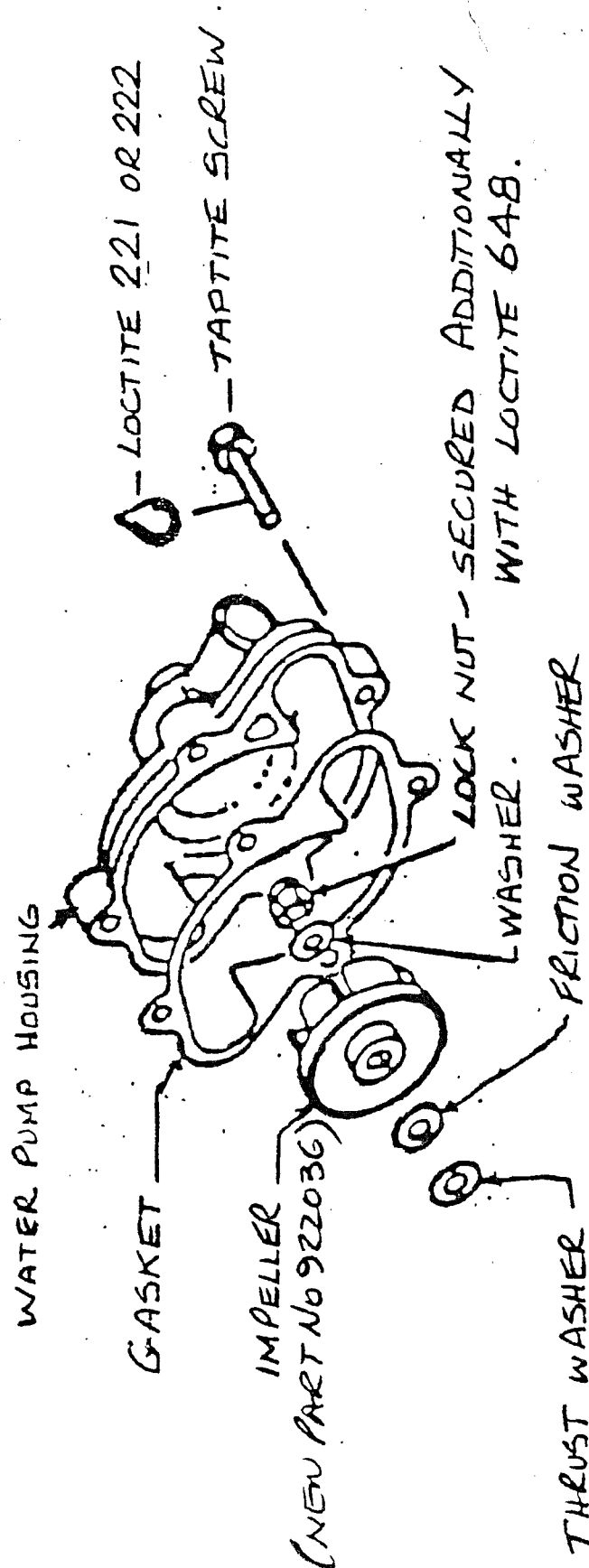
Owners are reminded that we consider it vital to have a water-temperature gauge fitted to water-cooled engines, to help diagnose any cooling-system problem before serious engine-damage results".

CHIEF INSPECTORS COMMENTS: Will all Inspectors and Club Safety Officers please do all they can to make sure that relevant owners are alerted to this problem?

Peter Lovegrove
Chief Inspector to the BMAA

16 July 1988

16 July



TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

INTEGRITY CHECKING OF THE FRONT STRUT ON FLEX-WING TRIKES.

The very recent crash of a flex-wing microlight aircraft, which led to two fatalities, is currently believed to be associated with the failure of the trike's front strut.

As a matter of the utmost priority, I ask all owners of trikes with front-strut systems which have been repaired or modified and are not factory-built, to check them most carefully.

Find out if they match the construction used or recommended by the relevant manufacturer. If they do not, take urgent steps to bring them up to that standard.

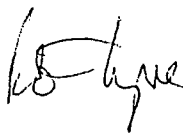
In cases where doubt exists, owners must seek advice from their inspector who, he or she is still unsure of the acceptability of a particular arrangement, can readily seek advice from Paul Owen or myself.

Please understand that this is a source of failure which is not limited to any single type of trike. (In the recent fatality, the trike was copiously and unwisely modified from the manufacturer's standard, and unidentified materials used). If a method of construction has been employed on the revised or repaired attachments for this strut, which might produce the sort of basic weaknesses which are unable to withstand the brutal effects of rough-field handling, heavy landings, careless piloting or flight in turbulence, then that machine presents a grave risk.

In instances where modifications to the Primary Structure are necessary, I must emphasize that these must be authorised. The resulting assembly must be minutely examined by the inspector and signed off by him or her in the aircraft's Airframe and Engine Log-Book, before any further flight. This inspection must be carried out in accordance with the modification's authorised detail and/or schedule.

For Type-Approved aircraft, this authorisation would normally come from the manufacturer.

May I ask all Inspectors and Club Safety Officers to give this whole matter their most urgent attention?



Peter Lovegrove
Chief Inspector to the BMAA

9 July 1988

TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

MODIFICATIONS AND REPAIRS.

A recent double fatality has again highlighted the dangers which can arise when microlights are modified, whether lawfully or illegally, if the work is not examined by an inspector in adequate detail before the machine is again flown.

It is extremely difficult for an inspector to know how far to go with the disassembly of an aircraft, if he or she comes across a change which, on the surface, looks correct or sensible.

If it is necessary to carry out engineering work on a microlight, then the repair work must be examined in full detail by a BMAA Inspector BEFORE THE MACHINE IS EVER FLOWN AGAIN.

This examination must be done by a person not directly involved in the actual execution of the work. (One cannot properly inspect one's own work, in any sphere; that is an accepted fact).

It must include a proper survey of the documentation on the materials used.

Components made or fitted in the course of the work must be scrutinised carefully. It is often not acceptable simply to examine them 'in situ'.

Where changes are made in order to conform with a requirement by a manufacturer, the components must meet the specifications set down by him.

For Exemption aircraft, such changes are specified by BMAA documentation.

Once the changes have received this first level of examination and a report has been made to that effect in the Airframe and Engine Log-Book, it is acceptable for a subsequent inspector to carry out the scrutiny of the component(s) in place, so long as it is quite certain that such an approach does not preclude a satisfactory level of inspection.

To dismantle any part of a machine unnecessarily is often unwise and it is a difficult decision as to where one should stop in this procedure. More harm than good can result from such avoidable disassembly.

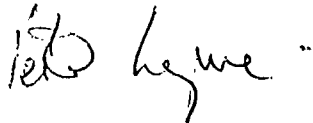
If the components form a critical part of the Primary Structure of the aircraft and are not easily and completely visible then, even for Renewals, it may not be adequate to conduct an 'in situ' scrutiny of them. They may have to be removed, along with such items as inhibit free access to them.

In any instance where the inspector considers that there is doubt

about the best way to proceed, or where it is felt that the owner is not prepared to accept the time and cost involved in such a detailed examination of the structure, then I should be consulted.

It is a basic tenet that the Inspector's right to seek a second opinion will always be supported by the technical staff of the BMAA.

I must again remind BMAA inspectors that their only protection in Law is the quality of their work in doing an Inspection. Whatever an owner thinks is totally irrelevant if a sloppy inspection contributes later to a serious or culpable accident.

A handwritten signature in dark ink, appearing to read "Peter Lovegrove". The signature is fluid and cursive, with the first name "Peter" being more prominent than the last name "Lovegrove".

Peter Lovegrove
Chief Inspector to the BMAA

9 July 1988

TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

AIRFRAME AND ENGINE LOG-BOOKS

It appears that some Inspectors are still unaware of the importance of each microlight aircraft having an Airframe and Engine Log-Book.

In fact, taken to the letter, these should be separate log-books but we seem privileged to be allowed to operate with a joint document.

If his or her aircraft does not have such a log-book, properly maintained and up to date, a pilot may not fly that machine under the terms of the Air Navigation Order.

I must warn BMAA Inspectors that, where I can show that they have knowingly signed off a machine which has no Airframe and Engine Log-Book, or have failed to enter, or ensure the entry of, information which should rightly be logged, I shall immediately rescind their Inspector's rating. That will be non-negotiable.

I hope the point is now clarified and that it is clear that this is not a trivial matter. No microlight aircraft can be operated without such a log-book and only a brand-new machine, straight out of the factory doors, is likely to have log-book free of entries other than basic identification data.

If an owner tries to sell or have a machine inspected without producing its Airframe and Engine Log-Book on the basis, for example, that the book has been lost, this cannot simply be accepted. The onus is on him or her to obtain confirmation that such a book did exist and was properly maintained up to a specified date. If that evidence cannot be produced, the owner must proceed as though that machine were being dealt with for the first time. A copy of the noise certificate - details of which should be recorded in the log-book - must be obtained and so on. That could prove expensive, time-consuming and tedious.

Old machines which have suddenly come on to the Register, because the owners have resurrected them from lofts, etc., or just 'come in out of the cold', so to speak, will not usually have log-books. In those circumstances, the Inspector will ask the owner to open one immediately, before any inspection is done. All possible relevant information will be put into it and the Inspector will also make sensible judgements and enquiries to establish as much as can be achieved in the way of pertinent past history. The aspect of noise certification will be properly addressed also.

Peter Lovegrove

Chief Inspector to the BMAA

4 June 1988



TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

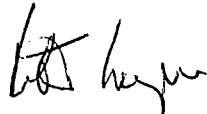
THRUSTER AIRCRAFT: AUTHORISED INSPECTORS.

Owners of Thrusters TST Mk1 will be pleased to learn that the following BMAA Inspectors have attended a training seminar at Camelford and are now fully authorised to examine and sign off Thrusters TST MK1.

Mr J.Fitch
Mr Jon George
Mr Ron Grundy
Mr John Hollings
Mr Mark Hayward
Mr Michael Rudd
Mr Bill Sherlock
Mr Michael Watts
Mr Barry Webb

Other BMAA Inspectors who are full-time professional inspectors and thus authorised to deal with fixed-wing (3-Axis) microlights, are able to handle Thrusters also. But I would strongly recommend that they still contact Mr Ian Stokes on 0840-213322, with a view to obtaining this specialised instruction on the areas of this machine which merit detailed scrutiny, particularly after an aircraft has been subjected to very prolonged rough-field use.

After such training, Mr Stokes is prepared to supply them each with a copy of the Pilots' and Operators' Handbook, as a further aid to correct and comprehensive inspection of the Thruster.



Peter Lovegrove
Chief Inspector to the BMAA

23 May 1988

2

TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

THRUSTER AIRCRAFT: FUEL FILTER BLOCKAGE.

Thruster Aircraft (UK) Ltd have put out a Service Bulletin (No 4) as follows:

"We have recently been informed of the in-line fuel-filter on the TSI becoming blocked, to such an extent that the manual fuel-pump had to be brought into operation to overcome it.

Mogas from garages is not guaranteed free from impurities and, although our filters are glass and easily inspected, a steady build-up could go unnoticed. As you know, our filters are washable so at a cost of time only, we recommend that the element be removed, washed in clean petrol and refitted every 10 hours."

Owners and Inspectors are asked to be especially vigilant on this point and the following information is most timely and pertinent.

Recent research by David Simpson has established that the detergent additive to certain two-stroke oils will come out of solution as colloidal particles, especially in the presence of water. The latter is found in almost all tanks which are habitually left empty or partially empty during storage.

The deposit which results is typically light chocolate-brown in colour, having a shiny 'wet' surface when examined immediately after removal of the element from its housing. It is most effective in blocking a paper filter and, presumably, can effect the same dire result on any fine filter, given time.

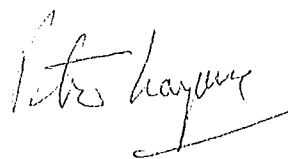
So again, the plea has to be made: Will you please take care to ensure that you and your friends, colleagues and Club members all leave their aircraft tanks filled completely during storage? If that is totally impractical because of the risks of storing fuel where you keep your aircraft (which might invalidate your house insurance!) empty the tanks totally, leave the caps off and the tanks - once they are free of vapour - in a warm dry environment.

David Simpson is endeavouring to identify oils which have no detergent and will report as soon as he has the necessary information.

The use of coarser filters is helpful to prevent this particular form of blockage but you cannot alter the filter unit substantially on a Permit aircraft without permission from the manufacturer and the CAA. This point is being examined closely in the context of these fouling problems.

Peter Lovegrove
Chief Inspector to the BMAA

24 April 1983



TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

CABLES AND FERRULES.

In recent weeks, the question of cables and their end-fittings have begun to feature prominently in the letters and telephone calls to me.

The problems are arising for a variety of reasons but, notably, have to do with the mixing of Imperial and metric cables and ferrules, a very dangerous practice.

It is impossible for me to over-emphasize the importance of maintaining a very high standard on cable assemblies for use on microlights. By their very nature, microlights commonly resort to the use of cables to save weight and to permit easy derigging into manageable and transportable packages. But even those operations place extra wear and tear on the cables, by causing them to be twisted and coiled and sometimes even badly kinked.

It requires quite a deal of care to get a flex-wing into its bag with the cables carefully and neatly packed so as to be subjected to the least abuse. And such care is all too often lacking at the hands of our typical flyer who flies as long as he can then bundles his aircraft up, sometimes rather carelessly and often in failing light.

I must urge all BMAA Inspectors only to accept cables which are in good condition. If they can see, or are told, that cables have been replaced, as a general rule they must only accept cables which documentation will show to have been professionally made by an aircraft supplier or a cable manufacturer. The latter category includes only those firms which can work to standard Codes of Practice and whose work can be certificated to Lifting Standards, for example. Back-street firms who happen to have a crimping tool, and who will cobble up a cable for anything from a yacht to a aerial-mast brace, are definitely not in the acceptable bracket!

We have already had one fatality directly attributable to badly made cables. That showed just how easy it was for anyone to get cables put together to an unknown standard.

If a badly made cable, for whatever reason, should fail on a microlight, the chances of that leading to serious injury or death are extremely high. SO DO NOT BE AFRAID TO INSIST THAT HIGH STANDARDS ARE THE ONLY ACCEPTABLE ONES. You will be protecting yourself as much as the owner.

Remember that there are no metric ferrules designed to fit Imperial cables correctly. Do not confuse 'sliding on' with 'fitting'. Ferrules, be they standard, general-purpose types or specialised versions like Nico-press, fit only the cable sizes for which they were made; only on those will they grip properly.

If someone uses a wrong combination of ferrules and cables, the strength of the finished cable-assembly, no matter how neat or right it may appear, will be greatly below the rated value, even to the point where - in the worst case - the cable may be able to slip completely out of the ferrule when maximum loading is applied.

Another most important point is that the correct setting tool must be used for the precise form of ferrule being fitted. Nico-press ferrules, again for example, can only be properly set by their own type of crimping tool. And that tool is not appropriate for other makes of ferrule.

Particularly, do not use or allow the use of, electrical crimping tools on cable-ferrules. The purpose of such tools is to achieve a result which, whilst it may look generally similar to what aircraft cables need, is actually quite different. The mixing of such widely differing disciplines is absolutely forbidden.

A handwritten signature in dark ink, appearing to read 'Peter Lovegrove', written in a cursive style.

Peter Lovegrove
Chief Inspector to the BMAA

31 January 1988

3

TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

INSPECTION OF OWN AIRCRAFT.

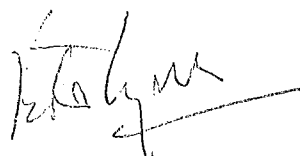
It seems that I must again remind inspectors that they cannot inspect and sign off any microlight aircraft in which they, or their employers, have any direct financial involvement.

If the Inspector in question also happens to be a Director, for example, in a microlight-aircraft manufacturing Company or a microlight school, he or she should consider their position most carefully. The Company should be covered by appropriate CAA Approval and their names, as inspectors, should appear on the agreed submission to the CAA. They should not use their BMAA Inspectorship in a direct commercial role.

Failure to take due note of this could have very serious repercussions in the event of any accident on a machine dealt with by them and subsequently the subject of litigation.

Of course, a BMAA Inspector can have a full-time job in a microlight Company, or other aircraft concern, and still deal with machines on a free-lance, private basis. There seems to be no rule to prevent this.

Finally, only those inspectors who have specifically sought and been granted the right to examine and sign off their own machines, may do so. The Deddington office must stop all other such submissions for Renewal.



Peter Lovegrove
Chief Inspector to the BMAA

20 March 1988

TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

EXAMINATION OF THE SIROCCO, MISTRAL AND JS

Further to my notes on the Sirocco, dated 17 February 1988, I have received a letter from Iain Barr pointing out that he recently had cause for concern when a repaired Sirocco was handed over to him in a state supposedly ready for Permit renewal.

Quite wrongly, the repairs had been done with random matt rovings instead of the designed woven cloth. The difference in strength of the primary structure involved was such as to make the repair potentially lethal.

Yet again, I have to remind Inspectors that their only protection in Law is the quality and competence of the inspection AT THE TIME THE AIRCRAFT IS EXAMINED AND SIGNED OFF. If a BMAA inspector knowingly signs off a machine which is in a dangerous state of airworthiness and something disastrous subsequently happens to that machine, causing injury or death or serious damage to property, he or she is going to be in a very vulnerable position.

If the aircraft in question is a fixed-wing which is not habitually disassembled - as a flex-wing commonly is - the "At the time of inspection" condition is going to prevail for a considerable time.

So, when the new Mistrals come up for inspections, Iain Barr is anxious that the job is done properly, especially since he argues that this particular machine will then be the most sophisticated of all the existing three-axis aircraft.

He is prepared to organise short training courses for groups of inspectors, at zero cost to them. All they have to do is to contact him with their request.

As with the Thruster and the Shadow, I strongly believe that the majority of BMAA Inspectors need some degree of specialised instruction. I hope that even the licenced professionals in our number will extend that professionalism to accepting that comparatively featherweight microlights are totally different to Cessnas, Pipers, Austers and the like, and therefore take the time to seek out expert guidance from the manufacturers.

Time is money to manufacturers in this precarious microlight business, so I must urge inspectors to realise that they are not being offered this training for the fun of it, but because it is known that it will lead to greater competence on our part and, thence, safer flying for the owners concerned.



Peter Lovegrove
Chief Inspector to the BMAA

24 February 1988

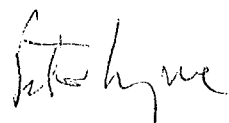
TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

EXAMINATION OF THE SIROCCO

In earlier notes, I have pointed out the need for Inspectors to visit the relevant factories to learn exactly how to go about carrying out a thorough and competent examination of Shadows and Thrusters, because of the unusual construction of the former and the possible problems of the latter, specimens of which are just starting to need re-certificating.

Iain Barr has now joined the ranks of those manufacturers who are willing to give of their valuable time to instruct BMAA Inspectors on what to seek out on their particular products. Iain is, of course, the supplier of the Sirocco and can give much useful guidance on what points to look for on that machine.

I hope inspectors will have the good sense to take up these offers, since they can only mean a better standard of inspection applied to these machines. (And that must inevitably brush off on to other inspections, whatever the type. You will, in reality, be getting expert guidance from people whose full-time job is the manufacture of microlight aircraft to Section S standard). This will be a direct benefit to the owners/pilots and a greater protection to the inspectors, who rely on the diligence and competence with which they execute an inspection to safeguard them in Law.



Peter Lovegrove
Chief Inspector to the BMAA

19 February 1988

TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

THE FORMAT AND THE PURPOSE OF TADS, AIRCRAFT OPERATOR'S MANUALS

AND PILOTS' NOTES.

Both Paul Owen and myself continue to receive a stream of whinges about how useless TADS are. Inspectors who were non-professional at the time of the start of the Microlight Airworthiness Scheme made the wrong assumption that Type Acceptance Data Sheets were interchangeable with owners' or operators' manuals. So, as soon as TADS for microlights began to appear, there were - and are - complaints that they told one little or nothing about the machine in question.

Let us sort out, once and for all (hopefully), exactly what a TADS is. It defines:-

- (i) exactly what type of aircraft you are looking at,
- (ii) what variant of that type you are looking at,
- (iii) what power plants and propellers can legally be installed on that particular type and variant,
- (iv) details of some essential data relating to that type and variant, such as control deflections, permitted weights,
- (v) vital information which should be placarded clearly, for the pilot to read,
- (vi) what modifications should have been incorporated on that particular type and variant, for it to be flown legally, and how to establish the full details of them,
- (vii) where to look for general inspection schedules and routines.

If you stop to consider that every aircraft, even a Boeing 747, has a TADS, you might no longer expect the TADS to contain the necessary information to cover all the detail of an inspection. For a 747, it amounts to a few thousand pages!

So much for TADS; now what about the real sources of the kind of information inspectors need?

For all Permit-to-Fly microlights, there are factory-prepared Aircraft Operator's Manuals. An inspector should never sign off a Type-Approved microlight unless he or she has examined the Manual at the time of the inspection. It contains full information on special examination techniques which may be required, special maintenance procedures, lifed' components, likely sources of

unusual wear or abuse, and so on.

With Exemption machines, the situation is more difficult. In fact, the format of the Inspector's Handbook was designed to help Inspectors deal with the myriad of old aircraft, at a time when Type-Approved machines were the rarity. So do not forget to check whether the Handbook gives any specially relevant hints for the sort of old aircraft you have to deal with.

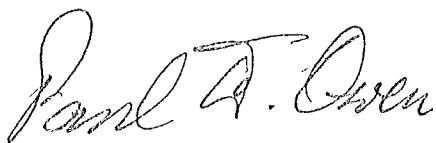
Inspectors must urge owners and operators to collate all the information they can gather about their particular type of machine. It should then be carefully referred to by the inspector, before that machine is signed off.

If an inspector has any doubt as to whether he or she is in possession of all the requisite information about a machine which is to be inspected, then please contact Paul Owen or myself. If this is not done, then the machine may get to be signed off without reference to 'all available information' and therefore not carried out with all 'reasonable care'. Needless to say, hammering that same point yet again, such carelessness places the inspector at risk and quite needlessly so.

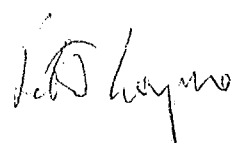
For Check Pilots, the TADS does give some information on performance figures but, again, the full details are given in the Aircraft Operators' Manual or Pilot's Notes.

One last point: On the present TADS format, there is a statement that illustrations form a part of the document. At least one owner has been wrongly refused an inspection on his machine, on the grounds that the relevant TADS contained no such illustrations.

In truth, a large number of TADS have been issued by the CAA without any illustrations in them at all. The statement is thus confusing and can legitimately be disregarded. The fact of the matter is that the illustrations are currently optional.



Paul Owen
Technical Officer to the BMAA



Peter Lovegrove
Chief Inspector to the BMAA

14 February 1988

TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

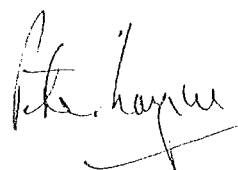
ROTAX SERVICE INFORMATION SHEETS FROM CYCLONE HOVERCRAFT LTD

Nigel Beale, of Cyclone Hovercraft Ltd has just notified the issue of a new set of Service Information Sheets from Rotax.

They are :-

- 4-UL 87/E Relates to unexpected engine stops.
- 6-UL 87/E Relates to engine instruments giving, in particular, great detail on thermocouple temperature-probes.
- 7-UL 87/E Relates to 2-stroke fuel consumption.
- 9-UL 87/E Relates to rotary valve shafts on Rotax engines type 462 and 532.
- 10-UL 87/E Relates to engine type 503, free air version.
- 11-UL 87/E Relates to exhaust systems for engines types 377, 447, 462, 503 and 532.

All of these can be obtained from Cyclone Hovercraft Ltd on terms to be agreed with Mr Beale.



Peter Lovegrove
Chief Inspector to the BMAA

7 February 1988

TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

"BITS" WHICH DEPART FROM ENGINES AND AIRFRAMES!

A very pithy Accident Report has just come in, relating to a sequence of events on a 440 Robin-powered Sprint.

I pass it on because it demonstrates only too well how a dire chain of circumstances can arise from a relatively simple initiation.

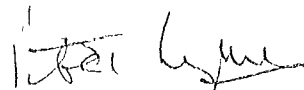
The take-off run had commenced when,

1. The filter sponge (with coiled-wire insert) came off the air-box.
2. The filter hit the propeller.
3. The propeller broke.
4. Part of the propeller went through the sail, causing a 3-foot tear in the trailing edge.
5. Vibration began.
6. The reduction-drive hit the petrol-tank.
7. The reduction-drive broke.
8. The petrol-tank was damaged and began to leak.
9. The engine-mounting bolts bent.

Luckily, no-one was injured but - under less fortunate circumstances - could so easily have been.

I do not need to labour the moral of this tale, which might have been written by Gerard Hoffnung. But I will remind you to keep urging fliers to make their pre-flight inspections as detailed as possible. One cannot say whether or not this problem would have been forestalled by a judicious tug on the filter, but it may well have done.

Thanks to the reporter, anyway, for giving us all the opportunity to learn from his hardship.



Peter Lovegrove
Chief Inspector to the BMAA

1 February 1988

TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

INSPECTION OF SHADOW B AND B-D AIRCRAFT.

There can be little doubt that the Shadow is somewhat different from the general type of microlight aircraft to which the majority of BMAA inspectors will be accustomed.

The methods of construction go even beyond the straight-forward use of glass fibre and, in consequence, introduce features of which most of our BMAA inspectors can reasonably be presumed to be ignorant.

That is why I ask that any inspector, intending to examine a Shadow, contacts the factory and obtains some generalised instruction before doing the survey. (In precisely the same way, I have recently suggested this approach with Thrusters and I would hope Inspectors would also approach Siroccos in this way).

If an Inspector is a full-time, licensed professional, he or she will know how to approach any new type of aircraft and be expected to have the good sense to presume ignorance until taught.

But the average type of 3-axis inspector in the BMAA is more accustomed to Quicksilvers, Rotec Rallyes, etc., as the familiar fixed-wings and these are a far cry from Shadows.

(Please understand, I refer to this machine purely in the sense of its methods of construction, location and use of inspection-panels and so on. I am not, in any sense, making any kind of statement or offering any judgement on its merits as a flying machine or commercial value as a microlight aircraft. That is not my role).

I must again remind you all that your only protection against civil or other litigation, if a microlight which you have signed off as airworthy should crash and cause injury afterwards, is that the machine was "Satisfactory at the time of examining it".

Whilst a flex-wing is almost invariably folded away and transported before the next flying session is approached, so changing the situation from that which pertained "At the time of examining it", this is all too often not the case with fixed-wings.

Many Thrusters used by schools stay assembled and so do Shadows; they simply get wheeled in and out of the hangar. So your signature will probably be deemed to be just as wholly valid during the next flying session as it was immediately after the survey.

DO NOT ATTEMPT INSPECTIONS FOR WHICH YOU ARE NOT TRAINED OR FULLY COMPETENT. PRIDE OR CONCEIT MAY HAVE AN EXPENSIVE PRICE-TAG!

Re-iterating, even if your Inspector's Ticket shows you as cleared to do 3-axis aircraft, do not tackle a machine with which you are not totally familiar. Get yourself some authoritative instruction.

Check the machine's Airframe and Engine Log-book most carefully and read the Owner's Operating Manual; a Permit aircraft will definitely have one. If the owner says he does not own one, having - for example - bought the machine second-hand, advise him to buy one from the factory before you undertake the survey.

Above all, make sure you read the CURRENT TADS for the machine and ensure that any required modifications are present and correct.

Finally, if you live within reasonable reach of Fiona Luckhurst, this lady has generously offered to go over the inspection procedures of the Shadow with interested Inspectors. Contact her at 32 The Meadows, Bidford on Avon, Warks, B50 4AP.



Peter Lovegrove
Chief Inspector to the BMAA

26 January 1988

TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

PROPELLOR BOLTS ON THE PEGASUS XL-R (LIQUID-COOLED) AND THE

PEGASUS FLASH 2 (LIQUID-COOLED).

SOLAR WINGS Ltd have issued a (Mandatory) Service Bulletin, Number 0019, dated 23 December 1987, relating to the PROPELLOR ATTACHMENT ON THE ROTAX 462 LIQUID-COOLED ENGINES on the above types of machines.

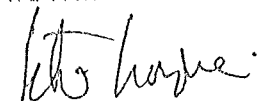
A Pegasus Flash 2 operator had his propeller bolts shear. It appears that he tightened the Nylok nuts, assuming that he was tightening up the bolts and, thus, the grip on the propeller. In fact, these nuts are simply lock-nuts in the original design. The bolts are screwed into the threaded holes in the propeller flange, then secured against unscrewing, by the Nyloks.

The Mandatory Modification comprises a method whereby the bolts are simply slipped through the propeller and its driving flange and secured by the Nyloks alone. This allows the nuts to do their job properly and as the operator will generally assume they are working. It also allows the plain shank of the bolt to pass into the flange. (This avoids the shear, which is implicit in the propeller-driving operation carried out by the bolts, being carried by their threaded portion, where the core diameter of the thread is less than the outside diameter of the bolt, giving less area to take the load).

Inspectors and Safety Officers are urged to ensure that all owners of the above machines are aware of the above bulletin, available from Solar Wings Ltd, Unit A, 56 George Lane, Marlborough, Wiltshire, SN8 4BY (telephone 0672-54414-53598). With second-hand machines, some owners may not have been reached by Solar Wings.

Let me remind you that THIS IS A MANDATORY MODIFICATION AND NO INSPECTOR MAY SIGN OFF A MACHINE UPON WHICH IT HAS NOT BEEN CARRIED OUT FULLY, TO THE LETTER OF THE SERVICE BULLETIN.

It is also possible that the original technique may have been used on other types and manufacture of machines. Inspectors are advised to be vigilant for it. If found, it must be reported to the manufacturer in question - if a Type-Approved aircraft - or to Paul Owen, if in any other category. Either party will take the appropriate action since there is nothing specific to the aircraft in the vulnerability of the method. INSPECTORS CANNOT SIMPLY TELL THE OWNER TO CHANGE HIS PROPELLOR-BOLT SYSTEM WITHOUT CONSULTING THE APPROPRIATE AUTHORITY.



Peter Lovegrove
Chief Inspector to the BMAA

16 January 1988

TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

EXHAUST FAILURES ON EARLY PEGASUS XLs.

It is clear from the reaction to my note of 29 November 1987 on the above topic, that further guidance is needed for Inspectors.

One point is now very obvious: If I make the presence of a repair weld or welds a matter for refusal of a Renewal, a very large number of unhappy pilots are going to be grounded! But, as Brian Cosgrove is so often at pains to point out, we who manage the BMAA dedicate our efforts to keeping people flying, not grounding them.

Since the whole silencing assembly on the majority of microlight aircraft is made from mild steel or little better, the necessary skills for welding it are readily found in every part of the country. So one cannot be surprised that an owner, on finding a crack anywhere in his silencer, goes to his nearest competent welder and does not automatically think of shipping his aircraft some distance back to its manufacturer.

Obviously then, we have another of those situations where I have to allow Inspectors to use their discretion, whilst reminding them, of course, that they must not put themselves at legal risk by being lax or too lenient when they encounter a repair job of this sort.

In making a decision as to whether to sign off the repair as acceptable, please consider the following points:

Is the repair in a critical location? For example, if it failed again and/or propagated - such as round a primary support bracket which held the silencing assembly to the engine or airframe - could the whole system break loose and fall off or into the propeller?

Has the repair been so often repeated that it can no longer be considered to be sensible to continue using the silencer at all; is a replacement clearly dictated as necessary?

Is the owner the sort of person whom you would really believe will carry out a detailed and careful preflight inspection before every flight, now that there has been one or more failures of the silencer in question?

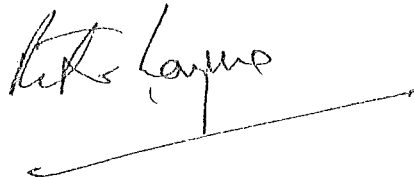
Whatever your decision, make sure you record the details in the machine's Airframe and Engine log-book and assure yourself that the owner understands and initials the statements you write. You may choose to write, for example, that besides the preflight inspections, the silencing system should be again checked by you after 'X' hours and not left until the next Renewal inspection.

Alternatively, you may feel that the damage and repairs have reached the point where an examination and possible replacement

by the factory is the only sensible and rational course and is therefore mandatory. If that is your decision and the owner objects, you will receive the full support of myself and the BMAA management.

By this sort of responsible approach to a tricky and difficult problem, you will protect yourself against any possible repercussions, should a later accident occur.

Peter Lovegrove
Chief Inspector to the BMAA

A handwritten signature in dark ink, appearing to read 'Peter Lovegrove', with a long horizontal line extending from the end of the signature.

14 January 1988

TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

THRUSTER AIRCRAFT

In a matter of weeks, we shall be starting to see Thrusters coming up for their inspections for Renewal.

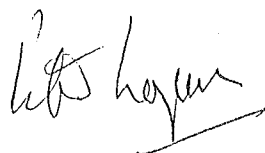
With any new aircraft, there are bound to be tricks to be learned and areas to be given very close scrutiny during an annual inspection.

Ian Stokes, at Thruster Aircraft (UK) Ltd, Unit 3B, Highfield Road Industrial Estate, Camelford, Cornwall, PL32 9RA, (tel: 0840-213322) agrees entirely with this view. He is naturally anxious that owners should get their Renewals done with the minimum of fuss and problems, especially the type of problems which are easily avoidable if the inspector is completely cognisant of the details of the machine.

Ian is prepared to give one-day training/instruction sessions to any inspectors who wish to take advantage of his offer. You would have to make your own arrangements to get there, etc., but Ian will make no charges for the instruction.

Obviously, he is in business and cannot disrupt many days giving instruction on a one-inspector basis. So may I ask those of you who are interested, to contact Ian soon? He will then be able to make arrangements to deal with suitably sized Groups.

Since the Thruster is basically a Dacron-and-tube machine, this actually presents the opportunity for those of you restricted on your Authorisation Tickets to deal only with flex-wings, to start dealing with your first 3-axis machines, if you feel generally confident enough once you have experienced this valuable, though specific, training. If any of you do seek to take this approach to the Thruster instruction sessions, may I ask you to let Ian know in advance, so that he can monitor your approach and advise me as to the merit of your being allowed to handle Thrusters? I must emphasise that the added authority would certainly not be granted as a matter of course.



Peter Lovegrove
Chief Inspector to the BMAA

13 January 1988

ALL INSPECTORS AND CLUB SAFETY OFFICERS: FILE THIS INFORMATION.

EXTRACTS FROM MAINAIR SERVICE BULLETIN No 25

The following information is from Mainair's latest Service Bulletin and I am grateful to them for allowing me to keep owners and inspectors fully informed about their products.

REAR FUEL TANKS, ALL MODELS.

The tank dip-pipe is made from a heavy-duty, plastic hose and is positioned so as to draw from the bottom of the tank. Mainair had a report from an owner who said that he had found the dip-pipe bent forward and above the bottom level.

Investigations suggest that storing the trike folded down may result in the pipe sagging out of position and, although it recovers within a short time, a quick flight with low fuel - after a long storage period - may result in a problem.

Tanks should be cleaned occasionally and a good tip is to drain them by siphoning via the engine feed-pipe, disconnected at the selector valve and hanging into a container. If the front wheel is lifted about 6" to simulate the flight attitude, this will show the exact moment when the fuel runs out and it should happen with less than 1/4" of fuel left in the bottom of the tank.

Mainair are having a spring-steel retainer made which will clip to the pipe and hold it firmly to the tank base. In the meantime, owners and inspectors are advised to be vigilant about the suspended position of the dip-pipe.

ALL FLASH WINGS.

The two pull-back cables for the cross-tubes are clipped together with a cable tie, for convenience. This sometimes sticks and separates, meaning that the second wire has to be 'fished' for.

A cure is to clip the tang of the second wire on to the pull-back cord in the same way as the first wire.

MONOPOLE AND KEEL FRETTING.

Previous Bulletins drew attention to chafing between the monopole and fuel tanks. The seat tank should always be secured tightly with the strap; a 6" piece of propellor tape on the tube will eliminate the problem for older aircraft.

The examples of chafing seen by Mainair so far are unsightly rather than dangerous but the better condition any aircraft is maintained in, the better its overall safety (and resale value!)

ROTAX PULL-START.

A Rotax 462 engine with ten hours 'on the clock' suffered a pull-start failure, caused by the breakage of an internal spring. This spring tends to break if the cord is released abruptly. When the pull-cord has been drawn out to its full extension, it should be

allowed to recoil slowly to avoid problems.

FUEL PIPE; ROBIN ENGINES.

A problem was reported to Mainair of an inverted Robin engine on a Gemini where the fuel pipe had perished and split where it was curved tightly to fit the fuel pump.

The aircraft was thought to be over two years old and the advice was to replace the fuel pipe at the first sign of ageing, long before it could ever give an in-flight problem.

ALPHA SIDE-STRUTS.

Mainair claim that the rear suspension on the Alpha has proved itself an exceptional feature. However, it has been shown possible to reach even the limit of this system. If a very heavy landing is made (and this can be masked by the suspension itself) and the suspension has reached full deflection, hitting a rut or similar can cause the tube to fail at the axle fixing.

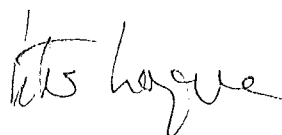
MAINAIR EMPHASIZE THAT THIS CAN ONLY OCCUR AFTER A HEAVY LANDING AND WHEN ALL TRAVEL HAS BEEN TAKEN UP. GOOD THOUGH THE SYSTEM IS, THERE HAVE TO BE LIMITS!

Production machines have been modified by fitting an internal sleeve in the lower section of the side strut. Machines so modified have a letter "S" marked under the lower rubber boot.

This modification can be carried out on owners' machines, if desired, but it is necessary to return the complete side-strut, since it is a factory modification only. Obviously there are many aircraft operating perfectly satisfactorily with the standard struts and the modification is recommended only if the aircraft is operated from a rough field, flown frequently at high loads (or if the pilot is honest about his limited landing skill!)

ROTAX 462 CARBURETTOR.

Rotax - say Mainair - have recognised that the 462 can sometimes be difficult to start and Mainair are now testing a new style of carburettor for this engine. The problem seems to be that of getting the fuel into the cylinders. Closing off one fuel bowl and blowing hard into the other through the small plastic pipes is reputed to solve the problem.



Peter Lovegrove
Chief Inspector to the BMAA

26 December 1987

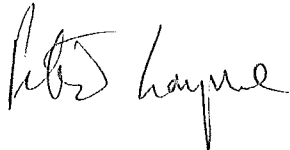
TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS
FILE THIS INFORMATION.

VIBRATION PROBLEMS WITH PHOTON 210

Will all Inspectors and Safety Officers please note the contents of the Solar Wings Bulletin shown overleaf?

Please ensure that all owners of Photons are aware of the manufacturers' recommendations.

When Photons come up for inspection, please be especially diligent in searching for cracks, particularly around the engine and its mountings, its exhaust, etc..



Peter Lovegrove
Chief Inspector to the BMAA

20-12-87

Solar Wings

LIMITED

56 GEORGE LANE
MARLBOROUGH, WILTSHIRE SN8 4BY
Telephone: (0672) 54414/53598
Telex: 449703 Telser G
Facs. Machine: 0793 617415

14 December 1987

Dear Owner

Report on Forced Vibration at Low RPM on the Photon 210

GENERAL

Due to the efficiency of the Photon wing in ground effect, some operators are experiencing difficulty in setting the aircraft down when the engine is running at the factory recommended idle speed. As with many single cylinder two stroke engines, a fairly high idle rpm is necessary to overcome harsh, low rpm forced vibration.

To effect easier landings operators have been setting this idle speed far too low. This action causes massive torque impulses into the transmission system, and is resulting in belt failure, carburettor rubber failure and in one case a detachment of the transmission from the engine.

Action - short term

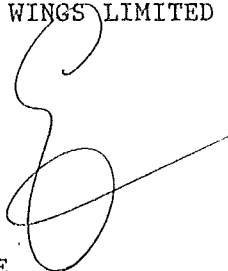
Operators are advised to reset idle speed until smooth engine running is obtained.

Action - medium term

Solar Wings have under test a Photon 210 with a flywheel and softer cush rubber system. Both the flywheel and the cush rubbers are necessary to achieve smooth low rpm running.

A smooth and very slow idle rpm has now been obtained and as soon as Solar Wings is satisfied with the durability of the modification it will be available to all owners.

Yours sincerely
For SOLAR WINGS LIMITED



S M G ROSE
Managing Director



TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS
FILE THIS INFORMATION.

EXHAUST FAILURES ON EARLY PEGASUS XLs

I am still receiving reports of cracks appearing in the exhaust systems of early Pegasus machines with the Rotax engines. (The actual design and assembly of the exhaust system is by Pegasus; Rotax merely supply the choice of 'building bricks')

These cracks are generally located so as to indicate that the design of the bend and its reinforcement are their direct source.

It must be remembered that exhaust systems which loop back on themselves and on which the bends are rigidly constructed are almost inevitably subjected to several types of stressing.

For example, firstly, the bend tries to straighten itself out as the gas pressure flows into it. Secondly, the thin sheet metal literally endeavours to expand like a balloon. And thirdly, and probably worst of all, all of the loadings are subject to mechanical vibration from the engine and the pressure-oscillations with which the flowing exhaust-gas manifests itself, so fatigue is a predominant factor.

We cannot allow ourselves the luxury of thick metal exhaust systems, so the risk of cracking is ever present. But it can be increased by the wrong placement of stiffening plates, support brackets and the like. This does seem to be the problem with these earlier Pegasus silencing systems.

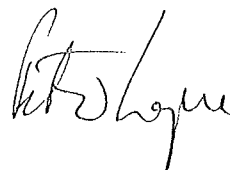
On their later machines, the problem appears to have been solved.

I have heard of people carrying out as many as five or six repair welds on these cracked silencers and I must emphasize that this is not acceptable. Inspectors are asked to be most vigilant for signs of repair welds, particularly repeated welds. Owners must be advised to seek the help of Solar Wings (or the appropriate manufacturer) if problems are found with cracked silencers.

Since the commonest failures of silencers by cracking are the result of one form of fatigue or another, it is important to point out that reinforcing a local area will often accelerate the arrival of the next failure. Accumulated weld metal is a good lead into such another failure.

The danger of parts of failed silencers falling into the propellor of a machine in flight cannot be over-emphasized.

Peter Lovegrove
Chief Inspector to the BMAA
29 November 1987



TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS
FILE THIS INFORMATION.

FUEL-LEVEL INDICATION ON PEGASUS XL

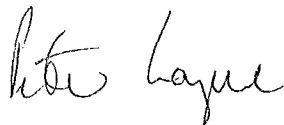
A pilot experienced a forced landing in this type of machine, when the engine stopped almost immediately after lift-off.

During pre-flight checks, the 25-litre tank which was fitted appeared to be about 1/3 to 1/2 full. However, after the incident, in which about 150 pounds worth of damage was sustained, it was found that there were only about 4 litres of fuel in the tank.

The wrong indication stems primarily from the ground attitude of the machine.

On take-off, the high rate of climb with a single occupant, tips the tank well backwards. If the contents are relatively low, they collect at the rear-most section of the tank and the fuel pick-up is starved. Effectively, the machine climbs on what fuel is left in the carburettor; the engine then quits suddenly after less than ten seconds.

The problem has already been recognised but Inspectors and Safety Officers should be alert for any machines and their owners which might still be at risk.



Peter Lovegrove
Chief Inspector to the BMAA

21 November 1987

TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS
FILE THIS INFORMATION.

The information given below has been reproduced from a Mainair Service Bulletin. It is passed on in the hope that Inspectors and Safety Officers will urge owners to pay heed to a manufacturer's guidance.

ALPHA FLEX-WINGS.

1. Tyre Pressures:

The original figure specified was 10-12 p.s.i. This was too low and 22 p.s.i. should now be used for all tyres.

2. Front Wheel Tyre Movement:

With too low a tyre pressure, "Tyre creep" can occur. If it does happen, the valve will be angled oddly. Should this be observed, release the tyre pressure, put on the brake and push the tyre back round until the valve lines up correctly. Re-inflate to 22 p.s.i. The standard aircraft practice of painting a white mark on the tyre and rim will always indicate if the tyre has slid round again.

3. Front Wheel Brake.

There have been two reports of the back-plate fork opening up where it slides on the peg. The design of a new simply bolted link plate is being carried out.

However, Mainair admit that this little brake is intended to be used as a taxiing aid - at speeds of only a few miles an hour - not as a full-bore brake to stop a 1/3 ton at 30 m.p.h. So be reasonable in the way it is used and the service expected from it.

4. Front Brake Cable and Throttle Cable Attachment.

The early design of these items has shown itself to be poor. A new method now adopted involves replacing the brake- and foot-throttle-cables with ones having swaged thimble eyes in the end. If a machine has the old style, the owner should have already received a replacement set directly from Mainair. Alternatively, the dealer may have done the modification or the machine may have been supplied with it already incorporated. But if the machine still has the cables clamped by drilled bolts, the owner should contact Mainair immediately and return the old set to them.

5. Fragile Cockpits.

The Alpha cockpit is admittedly not as robust as the Gemini one. Owners must recognise this (it results from the need to save weight to cover brakes and suspension) and not lift the trike by the cockpit nose. Use the seat frame instead.

Take care when entering and exiting. Watch where feet are placed during flight and ground handling.

Repairs can be effected with fibreglass kits from garages and colours restored with gel coat from Mainair.

6. Short-Reach Steering.

It is now agreed that the steering bar is too far away from the pilot. A modified steering-bar system is in manufacture and will shortly be available. Send in the serial number (not the Registration) and Mainair will exchange the old bar for the new type. This offer is only for a limited period.

7. Front Wheel; Again!

To repair a puncture on the front wheel needs the removal of the Nylon bearings from the front legs. A design change is being examined.

In the meantime, be prepared to support the front end and to remove the telescopic legs to get at the tyre.

A neat trick to deal with punctures is to carry an aerosol emergency puncture-repair unit. Although this may terminate the life of the inner tube, it fixes punctures during those cross-country landings.

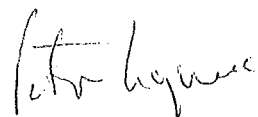
Another useful tip is to put puncture-sealing liquid into the tubes. This closes holes as they appear.

8. Suspension.

Both the front and rear slider units will benefit from regular oiling as described in the manual. Use an oil can to reach between the rear springs to oil the telescopic as it enters the aerofoil.

9. All Wheels

All three wheels have ball bearings and are adjustable via a screwed cone to take up wear. These should be adjusted after the first 10 hours and checked regularly thereafter.



Peter Lovegrove
Chief Inspector to the BMAA

13 October 1987

TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS
FILE THIS INFORMATION.

Re: Transverse non-alignment of Flash cross-booms.

There has been some confusion about "Bowing" of the cross-booms on the Flash wing. To clear the confusion, so avoiding any future non-acceptance of Flashes by BMAA inspectors on the basis of apparent deformation of the cross-booms, I have sought the manufacturers' advice. They have provided the following, very comprehensive, explanation of the matter and its solution.

"The cross-tubes are 2 5/8" OD x 17 s.w.g. x 11 ft long. They are not pin-jointed on the tube centre-line but have a butt-joint against each other in the centre, fully floating and attached to the wing keel by a loose webbing to prevent upward 'bursting' only. At the leading edge, they are scarfed off and bolted to the leading edge only through the lower side of the boom. The side flying wires further complicate the loading by being inboard about 7", giving a cantilever loading from the leading edge.

When the aircraft is stationary, the two wings hang on the top rigging supported by the king-post. The 12 ft wires stretch slightly and - in addition - the design is such that slack is purposely built into the lower flying wires to aid handling in the air. This gives the position shown in Figure 1. The sail tension causes a compressive load and, because the strain line passes through the bottom edge at the centre-point and the bottom edge at the leading edges, the cross-tube will bow upwards slightly, at the centre.

Under flight loads, we now consider Figure 2. The centre joint is closed, (preferably open at the bottom), the flying wires limit the upward movement and the cantilever loading reacts against the flying wires. This counteracts the upward 'bow'. The centre joint puts the contact square-on (or preferably at the top of the tube) and the leading edges push upwards against the cantilevered wire-anchorage. The 'bow' seen on the ground disappears in the air.

Variations will occur between different Flash wings, owing to perfectly normal and unavoidable manufacturing tolerances. The centre cut is designed as 5 degrees when viewed from the front or rear, and 11 degrees when viewed in plan. The usual tolerances in wire lengths, assembled control-frame dimensions, king-post and top-rigging lengths, sail tension, etc., make it virtually impossible to get the loaded and unloaded dimensions precise.

However, the overall appearance with the wing relaxed on the ground is unimportant. What matters is the situation when it is loaded in flight. Here, again, considering the loadings on the cross-tube (i.e. bolted to one side, cantilevered, and jointed in the centre), it is - of course - impossible to get the cross-tube exactly straight, except by the merest chance. That is why the cross-tube is designed to be greatly over-sized, at 2 5/8 inch

outside diameter; this is far larger than it needs to be in order to carry the design loads.

The whole matter is further complicated by the visual effect when viewing inside the sail. The shiny tube reflects each curved batten, exaggerating the apparent 'bow'.

Nevertheless, as a direct result of the normal and unavoidable manufacturing tolerances mentioned above, and the usual 'bedding-in' which takes place on all bolted structures, we have come across wings which can be significantly improved by relieving the centre joint. To effect this improvement, file off up to about 30 'thou' (0.7-0.8 mm) from the bottom edge of the tubes where they abut at the centre. This ensures that they only bear against each other at the top, as the design intends.

NOTES FOR INSPECTORS AND OWNERS.

1. If an inspector considers that the cross-tube is bowed, then he should first ensure that the effect is not purely a visual one. If certain that it is bowed, proceed as follows:

2. Support the whole aircraft at the leading edge/cross-tube position, so that the weight of the trike is also off the ground, preferably at all-up weight.

Without specialised rigging stands, this is probably impossible, so it is usually sufficient to have two strong persons pushing up as hard as possible at the junctions between the cross-tubes and the leading edges. When loaded in this way, the 'bow' usually disappears.

3. If it does not, inspect the centre joint with the upthrust still applied. A slight gap should be seen between the butting ends of the 2 5/8 inch diameter tubes. Remember that there is a central spigot inside these tubes, so you cannot see directly through the gap.

If there is a gap at the TOP, the cross-tubes will benefit by relieving around the lower half of the joint. Simply pencil-mark and file back to the mark, (to the limit of 30-35 'thou' maximum).

4. Our factory standard is that up to 5/16", 8 mm, of 'bow' is acceptable, as checked by reference to a taut string.

5. If, after carrying out Steps 1 and 2 above, it is considered that 'bow' still exists, we will freely carry out the relieving of the centre-joint, provided that the wing is brought to, and collected from, our factory."

John Hudson. (Mainair Sports Ltd).

Peter Lovegrove

Peter Lovegrove

Chief Inspector to the BMAA

4 August 1987

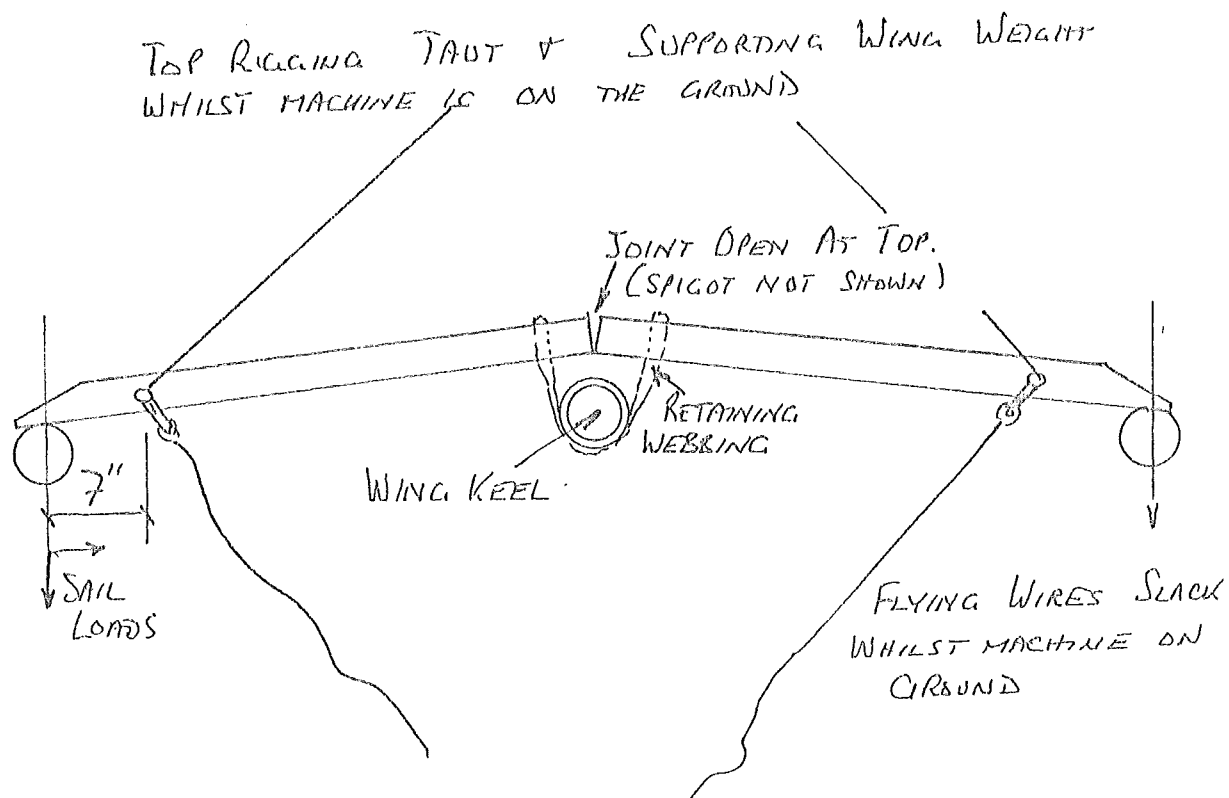


FIGURE 1

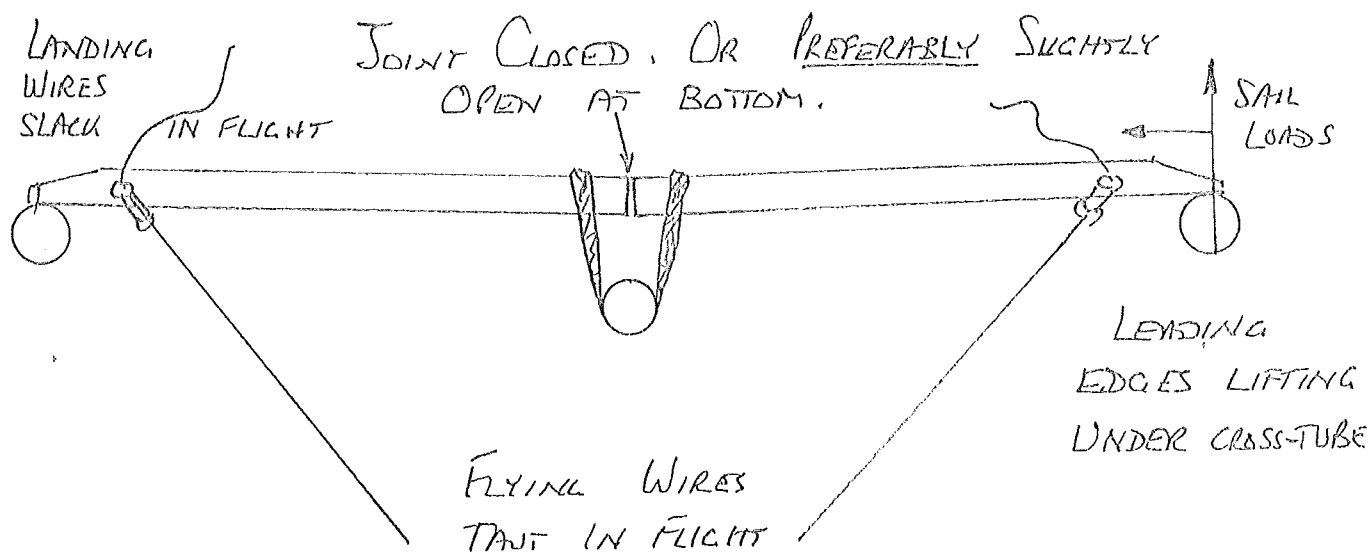


FIGURE 2

TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS
FILE THIS INFORMATION.

Re: Machining of Nylon wheels

Alan Gordon, of 12 Telford View, Linlithgow, West Lothian, recently acquired a puncture on his Pegasus XL. On dismantling the wheel, he found the sort of gap between the halves which has been discussed in Flight-line; he also found the expected 'perishing' of the inner-tube along the line of contact with this gap, giving a fairly certain source for the deflation.

Having his own lathe, he machined the wheel-halves down as described in Alert No 42, achieving a greatly reduced gap. However, before reassembling the wheel as an entity, he bolted the halves together. The small gap closed as the bolts were tightened but, as they became fully torqued, the centre-line joint 'peaked'. Slackening the bolts removed this ridge, but Mr Gordon considered this to be an unsatisfactory situation.

He then fitted fibre washers to the four bolt bosses (in effect, replacing the machined-off Nylon), and tested again. All seemed well until he fitted a new tube with tyre and inflated to 12 p.s.i.g., when straining was observed under the bolt heads. At this point, he resigned himself to buying a new wheel.

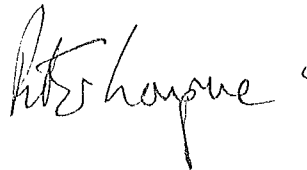
Having made that decision, he carried out one further test: He inflated the tube to 20 p.s.i.g., the pressure which Pegasus recommend for use on hard surfaces. It was at this point that, because of the lack of remaining Nylon around the bolt-bosses as a direct result of the machining, the two halves blew apart, fortunately without injury to Mr Gordon, for which he was extremely lucky.

Accepting now that machining is a most dangerous practice in this situation, he has come up with a simple and elegant solution which - as far as I can determine - does not appear to contravene the terms of the Permit to Fly of his aircraft.

Firstly, before he refits the wheel-halves together, he puts a layer of silicone rubber round the centre edge of one half, approximately 1/4" (6 mm) thick. (This is the clear, filler-free version of 'bath-caulk', costing about 99p from B & Q. Do read the instructions carefully). He then waits until the rubber has fully cured, before re-assembling the wheel.

Secondly, he cuts what is effectively a wide, strong, rubber band from a suitable car inner-tube. On bolting the halves together, he stretches this band over their centre region before fitting the tube.

Peter Lovegrove
Chief Inspector to the BMAA
13 July 1987



TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS
FILE THIS INFORMATION.

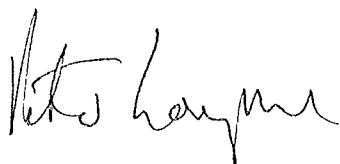
Re: Rotax engines 377, 447, 503 and 532.

Reduction gearbox, torsional shock-absorber. Configuration with
propellor-shaft in one piece.

PRELOAD SETTING OF THE 12-SPRING ASSEMBLY, EXECUTION WITH 4-DOG
HUB.

Rotax have made some further amendments to their Service Bulletin
number 20L 87/E which was recently issued. The latest is dated
May 1987.

Anyone wishing to obtain a copy of this document can do so by
contacting Cyclone Hovercraft Ltd at "Burnside", Deppers Bridge,
Leamington Spa, CV33 0SU. (Telephone 0926-612188)



Peter Lovegrove
Chief Inspector to the BMAA

17 July 1987

TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

UNLEADED PETROL

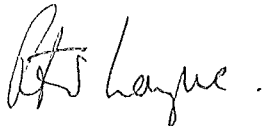
Peter Davies has been given information which suggests that the use of unleaded petrol may be harmful to our engines in a manner not hitherto recognised.

The suggestion is this: The rate of combustion of unleaded fuel is so fast - that is, the velocity of the flame front so high - that the effect is more like an explosion than the normal, controlled burning.

This is seen by the various bearings in the engine and by the small-end bearings, in particular, as a violent blow at each firing cycle. (Put another way, it introduces consistent knocking in the engine, in spite of the presence of considerable amounts of alcohols to ameliorate this problem). In consequence, these necessarily small-dimensioned bearings are the first to break up, with all the ensuing engine damage which must follow.

It is hard to judge whether this is all hypothesis without data. So may I please ask Inspectors and Safety Officers to make enquiries as to whether those fliers who have experienced engine failures involving actual break-up of bearings, were using unleaded petrol at the time. Any information should be sent to me at 1, Beaufort Close, Fleet Meadow, Didcot, Oxon OX11 8TS.

Obviously, if we can establish any sort of a pattern, we may be able to forestall a great number of future failures of the most expensive and hazardous kind.



Peter Lovegrove
Chief Inspector to the BMAA

6 June 1987

TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

SAFETY BULLETINS ON ROTAX ENGINES.

Cyclone Hovercraft Ltd have produced a set of very detailed Safety Bulletins relating to the following:-

- (1) Rotax engine small-end bearings (Safety Bulletin CH UL 1/5/87)
- (2) Rotax engine gearbox-mounting bolts (Safety Bulletin CH UL 2/5/87)
- (3) Rotax engine installation instructions. (1 UL 87/5) It should be noted that this is an updated version, with a number of important changes.
- (4) Rotax Service Information (6 UL 86/E). This relates to the preload setting of 12-spring gearboxes.
- (5) Rotax Service Information (2 UL 87/E). This relates to the preload setting the 12-spring gearbox with the 4-dog hub.
- (6) Cyclone Gearbox Servicing Guide and Summary (CH UL 1/4/87). This document should be read in conjunction with the above Gearbox Service Information Sheets.

This very detailed information can be obtained from
Cyclone Hovercraft Ltd
"Burnside"
Deppers Bridge
Leamington Spa
Warcs
CV33 0SU

by applying in writing and, presumably, by submitting the requested fee and a stamped, addressed envelope. (This is a considerable package of information and one cannot expect it to be supplied free of charge).



Peter Lovegrove
Chief Inspector to the BMAA

TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

BLOCKING OF PAPER FILTERS BY EMULSIONS FORMED IN FUEL.

CHIEF INSPECTOR'S NOTE: I have chosen to issue this as a general note, rather than as a Defect Report related solely to Ravens and Sprints, because I consider it has much wider implications. I have explained why, below:

Peter B. Robinson of Argents Farm, 114 High St, Sutton, Cambs CB8 2NW (Tel Ely 778446) has reported the formation of an emulsion on the paper element of the diesel-type filters fitted to Raven and Sprint trikes. He has experienced the problem twice.

With relatively warm temperatures on the ground, there is an adequate flow of fuel. Under the colder conditions which normally occur in flight, the emulsion thickens and the flow is reduced.

Owners must recognise that this problem of emulsified fuel is unlikely to have any direct relation to the use of a diesel filter. Emulsions like this are primarily the product of the oil and water and the (engine) vibration required to thrash them together.

What may have a significant bearing on the ease with which emulsions are formed is the type of oil in use. If they do appear, first try a different oil or generic group of oil. That is, if you get emulsions with straight mineral oils, try blended mineral/synthetic oil or - just possibly - straight synthetic oil, or vice versa. But please, apropos a discussion which will appear in Flight Line soon, do consult the manufacturer first, before trying a new oil system! Ultimately, the owner is the one responsible for the treatment he or she gives the engine and for the risks taken with its overall durability.

As a first-line protection, a very stringent approach to the pre-flight inspection of filters is called for, especially since a ground-run of the engine is unlikely to indicate the problem.

Another point to remember is always to maintain the fuel-tank in a full state, so that water is not induced to condense in it. In winter, this is doubly important.

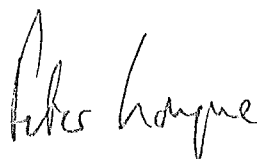
If a water-drainage tap is fitted to the fuel system, use it regularly.

Unfortunately, if none is already fitted, the owner cannot set about installing one on his or her own initiative, nor can an inspector ask for one to be fitted, however sensible the addition may be.

The manufacturer of a Permit aircraft must be consulted and asked to approve such a change. For Type-Acceptance or indefinite Exemption aircraft, the Godfather and the BMAA Technical

Committee must be consulted and asked to approve the modification.

If anyone has any further information about this particular problem, especially in relation to the type of oil in use, please write and tell me about it, so that we can advise owners and try to prevent accidents.



Peter Lovegrove
Chief Inspector to the BMAA

6 December 1985

TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

THE SWAGING OF FLYING WIRES.

Earlier this year, a fatal accident occurred with a Lightning flex-wing. The AIB found during their investigation that a failed flying-wire had copper swages which were mal-formed.

Further checking revealed that swaging dies had been employed incorrectly. The owner may have made the swages himself and, in his ignorance, crimped the swages poorly with the wrong part of the tool.

All owners are therefore strongly advised to examine the swages on all cables on their machines or, if they feel they are not competent to do the checking themselves, to seek help.

All inspectors are asked to be especially vigilant in examining swages during routine surveys, since so many machines, particularly the older ones, may have had new cables and ferrules fitted. Because these Orphan aircraft change hands so often, the present owners may be totally unaware of the history or origin of such items as cables. It therefore falls to the inspector to try to anticipate problems.

Incorrect swaging may be interpreted to mean swages which have been inadequately crimped and which may allow the cables to slip out; it may equally mean that the swages have been over-crimped, to the point where a significant part of the cable has been severed or drastically weakened. Look carefully for either.



Peter Lovegrove
Chief Inspector to the BMAA

20 October 1986

TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

KOLECKI VARIABLE-PITCH PROPELLORS

We have, in the past, carried advertisements for Kolecki propellers in Flight Line.

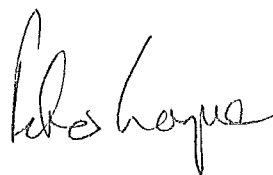
Mr D.G.Petersen of Denmark has written and telephoned with information about what he considers the dangerous fallibility of these propellers.

There appears to be a totally inadequate amount of material inboard of the bolts which hold the blades to the hub. On looking at the manufacturer's sketch of his recommendation for absorbing vibration by mounting the whole blade system in rubber, so that the blades actually 'float', I can only say that I share Mr Petersen's concern and can understand why he should have had problems!

For some time, Mr Petersen was unable to make contact with Kolecki Aviation at their advertised address, either by letter or telephone. When he did finally contact them, he was sent some pieces of rubber and the above-mentioned sketch as to how to fit them into the blade system.

Therefore, may I urge all inspectors to be alert for the use of a Kolecki propeller on any BMAA microlight. If one is found, insist on its being dismantled so that the condition and design of the blade roots can be properly examined and assessed.

If there is the slightest doubt about the safety of the unit, the aircraft must be grounded, until either the decision that the propeller is dangerous has been confirmed (by a second inspector, by an Area Inspector or by me), or the propeller has been replaced.



Peter Lovegrove
Chief Inspector to the BMAA

27 August 1986

TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

FUJI ROBIN "LIGHTWEIGHT" TWINS

I have been asked if the above engines can acceptably be used on BMAA microlights after the crankshafts have been changed for the stronger, replacement version.

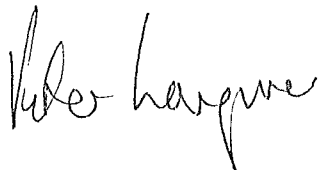
The BMAA has no authority actually to prevent any member from continuing to fly with this engine in its original state, with that appallingly dangerous crankshaft fitted. We therefore cannot, and certainly would not, prevent anyone flying with it rendered so much safer by having a new-type crankshaft fitted.

So I ask inspectors to accept Lightweight engines which have had their crankshafts changed, always checking carefully to ensure that reassembly of the engine appears to have been done with adequate care.

If an inspector comes across such an engine with its original crankshaft, all he can do is to advise the owner of the dreadful failure rate of these shafts (over 50% have now broken, mostly in flight) and suggest that it be replaced. We have no power to do more to safeguard owners in these circumstances.

Peter Lovegrove
Chief Inspector to the BMAA

8 September 1986



TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

STAGE INSPECTIONS OF SHADOW KIT-BUILT AIRCRAFT

Let me answer the questions which have arisen by stating the conditions under which this form of inspection may be carried out, so that there can be no possible ambiguity about it.

1. Stage inspections on Shadow kits can be carried out by professional inspectors in our ranks, that is, those with the appropriate aeronautical licences. They can also be done by other less-qualified inspectors who have attended special training courses at CFM Metal-Fax and obtained written certification from them, affirming that the manufacturers are willing to accept them as Stage Inspectors on Shadow kit-built aircraft.

A copy of this certificate of competence will be sent to me for filing. A replacement Inspector's Ticket will then be issued, listing the Shadow as a 'Special' type for that particular inspector.

Professional inspectors might also wish to obtain specialised instruction on this high-performance aircraft.

CFM Metal-Fax will be organising courses in a few weeks; these may be one- or two-day courses. A charge will be made for the provision of this instruction, which will be advised when known.

2. Visit reports, notes and Stage-Inspection chits - the latter from the booklet to be compiled for us by CFM - will be sent to the manufacturer and copied to me.

3. The owner must have registered the aircraft during the construction period.

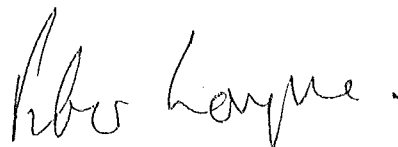
4. CFM Metal-Fax must be informed when the aircraft is nearly completed.

5. CFM Metal-Fax will apply for the Permit to Fly for Test Purposes (PTFTP).

6. After the PTFTP has been issued by the CAA to CFM Metal-Fax, CFM will make the final inspection and - if satisfied with the construction - make the test flight.

7. On satisfactory completion of the test flight, form AD959 will be submitted to the CAA by CFM Metal-Fax (the organisation approved for this purpose) and the CAA will issue a full Permit to Fly, directly to the owner.

Again, I must emphasize that this arrangement for Stage Inspections does not apply to any other home-built microlight.



Peter Lovegrove
Chief Inspector to the BMAA
3 August 1986

TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

THE USE OF SYNTHETIC OILS IN TWO-STROKE ENGINES.

Malcolm Saunders of BETACRAFT Ltd has drawn my attention to a problem which can arise when synthetic oils are used as the lubricant in high-performance 2-stroke engines like the Robin 330 and 440, for example.

The quality of lubrication afforded by some of these oils, such as AMS oils, is - in itself - excellent, but that can be a serious disadvantage in one important respect. The caged rollers which are used in the 'big' and 'little' ends of the Robins depend upon a minute amount of friction to make them rotate within their cages as they turn on the shafts or gudgeon-pins.

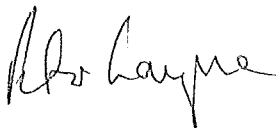
Synthetic oils are so slippery that the rollers simply skid instead of rotating. Flats develop upon them and the process of skidding is encouraged until the ultimate and unavoidable seizure occurs. (Gyroplane enthusiasts will remember that this scourge also struck the McCulloch, so nothing is new!).

Owners are therefore warned that if they choose to use synthetic oils in their Robin engines, they do so entirely at their own risk and against the advice of Betacraft Ltd, who will accept no responsibility for damage consequent upon such practice.

Synthetic oils - if used in an engine which has previously been run on conventional oil-petrol mixes - also seem to be the cause of softening of the seals and adaptors fitted to Robin engines. It appears to be the mixing of traces of synthetic and non-synthetic oil which produces the problem.

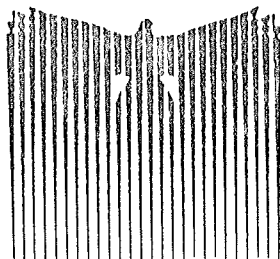
So, if synthetic oils are to be used (only at the owner's risk), the engine must be stripped and cleaned of all traces of other oils and new seals and adaptors fitted first.

If the owner later wishes to revert to ordinary oils, the process must be repeated!



Peter Lovegrove
Chief Inspector to the BMAA
27 July 1986

mainair sports



Mainair Sports Ltd.
Unit 2, Alma Industrial Estate, Regent Street,
Rochdale Lancs. OL12 0HQ England.
Telephone: Rochdale (0706) 55134
Telex: 635091 Albion G-Attention/Mainair

Date: 7th July, 1986

Our ref: 18

NOTICE TO OPERATORS. File with your aircraft manual.

Note: If you no longer own your microlight please pass this bulletin on to the new owner and let us know his address.

Flash Microlight Wings.

Cross tube tension. Some permit renewal inspections have revealed chaffing between the cross tube tension wires where they are held together by heat shrink tube at the tang attachment. Operators should remove this shrink tube and attach the wires to each other loosely with a plastic cable tie or nylon cord. They are held together at this point simply to ensure pull back brings both cables to the rear at the same time. Both wires should be inspected for strand damage and suspect wires replaced.

Side wire life. Our manual calls for mandatory replacement of the side wires at 250 hours. We have not had reports of any failures and very few requests for new wires. Please check your log and follow our advise. We would appreciate out of time wire sets for examination and testing.

Side wire attachment. We have received reports of tube marking caused by the plastic protection moving position and a terminal catching the leading edge/crosstube when the wing is de-rigged. Examine the area and if necessary fix the plastic with a strip of tape. Additional protection for the crosstube can be achieved by fitting a section of propeller tape. If you require this, send in a SAE and your serial number and two pieces will be supplied FOC.

Scorcher Wing - Aerobatics. Flex wing microlights are non aerobatic. The limitations are printed in your manual and on the placard. A pilot in Norway was reported to have been attempting a full loop when he stalled, the trike unit fell into the wing breaking the front strut. The aircraft tumbled 2 or 3 times, went into a high speed spin at which stage the pilot activated his BRS parachute. He escaped with internal bleeding and bruising. If you fly outside the envelope and get it wrong you will break the aircraft. Without a parachute you will also die. Flying is about pleasure - observe the limitations.

Gemini Trikes - Upright Rotax Engines - Rear Fuel Tank. The filter fitted to the tank dip pipe is proving to be insufficient to prevent minute particles getting into the carburettor. We have located a fire proof aluminium in line filter which can be fitted into the hose just before the primer bulb. Please send a SAE and serial number and we will send one to you FOC. No serial number, no filter.

Ensure you always re-fuel through a funnel which has an inbuilt filter and if yours does not, stretch a nylon stocking over the funnel neck.

Front strut fatigue. A heavy nose wheel landing can cause a whiplash failure of the front strut 9" from the top at the end of the internal sleeve. After every landing which could be considered "hard" or if you experience very rough ground examine the strut. Microlights used for training are susceptible to this failure which may also result from fatigue. An instructor reported a failure of the strut in flight after circuit and landing practice. Loss of the front strut may result in loss of the aircraft so check carefully. We are currently trialing a back up wire modification.

Contd.2.



Pump mounting bracket - upright Rotax. We are experiencing fatigue failure of the black aluminium tray which supports the air cleaner and fuel pump. Examine yours for small cracks emanating from the corner or fold line. If you discover cracks, contact us and a replacement tray will be sent. We are designing a stronger tray to eliminate the problem.

440 Robin Engines. Bulletin No. 14 of March 1985 and No. 15 of July 1985 drew your attention to the failure of the propeller hub casting just behind the mounting flange. Since then there has been two more failures. Inspect this area very carefully before every flight. The crack is progressive and can be located before flight. Pulleys stamped " 25 TF " are without problem but all others should be considered suspect unless manufactured before November 1984.

Monopoles - all models. Bulletin 17 and 17A drew your attention to fatigue problems with monopoles. The returns - 38 - all report no evidence of fatigue cracking but the strut must be inspected as detailed. Monopoles marked with a number 2 at the very base have additional sleeving and a 6mm internal wire. If your machine does not have a number 2 stamped refer to bulletin 17.

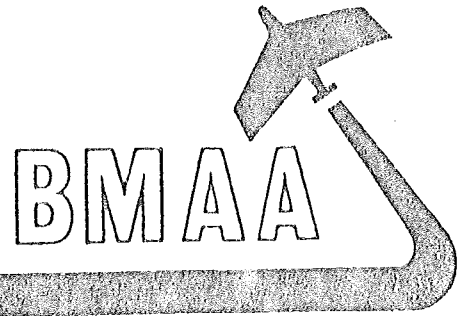
Gemini Trikes - H.T. Leads. A well-known pilot of a 462 Gemini Flash has suffered numerous mis-fires and rough running. After weeks of irritating problems culminating in a forced landing and a 100-mile trailer ride home, he identified HT 'tracking' in the plug cap. Under load the HT spark will take the easiest route, and in this case shorted to earth. Keep HT leads clean and free from damp and oil. Inspect frequently for cracks or scratched plug caps.

Gemini Trikes - Throttle Cables. We have designed and are testing a 2:1 throttle mixer box which features dependent spring retraction of the hand and foot throttle cables to prevent wire kinking and sticking throttles. In the meantime remember - when changing from hand to foot, close the hand lever first BEFORE opening up with your foot. Operate the hand control with care.

Gemini Trikes - Upright Engines and all other Trike Units. A pilot recently suffered the loss of the hexagon bolt which fixes the exhaust mounting brackets onto the engine block. This broke his propeller and sent pieces of propeller through the sail.

We recommend that all operators should lock wire these bolts before further flight to prevent a similar event occurring. In addition, the studs which fix the exhaust manifold to the engine have also been reported as coming loose. These too should be lock wired. There are numerous bolts and nuts on the engines supplied by Rotax which are not lock wired and in over a year of use have not given any reason to suspect they may become loose. However, Murphy's Law applies, and if something can come loose it seems that it eventually will do.

BRITISH MICROLIGHT AIRCRAFT ASSOCIATION



NEW STREET, DEDDINGTON, OXFORD OX5 4SP

0869 - 38888

9th July 1986

To: All Lightning Owners,
Inspectors
Schools/Clubs Safety Officers.

A L E R T.

Southdown Lightning Wings.

Doubts have arisen about the suitability of some early Southdown Lightning Wings for use in powered combinations.

The simplest way to identify those wings considered safe for use with power is that the control frame uprights will have been sleeved AT THE TIME OF MANUFACTURE.

Therefore, if there is the slightest doubt that

- the control frame sleeves were not fitted at the time of manufacture
- they appear to be sub standard and not fitted at the time of manufacture
- if no sleeves are fitted at all

that particular wing must not be flown again with power until the manufacturer has confirmed that it is safe to be used for that purpose.

PA. PETER LOVEGROVE.

TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

STAGE INSPECTION OF CFM SHADOW AIRCRAFT, UNDER CONSTRUCTION

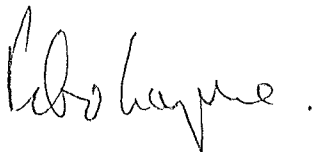
FROM FACTORY-PRODUCED KITS.

The CAA Airworthiness Department have kindly agreed that BMAA inspectors - who are suitably qualified - may inspect CFM Shadows being constructed from kits which have been specifically prepared by CFM Metafax, where the builders are BMAA members.

By "Suitably qualified", I refer to those inspectors who are already cleared to examine 3-axis microlights and composite constructions or who attend training sessions with CFM Metafax (if that Company is prepared to offer such training), and then produce acceptable evidence of having completed such training to the complete satisfaction of that Company.

By whatever route the inspector has become acceptable for the execution of these stage inspections, he or she cannot carry out the final inspection. That must be done by CFM Metafax Ltd; if this is not the case, then no Permit to Fly can be issued.

Inspectors must note that this arrangement is, at present, unique to the CFM Shadow. It does not, for example, apply to the Aerotech Sorcerer, because that is not a type-Approved design at the moment.



Peter Lovegrove
Chief Inspector to the BMAA

7 July 1986

TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

THE INSPECTION OF CABLES AND SWAGED FERRULES.
XX

Recent events have tragically served to emphasize the vital importance of inspecting cables and their end ferrules most carefully.

Inspectors must never assume that the cables on a microlight are either sound or original. If they look new, especially on an old aircraft, that may be the most crucial reason for studying them very closely.

It may be that they have had the wrong ferrules fitted, or the correct ones badly fitted. Even with the right sort of crimping tool, for example, it is possible to make a dangerous and insecure crimp if the tool is out of adjustment for the cable and ferrules involved.

Equally, the wrong sort of crimp may readily cut through a substantial proportion of the cable cross-section, rendering it quite incapable of supporting the loads for which it was designed

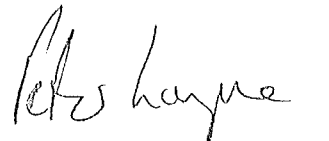
Another problem which has arisen is the determination of whether corrosion is present on the type of cable with a black opaque coating. With the clear covering, one can see if any worrying discolorations have appeared beneath, but that is impossible with the black covering.

One cannot remove the coating, nor ask for sound cables to be replaced, so it becomes a matter of common sense and judgement.

Consider the overall appearance of the machine in question, whether any cables are badly and carelessly kinked and whether there is any serious corrosion elsewhere on the craft. If anything gives cause for concern, then be even more scrupulous in scanning and feeling all of the cables, along their whole length. But be especially careful to look for jammed end-thimbles, indicating that the cable could not have freely self-aligned with the pulls applied. It is here in particular, if anywhere, that one may expect to find incipient failure and the ingress of moisture.

(My thanks to Alan Rose for highlighting this latter problem).

Peter Lovegrove
Chief Inspector to the BMAA.



7 July 1986

TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

CUTLASS WINGS USED ON DUAL AND SOLO TRIKES.

Mr Len Gabriels, director of Skyhook Sailwings Ltd, has asked that the following information be brought to the attention of all BMAA Inspectors and interested owners as a matter of urgency.

"A potential problem exists on Cutlass wings used on trikes, for which BMAA Inspectors must check during routine inspections.

The attached drawing (overleaf) shows the sliding box arrangement on the keel, right at the heart of the wing. The tops of the uprights go into the brackets which are seen right at the bottom of the drawing; the trike attaches to the pivot bolt as marked. The weight of the trike and its load is therefore taken by the two bolts which pass through the spacers into the sliding sleeve itself. The sleeve is aluminium alloy and the thickness of the metal under the bolt-heads is such that, provided that the sleeve is undamaged, it will support the load in a normal test.

In its original form as a hang glider, before trikes were heard of, this arrangement was satisfactory for the weight of a hang-glider pilot, who was attached to the same point. Even as a single-seat microlight, it was OK but, when these wings began to be beefed up to take the weight of a dual trike, we added a third screw; again, this is marked on the drawing.

Although the original two screws were satisfactory for flight loads, we felt that it was possible that, with bad landings, this area could be weakened and the bolts encouraged to begin pulling through the aluminium sleeve. This was before a system existed to report possible problems and I had almost forgotten about it, having made sure that all dual seaters had this extra screw when they were built, a long time ago.

Now a flier with a dual trike and Cutlass has asked for a new sleeve because of damage to this part and says that there are only two screws in it. I will look at this one myself but wish to advise you that inspectors should ensure that any two-seat Cutlass has three screws as shown. On dual machines, this is absolutely obligatory. It would be prudent to have single seaters modified to conform with this simple but important requirement as well.

We used an UNBRAKO screw with countersunk head.

It is likely that some Cutlasses sold as hang gliders were converted to trike use without reference to Skyhook Sailwings Ltd and I would like to be sure that all Cutlasses are looked at.

Len Gabriels Director: Skyhook Sailwings Ltd."

CHIEF INSPECTOR'S FOOTNOTE:

I am grateful to Mr Gabriels for bringing my attention to this potential problem area.

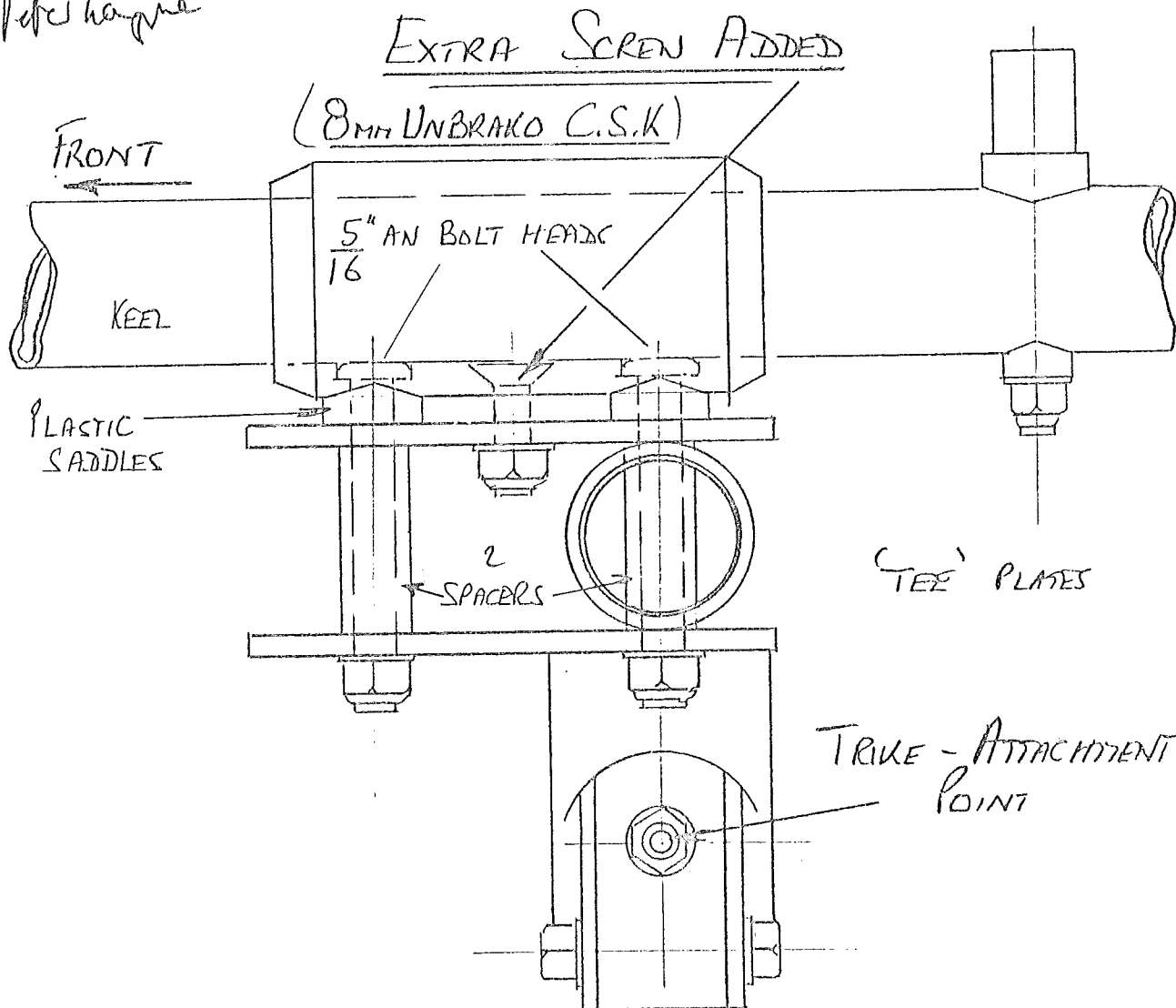
Will all BMAA Inspectors make a point of checking these parts of Cutlass wings most carefully, as recommended by the manufacturer?

If they find the third screw to be omitted, the owner must be asked to install one or have a competent organisation do it; preferably the manufacturer, since he can give the wings - now ageing a little - a thorough survey at the same time.

Peter Lovegrove
16 April 1986.

Chief Inspector to the BMAA

Peter Lovegrove



SLIDING CENTRE-BOX ASSEMBLY
'CUTLASS'

TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

SOLAR WINGS LTD HAVE ISSUED THE FOLLOWING SERVICE BULLETIN (No

002) IN RELATION TO FUEL SYSTEMS ON THEIR AIRCRAFT:

SOLAR WINGS LIMITED

A Member of the Pegasus Transport Systems Group

UNIT A, 56 GEORGE LANE,
MARLBOROUGH, WILTSHIRE SN8 4BY
Telephone: (0672) 54414/53598
Telex: 449703

SERVICE BULLETIN

No. 0002

Date. 24th June 1986

Page 1 of 2

THE CAA HAVE CLASSIFIED THIS SERVICE BULLETIN AS MANDATORY

SUBJECT:

Fuel system cleaning and inspection.

MODELS AFFECTED:

PEGASUS XL-R
PEGASUS FLASH
PEGASUS FLASH 2.

SERIAL Nos AFFECTED

All A/C with Trike Serial
No's prefixed with SW-TB

COMPLIANCE TIME:

Before next flight.

PURPOSE:

Field reports have been received concerning the fuel system on the above mentioned models. Reports include the following:

(1) The suction side of the fuel system being partially blocked by foreign objects at the following places:

- (a) Fuel Cock.
- (b) Tank Pick-up Tube.

(2) Air leaks developing at:

- (a) The connection between the flexible hose to the tank and the tank pick-up tube.
- (b) The washers sealing the air bleed screws on top of the fuel filter bowl.

INSTRUCTIONS:

(1) Remove and blow through all fuel lines between tank and fuel cock ensuring there are no obstructions to the fuel flow.

(2) Remove and blow through fuel cock checking that the cock operates normally without restricting the fuel flow.

(3) Remove the fuel tank and:

(a) Ensure that there is no loose paint in the immediate vicinity of the tank filler cap any remaining paint that may work loose during the fitting or removing of the fuel cap should be removed using a medium roughness abrasive cloth. Thoroughly clean the area of all residual grit.

(b) Flush out the fuel tank using clean fuel also checking that there are no obstructions by blowing through the pick-up and vent pipes.

(4) Check the fuel filter bowl bleed screw 'O' rings for signs of perishing and replace as necessary.

(5) During the refitting of components after the above operations have been carried out it is essential that all jubilee clips sealing the joints in the fuel system are tightened sufficiently to ensure air tightness.

MATERIAL REQUIRED:

If required:

2 off 5mm I/D fuel resistant sealing washers.
1 off 1/2" Jubilee clip.

AVAILABILITY OF PARTS:

Ex Factory.

EFFECTIVITY DATE:

Immediate

SUMMARY:

(i) ATTENTION IS DRAWN TO THE OPERATORS HANDBOOK REF:

PARA. 6.3. RE. FULL POWER CHECK BEFORE TAKE OFF.

PARA. 9.1 (Pegasus Flash 1 and 2) PARA. 9.7. (Pegasus XL-R) RE. FUEL SYSTEM INSPECTION SCHEDULES.

PARA 12. RE. FILTERED FUEL ONLY TO BE ADDED TO THE FUEL TANK.

(ii) Shortly, the availability of a modification to the fuel system incorporating a removable pick-up pipe fitted with an end strainer will be announced.

(iii) Should operators be in any doubt or in any way uncertain as to the correct procedures for carrying out the contents of this bulletin do not hesitate to contact either your selling agent or contact Solar Wings.

For details of points (ii) and (iii) contact either your selling dealer or Solar Wings direct on:

Marlborough (0672) 54414

If you are not in possession of the affected aircraft, please forward this information to the current owner.

TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

Re: Crankshaft failure on the Lightweight Fuji Robin twin.

It is now some time since these engines were in the limelight, with their crankshafts breaking in so many instances (see Defect Report Number 003).

However, in case Inspectors think that they can relax and regard the problem as "Gone away", let me notify them of another such failure.

The crankshaft of the engine on a Lightweight Twin powering a Puma Sprint (G-MMST) failed recently, whilst the aircraft was flying at 5000 feet.

A safe landing was made and it was found that there was extensive damage to the cooling-impellor casing, caused by the impellor running forward into it. It appeared that the crankshaft had broken between the impellor and No 1 cylinder.

Because of the height available and the proximity of the take-off airfield, this incident did not lead to a disaster. It could easily have been otherwise.

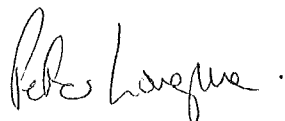
The engine had never been stripped down and checked (Defect Report 003), because it had exceeded 20 hours at the time the multiple crankshaft failures became of general public knowledge.

Southdown International recommended (September 1985) that, with more than 20 hours accrued and if the stated maximum RPM - 6900 - had never been exceeded, there was no need to carry out the strip-down and inspection.

This particular engine had done 41 hours and 45 minutes at the time of the failure. The maximum speed of rotation had been checked with highly accurate aircraft-tuning equipment on more than one occasion and had been found to be incapable of attaining anywhere near 6900 RPM.

Inspectors are therefore urged to continue to insist that all Lightweight Fuji Robin Twin Engines, which have not been checked, be stripped down and their crankshafts properly examined.

Where the engines are fitted to Puma Sprints, the owners should be made aware of the circumstances of this latest failure and asked to cooperate for their own safety.



Peter Lovegrove
Chief Inspector to the BMAA.

TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

RE: EIPPER QUICKSILVER MX AND MXII TYPE ACCEPTANCE.

In response to a CAA letter concerning the above microlights, Barry Gordon - the "Godfather" for the types - has issued the two Service and Maintenance Bulletins shown overleaf.

Will inspectors please bring them to the attention of all Quicksilver MX I and II owners, in case they might not have seen them?

Peter Lovegrove
Chief Inspector to the BMAA

(21 February 1986

SERVICE AND MAINTENANCE BULLETIN

Issue Date: 14th January, 1986
Page 1 of 1

AEROLITE
MX, MXII, and MXL - 8601 - A

Description:

Eipper Quicksilver MX and MXII & Type Acceptance

During the Type Acceptance of the above type of aeroplanes it was recommended by the CAA Flight Department that the following should be promulgated to owners of the above types of microlight aeroplanes;

- 1) notification that the maximum demonstrated flight speed in the UK is 45 mph and,

the statement that "three-axis control is achieved by two-axis movement of the sidestick when the rudder pedal modification is not fitted. Care is therefore needed when inexperienced on the type".

- 1) above has been covered by the placarded V_{NE} restriction of 45 mph which is also quoted on the TADS.

- 2) above is a sensible way to approach any new aircraft type, especially one with an unfamiliar control system

SERVICE AND MAINTENANCE BULLETIN

Issue Date: 14th January, 1986
Page 1 of 1

AEROLITE
MX, MXII and MXL - 8602-A

Description:

MX Rudder Pip Pins

Due to the possibility of 3/16 pip pin ball lock failure in rudder hinges, one of the three modifications given below should be implemented immediately.

1. Drill 1/16" diameter hole 3/32" from shaft end and install safety pin or safety ring.
2. Substitute 3/16" X 3/8" clevis pin (aircraft quality) and safety ring.
3. Substitute AN3-5A bolt with castle nut and safety ring.

TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

Re: STRENGTHENING MODIFICATIONS TO STRIKERS AND SEALANDERS.

Clifford Sims, of 33 Pinckneys Way, Durrington, Salisbury, Wiltshire, SP3 8BT, (telephone 0980-53626) wrote into say that he had experienced trim problems with a Striker after carrying out the strengthening modifications described by David Simpson.

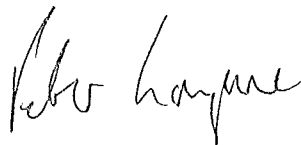
David was able to advise Mr Sims as follows:

"The problem you describe is normally attributable to excessive tightness of the outboard bowsprit wires.

This pulls the rear of the sail tight and shifts the centre of pressure back.

The solution, fortunately, is very straight-forward; move the hang-point rearwards until a satisfactory trim position is found. If you run out of range trying to do this, jack up the tail by shortening its support lines from the top rigging. Adjustment of one or both of these should solve the problem".

Inspectors might have occasion to pass this information on to owners or check-pilots who encounter the same problem.



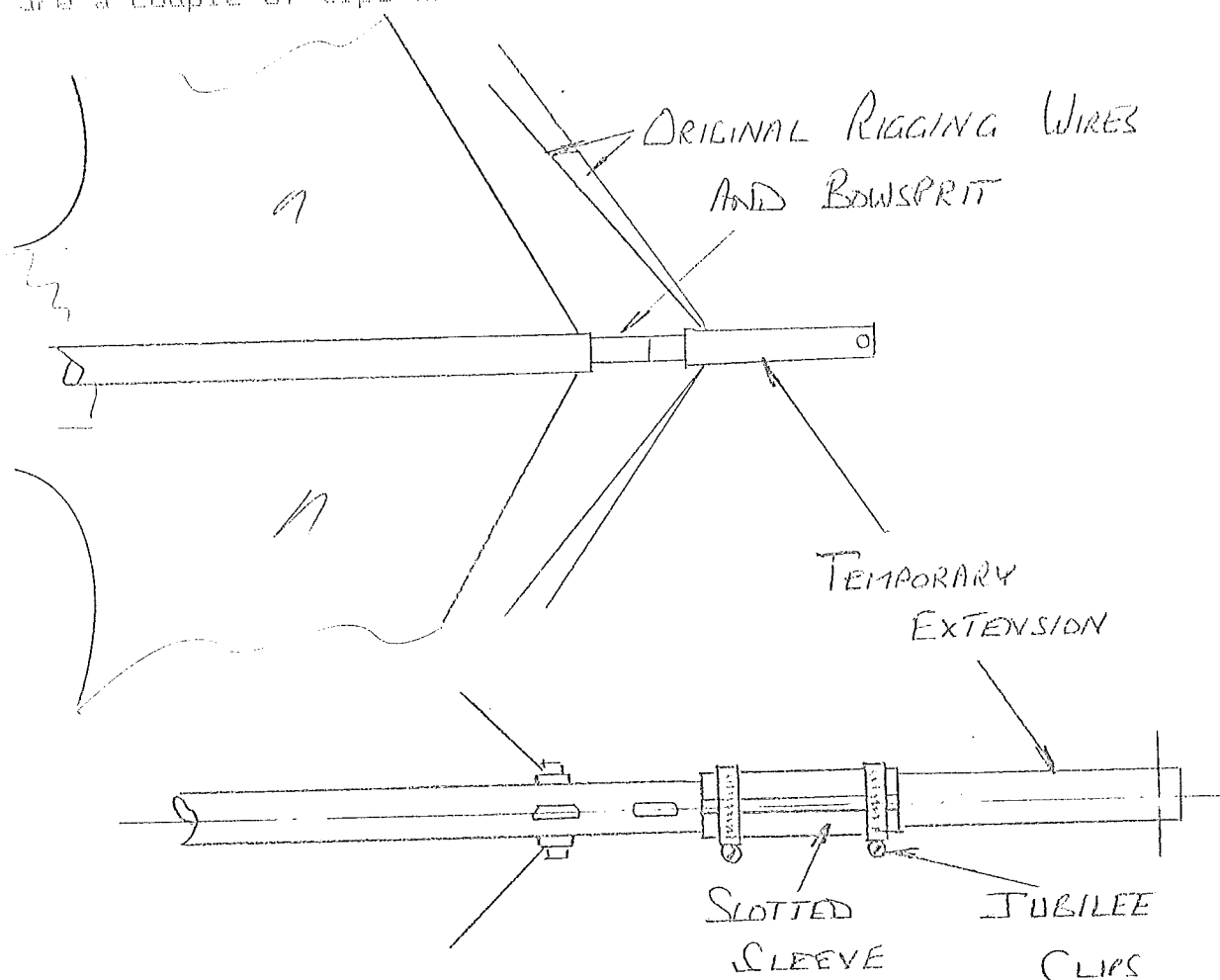
Peter Lovegrove
Chief Inspector to the BMAA
27 February 1986

TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

Re: DUAL AND SOLO STRIKER AND SEALANDER MODIFICATIONS

John Bridges (24 Ulverston Close, Blackburn, Lancs, BB2 3TX), has commented on the correspondence between Clifford Sims and David Simpson as follows:

"Regarding the problems experienced by Clifford Sims after doing the modifications, it is very important to establish the pre-modification geometry of these wings before disturbing them. Here are a couple of tips which I have used.

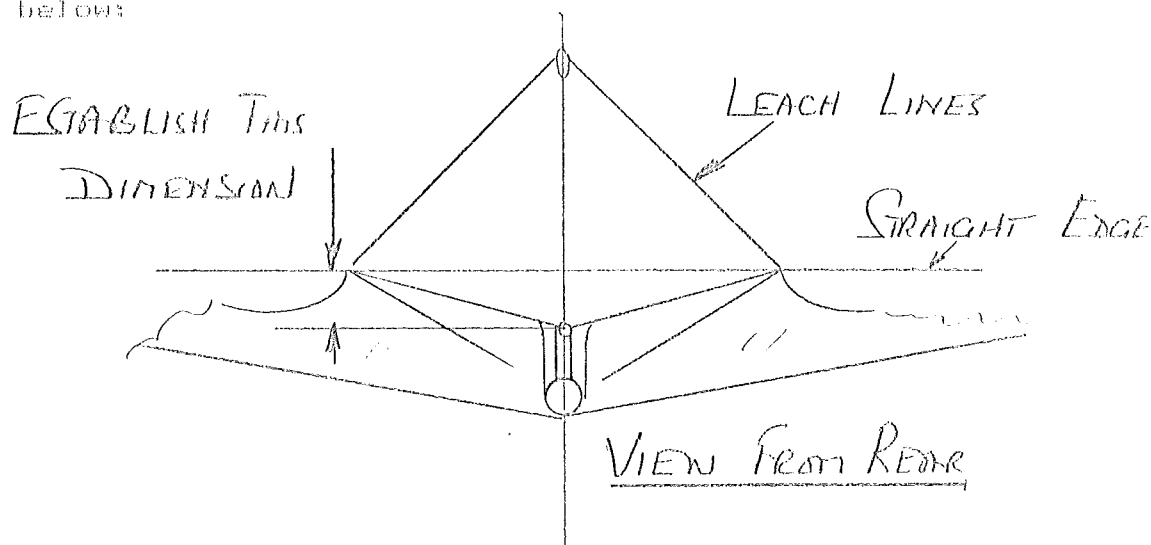


With the wing rigged, fit the temporary extension and establish the dimensions of the new bowsprit by adjusting the sleeve.

Now measure the length of the new outboard bowsprit wires to the leading edges. Measure very accurately!

Next, fit the new bowsprit and wires. The wing sail-tension should be the same as in the pre-modification state.

Before disturbing the top rigging, check the leach-line setting as below:



Reset the leach-lines very slightly higher (1/4 inch) than in the pre-modification state, to correct for the new bowsprit weight.

Note, if the outboard bowsprit rigging wires are very tight, giving an equally tight sail, the roll response and stability could be seriously affected, as well as the pitch."

DAVID SIMPSON comments as follows:

"Rigging the front bowsprit wires with a little more tension is a good way to compensate for a stretched wing. True, it can give rise to a stiffer roll response, but the dual and solo Strikers are both renowned for their ease of roll. No amount of sail tensioning by rigging changes can make the roll dangerously stiff; it can, however, make a big difference to the performance. Roll stability is not affected.

I have modified or been involved in the modification of 10 solo and 6 dual Strikers to date. Where necessary, (twice), it has been possible to trim out the wing, after the modifications, in the way which I have suggested to Clifford Sims, i.e. by shifting the hang-point or by raising the tail. In most cases, no retrim has been necessary; the owner or myself has judged the front bowsprit-wire tension by feel. Overall, my experience has been that the wire tension is not all that critical.

Summarising, John's method is fine and probably foolproof, but I do not find it necessary. The option of re-tensioning the sail is a valuable one, nevertheless, if owners carrying out the modifications are unsure of themselves."

Peter Lovegrove

Peter Lovegrove
Chief Inspector to the BMAA
28 March 1986

To: ALL INSPECTORS

GENERAL AIRWORTHINESS MATTERS

SIX MONTHLY INSPECTIONS (Confidential Item)

As you know, Exemption aeroplanes must be inspected every 6 months.

Circumstances are such that by the time the owner has this carried out, with winter and other delays, the Annual Renewal is not far away.

There is a possibility that Exemption aeroplanes can be excused this 6 monthly requirement but before negotiating this move we need to know one thing.

Do you find in general that little or nothing untoward is detected in such inspections that are not dealt with on being revealed in say a pre-flight check?

Please let us have your views as soon as possible as there is an urgent need to simplify procedures.

TYPE APPROVAL AND TYPE ACCEPTANCE DATA SHEETS (TADS)

One pilot recently reported having to contact three Inspectors with regard to renewing his Permit to Fly.

The reason was that the first two did not know what TADS were.

Please, if you have any doubts about admin. procedures do contact the BMAA Office for guidance.

Incidentally please drop the use of BMAA Forms AW/015/- and AW/016/- in describing TADS. We now use the CAA designation of BM/- or BMO/-.

CHANGES IN TADS

From time to time TADS are amended so check at intervals to ensure those in your possession are the latest. Cost precludes us sending out 140+ letters on every change.

INSPECTION AGAINST TADS

Over 80% of applications for airworthiness documents are subject to query.

Lately we are coming across signing off aircraft against TADS when in fact the aircraft does not conform to same.

Enough said!

FORM AW/001

There seem to be many old type Forms AW/001 around the place.

Enclosed is the current one in use which is particularly essential for PTF aeroplanes. Supplies are available on request from the BMAA Office.

Peter Lovegrove
29 March 1986

Re: STRENGTHENING MODIFICATIONS TO SOLO AND DUAL STRIKER
AND SEALANDER WINGS.

"There is a serious drawback to the method suggested by John Bridge for the determination of the length of the Striker front bowsprit wires. If a precise dimension is taken between the dummy bowsprit and the leading edge termination point, and a wire made to length, no allowance has been made for the elongation and stretch when loaded. The significance of these errors is shown as follows:-

2. Elastic stretch - occurs due to standing loads and additional loads occurring in flight. These are difficult to determine but I suggest a conservative estimate is 100 kgs.

stretch is therefore, 9.2 mm

I therefore retract my original statement that the method appears foolproof and look forward to receiving orders for more wire, having led owners into cocking up the first go.

Sorry I didn't think of it sooner,

Peter Lovegrove
Chief Inspector to the BMAA
30 April 1986

Abhayne,

CHIEF INSPECTOR'S FOOTNOTE:

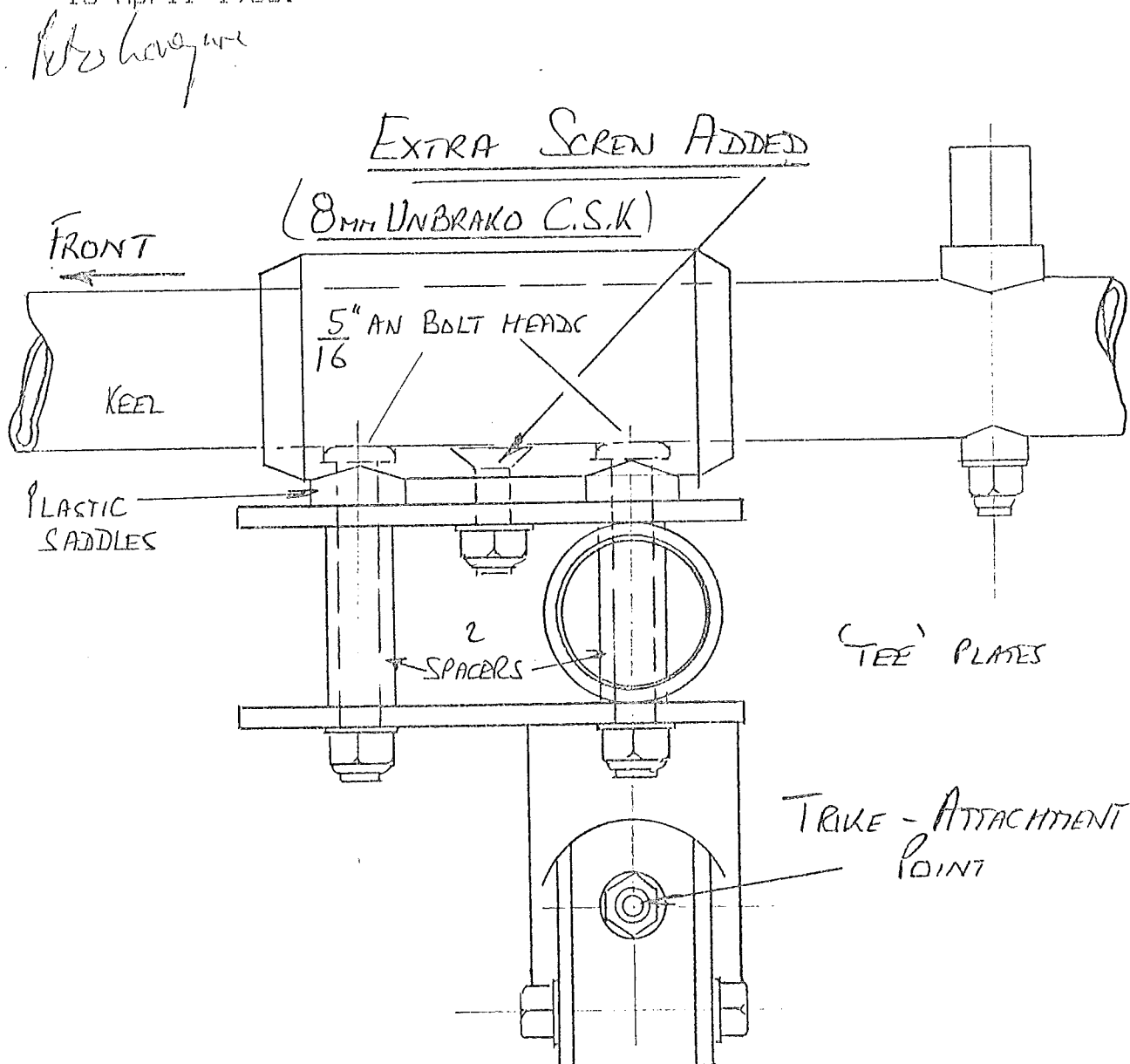
I am grateful to Mr Gabriels for bringing my attention to this potential problem area.

Will all BMAA Inspectors make a point of checking these parts of Cutlass wings most carefully, as recommended by the manufacturer?

If they find the third screw to be omitted, the owner must be asked to install one or have a competent organisation do it; preferably the manufacturer, since he can give the wings - now ageing a little - a thorough survey at the same time.

Peter Lovegrove
16 April 1986.

Chief Inspector to the BMAA



SLIDING CENTRE-BOX ASSEMBLY
'CUTLASS'

TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

Re: INSPECTION DOCUMENTATION.

In spite of the many pleas made by Brian Cosgrove, a large number of BMAA Inspectors are still sending in documents which are virtually just so much rubbish. Typical of some of the errors are the following:

The wrong forms are used in many instances.

There are signatures in the wrong place.

Machines are signed off as acceptable and unacceptable on the same form.

It is specifically stated that no TADS applies to the aircraft in question when - in some cases - it is a Type-Approved machine and has therefore been subject to a TADS since being sold.

The wrong TADS is quoted in relation to the machine being inspected, which proves that the inspector has not seen the TADS for that aircraft at all.

Changes to aircraft are being accepted which the inspector has no right to accept, without the prior approval of the manufacturer, the Godfather and/or the BMAA Technical Team.

These are only a few of the many ways in which some of you are managing to ruin the system and make unnecessary work for Brian Cosgrove and the ladies at Deddington.

I do not know if those people making such an abject mess of the paperwork are making as sloppy and negligent a job of the inspection itself. If they are, then they should start taking a great deal more care. I have hammered, many times, the fact that the only protection which BMAA inspectors have is the care which they exercise in doing their onerous task. So long as they take every step to ensure that they cannot be criticised later for having done a slipshod job, they will run no legal risk. But, if they do only 'lip-service' to inspection and there is later a serious accident and possibly ensuing litigation, they can expect to find themselves in a most difficult position.

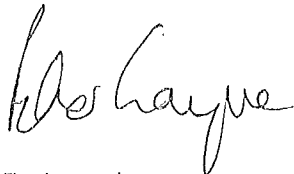
Neither I nor the BMAA can be expected to perjure ourselves in an attempt to pretend that no fault can be laid at the door of such a negligent inspector. You have all been told - repeatedly - of the importance of what you are doing and the responsibility which you carry. Thank Goodness, most of you understand and accept that. But far too many of you, it would appear, are still treating the whole matter of airworthiness as though it were some sort of bureaucratic exercise which the BMAA invented, and just to be 'given the nod'. We certainly did not invent it; it is a system imposed by Law and all we have done is to ask to be

allowed to implement it to save BMAA members' money. I am rapidly becoming as tired of saying that as some of you must be of reading it!

The problem of trying to deal with paperwork which is fouled up is that it is taking up almost all of the time of the small and over-taxed staff at the Deddington office. The pile of letters and forms waiting for second and third spates of special attention is mounting daily. This cannot be allowed to continue.

In future, forms which are wrongly completed, which make incorrect statements, or which are useless for any other reason will simply be bounced back to the owners. When they start finding themselves grounded, or - if they are stupid enough - having to fly illegally and uninsured, perhaps they will begin to bring pressure on to the inspectors who brought them to that situation. Maybe then we shall get the desired improvements in standards. I desperately hope so.

Having berated the foolish, lazy and incompetent amongst you, let me thank, most gratefully, those of you who treat the airworthiness scheme as seriously as the Law demands.



Peter Lovedrove
Chief Inspector to the BMAA

12 May 1986

TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

Re: STIFF-NUTS IN SAFETY

(The "1 1/2 threads through the nut" syndrome)

I am sure that many of you are utterly sick of the stupid problems arising out of what should be almost a matter of plain common-sense interpretation of the term airworthiness, as applied to the matter of threads sticking through Nylocs or Simmonds-type nuts.

Some inspectors and owners alike seem to be getting utterly confused as to what the requirement really means. Their confusion is not being cleared by certain manufacturers who talk repeatedly about the 'whole matter being blown up out of all proportion', whilst themselves being unhelpful to owners and doing most of the 'blowing up' themselves.

(Can I therefore make what I desperately hope will be the final dissertation on this small but important topic?

If you look closely at aircraft bolts, you will find that the thread nearest the tip is almost invariably slightly mal-formed. If you look at the high-tensile cadmium-plated bolts sold as "Aircraft bolts" by some manufacturers, you will observe the same effect.

There is nothing wrong with this small mal-formation; it arises out of the thread-rolling process and is nothing to get excited about.

(However, when airworthiness authorities try to define a standard by which all aircraft bolts have a small but reasonably common amount of thread sticking through the stiff-nuts, that mal-formed bit of thread presents a little problem. To take account of the variations in its magnitude on different bolts, one has to say either that "one to two threads should protrude", or that "at least one full undamaged thread should protrude" or that "one and a half threads should protrude".

One certainly cannot say something silly like "Be sure that a bit of thread sticks beyond the nut" because inspectors are bound to ask if one means good thread only, or does mal-formed thread count and so on. To give a standard, one has to try to remove subjective judgement.

So let us look at the issue from the point of view of what we are trying to achieve.

On the primary structure of an aircraft, that is, the parts of the machine which - if any of them should fail in any way - could easily result in a catastrophic loss of its basic ability to stay flying, bolts and nuts must be dependably in safety.

So check the bolts to see that they do emerge from the nut, by a

definite and measurable amount. Where they do not, ask the owner to change them or obtain a written statement from the manufacturer that they are as designed, or as built, or as approved by the CAA. That way, you as the inspector, are not made to accept, tacitly, something at whose door a subsequent crash may be laid.

On no account accept random tightening of bolts to produce the required projection of thread, since this will almost invariably crush the tubes being bolted. That is as bad as having bolts which are too short.

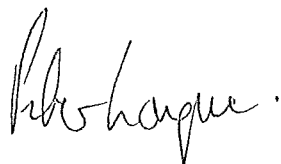
"Primary structure" includes the engine assembly, of course. It is from there that most vibration emanates, for example, on the majority of microlights.

On structure other than primary, it is acceptable to relax somewhat, as far as bolts in safety are considered. That is not to say you can be sloppy or indifferent about them, but you can be a little more tolerant by using your discretion.

For example, if one of the bolts attaching a pod apron were to drop out, leaving others either side of it, the risk might be small. The bolt might hit the propellor and chip it and, on the "Thousand to one" chance, be batted into the pilot's body. But other risks in microlight flying far outweigh that sort of danger. The loosened apron is certainly not going to cause a much problem either. The worst one might foresee is that a little port or starboard drag might be noticed, and easily corrected with the controls.

So can I now hope that those of you who have experienced bad reactions from owners and/or manufacturers, now understand how to interpret the "1 1/2 turns rule" without seeming to be either totally bloody-minded or dangerously careless?

There are so many other problems to solve that we cannot go over old ground again and again, mainly to suit manufacturers who do not like their products criticised or who cannot be bothered to supply sets of replacement bolts, even when owners offer to buy.



Peter Lovegrove
Chief Inspector to the BMAA
20 May 1986

TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

Re: The Southdown International "Raven"

A few inspectors have raised questions about the use of stiff-nuts on the Raven, to secure the main-wheels, which are clearly rotating devices.

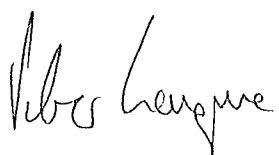
Reference is made to these in the Operator's Manual for this aircraft but, to obtain an unambiguous and irrefutable ruling on the matter, I consulted the CAA. I quote from the letter received from their Inspector:

"The use of stiff-nuts was cleared on the initial build standard.

Although seemingly contrary to established practice, it is considered a satisfactory method of retaining the wheels and bearings in this application.....

In order to be sure that the friction lock is maintained, the Operations Manual (O.M.) recommends a wheel-nut life of three wheel-removals. In support of this, the Preflight check (O.M. PP35), the 10-hour check and the section on wheel maintenance (PP80), if carried out with any degree of care and attention, should preclude any hazard developing."

Will all BMAA Inspectors please note that not only does this CAA reply clarify the situation with regard to this particular question, it also points the way clearly to the route for establishing what is and is not acceptable on a given Type-Approved microlight. The Operations Manual will have been examined and agreed by the CAA before that precise machine is sold as Type-Approved. Inspectors can therefore find most of the answers to questions such as raised here, simply by asking the owner to allow them to consult the O.M.



Peter Lovegrove
Chief Inspector to the BMAA

29 May 1986

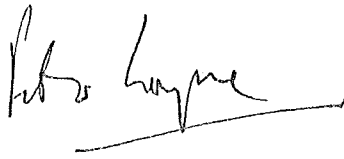
TO ALL AREA AND LOCAL INSPECTORS AND CLUB SAFETY OFFICERS

"NYLITE" WHEELS AS USED ON SOUTHDOWN INTERNATIONAL TRIKES

Inspectors are advised to be alert to the possibility of owners over-inflating the tyres on Nylite wheels.

The correct pressure is 15 p.s.i.

It has been pointed out that the careless operation of a foot-pump which lacks a pressure gauge can easily lead to this figure being exceeded, with the result that the wheel halves may be distorted or damaged by the extreme tyre distension.

A handwritten signature in dark ink, appearing to read 'Peter Lovegrove', with a long horizontal stroke extending to the right.

Peter Lovegrove
Chief Inspector to the BMAA

22 April 1987