Diary

10-12th April Hemswell	SMAE European Champs team trials. F1A/B/C in rounds of at least 30 min, round timetable to be arranged to suit conditions, start at 10am each day (Saturday and Sunday). Pre-entry rule waived but fee of £1 is not reduced for competition licence holders (as a trials). Advance notice of entry of entry would assist the organisers, contact Peter Farrimond on 0942 34068 or by post to 726 Warrington Road, Marcus Bridge, Wigan, Lancs. On Monday O/G, O/R, O/P start 10am.
18th April Hemswell	SMAE Midland Area Mini Rally. A1, CdH, ½AP, CO2, HLG, P30, Wigan 70, Vintage duration. Contacts : Gerry Ferer on 0533 886519 or Mike Coomes on 0949 42034.
25th April Area venues	SMAE 2nd Area Centralised event. O/R (Gamage Cup), F1C (Halifax Trophy + Plugge), O/G.
25th April Odiham	Odiham Spring Gala. F1C, O/R, O/G : all are welcome to join the SE Area for the area events. Contact : Norman Couling on 0323 53116
1st May Cardington	EZB Expert/Novice pairs, open EZB individual. Contact : Laurie Barr on 01 570 6311/9732/8218 (day).
2nd-3rd May Barkston Heath	RAFMAA/SMAE FF Competition. Sunday : F1A/B/C in 5 rounds starting 10am, progressive fly-offs from 5.30pm. Champagne fly-offs weather permitting from 7pm. Monday : Sunrise event F1A/B weather permitting. followed by O/G, O/R, O/P, A1, HLG, Vintage starting 10am. No pre-entry, contact : Brian Baines on 033 483 471 extension 420.
9th May Area venues	SMAE 3rd Area Centralised event. O/R (White Trophy), F1B (Weston Cup + Plugge), O/G.
16th May Albermarle Barracks (ex RAF Ouston)	Tynemouth Rally. F1A in 5 rounds, O/R, O/P, Comb mini, HLG. Contact : Tony Brown on 0632 362155.
16th May Port Meadow, Wolvercote, Oxford	Oxford Spring Rally. A1 & CdH in 5 rounds, HLG. Contact : Andrew Crisp on Oxford 53800.
29th-31st May Barkston Heath	SMAE British Nationals, full details next month.
6th June	2 EZB contests (as for 1st May) plus F1D.
13th June Area venues	SMAE 4th Area Centralised event. F1C (Astral Trophy), Team G (Model Engineer Cup + Plugge), CdH.
20th June Beaulieu	Crookham Gala. O/R, O/G, O/P, all-in FAI (5 flights no rounds). F1B Champagne fly-off weather permitting. SMAE members only. Contact : Phil Uden on 0734 51366.
20th June Cardington	2 EZB contests (as for 1st May) plus CO2 and Manhattan.

MARCH 1982 82/03

FFn

FREE FLIGHT NEWS

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8 Blenheim Court, Farnborough, Hants, England GU14 7DS

Compiled and published by Ian Kaynes, Paul Masterman Malcolm Wood.

EDITORIAL by Ian Kaynes

After over 150 issues of FFn in which I have been involved it may be surprising to read that this is the first FFn for which I have undertaken the full editorial task. While I have been handling the correspondence and subscriptions and preparing envelopes, it has always been other members of the team facing the daunting job of putting together the magazine contents. This seems a suitable time to express my personal thanks to all those who have worked and are continuing to work on the FFn team. It is also a convenient occasion to make another plea for contributions from you, our readers. Production is so much easier when we have the pleasant task of deciding which items to hold over until following issues.

PS Please have no doubts that FFn is continuing, under Paul, Malcolm and myself.

METEOROLOGY FOR COMPETITION FLIERS by George Foster

Most competition free flighters will perhaps doubt the value of a knowledge of meteorology in the pursuit of their chosen sport, but choosing the right air has become so fundamental to contest success that anything which adds to one's knowledge in this area must be useful. There are plenty of books on the subject for those who wish to delve deeply, but what follows is a look at a few of the more pertinent facts for the competition flier.

First of all, stability - not the aircraft type, but the met term. As all schoolboys know, hot air rises. It rises because at uniform pressure warmer air is less dense than cooler air. As a "parcel" of warm air rises it is exposed to reduced pressure and so it expands. This expansion causes a loss of heat which reduces the temperature of the parcel by 3°C per 1000 ft of ascent (unless the air is saturated - fog or cloud to you and me - when the temperature drop is only 1.5°C per 1000 ft). Now if the surrounding air at height is still cooler (and therefore denser) than the parcel of rising air passing through, then the parcel will continue to rise. Continue, in fact, until it reaches air of the same or less density (that is, the same or greater temperature). As long as the rate of temperature decrease with height of the surrounding air - the Environmental Lapse Rate - is greater than 3° per 1000 ft, air at the surface which is forced to rise will continue to rise and the conditions are said to be UNSTABLE. These are the days of large cumulus clouds and big booming thermals. On days with great instability over a deep height layer you may experience thunderstorms in the afternoon.

However, if the Environmental Lapse Rate is less than 1.5°C per 1000 ft, even saturated air will be reluctant to rise. The conditions are then said to be STABLE. These conditions are most frequently encountered in the UK when a mild south-westerly is blowing and the sky is obscured by grey layered cloud.

Between these two extremes there are the occasions when the Environmental Lapse Rate is between 1.5°C and 3°C per 1000 ft. Under these circumstances saturated air will continue to rise if initially lifted, while air which has less than 100% humidity will tend to subside again. These conditions are known as CONDITIONALLY STABLE.

Of course, in real life things are not normally as clear cut as this and if you were to plot temperature against height on any day you would find that bands of stable, unstable and conditionally stable air appear at different levels. Although the part with which we are most concerned is without doubt the bottom 500 ft, nevertheless it is necessary to have some idea of the overall characteristics of the airmass to be able to appreciate what is happening in our little bit of it.

The factors which deteremine the stability of an air mass are its source region and the route it takes before reaching us. Thus the common (in UK) Polar Maritime air mass, sweeping down over the Atlantic from Greenland and the Arctic icecap is cold and clean, moist in its lower layers and unstable because it has been warmed from below on its track south. We know it as a bright and showery westerly. The second most common air mass in UK is the Tropical Maritime type, drawn from the area of the Atlantic around the Azores. Also moist, but it is mild and, because its lower layers are progressively cooled as it travels north east, relatively stable. This air mass typically gives us a sky full of stratus and frequently drizzle. The most common alternative to these two air masses in the UK is an area of high pressure or anticyclone, which is present on about 14% of occasions.

However, even in a relatively stable air mass there is sufficient vertical movement to interest the contest flier. Since air is a poor absorber of heat, the sun's radiation passes through the atmosphere without achieving much transference of heat. Consequently such heating as does take place is largely by contact with the ground, which absorbs solar radiation and shows a significant temperature change between night and day. Thus the lower few hundred feet of even a very stable airmass can gradually acquire an unstable lapse rate during the day. The thermals which result may not be very powerful nor very deep, but they are useful enough for our purposes.

Similarly, even air masses which are relatively unstable overall tend to become more stable in their lower layers during the night. This phenomenon is the reason for the general absence of thermals around dawn and the gradual increase in thermic activity as the day wears on. Since the earth loses heat to the air long after solar heating has ceased for the day, thermals tend to persist rather later than the position of the sun would suggest - even until after dark. The effects just discussed are illustrated in figures 1 and 2 on the following page.

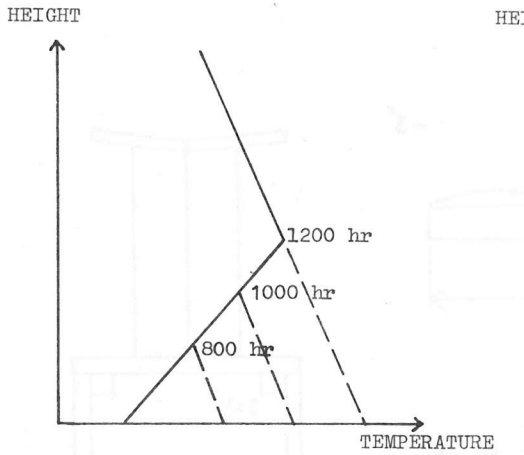


FIG.1 The effect of daytime insolation on dispersal of inversion formed overnight

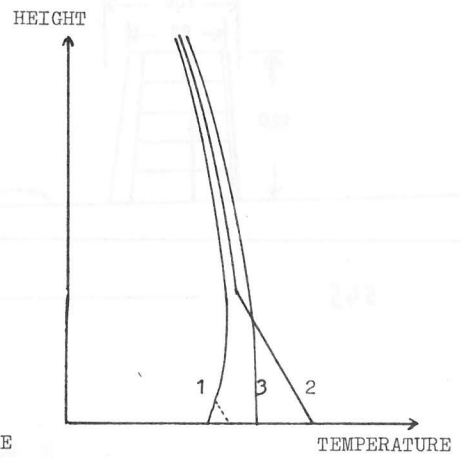


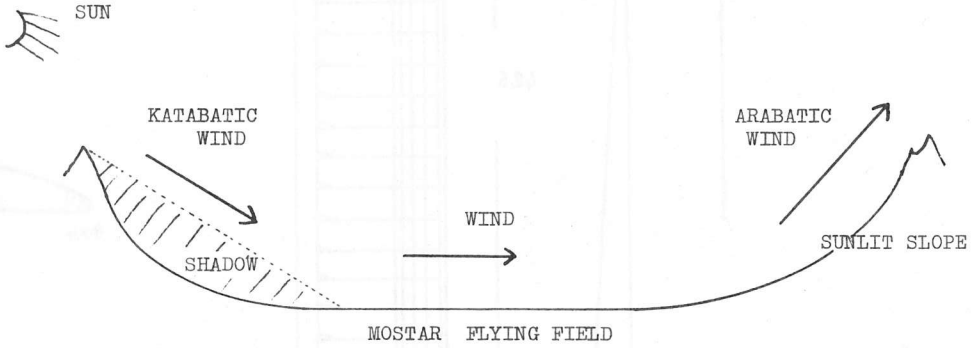
FIG.2 Idealised Summer Lapse Rates
1 Night time
2 1200 hr
3 Evening
Note: air mass virtually unchanged aloft

An appreciation of the characteristics of the air can be very useful when assessing the best time to launch. On a bright spring day when you identify the air mass as Polar Maritime, you know the air is basically unstable. Almost any patch of relatively warm air is sure to rise, so this is a good day for thermistors or those with sensitive skins. In general these are the easiest of days. When a mild moist south westerly brings Tropical Maritime air you can expect relatively stable conditions. Layered cloud reduces the heating effect of the sun and often brings an early end to the day's thermals. Small changes in temperature and weak lift are likely. A good day for bubbles if the wind is not too strong, but above all a day when you look for confirmation before launching.

During anticyclone conditions in UK we sometimes get those conditions more frequently observed on the continent. Clear skies overnight cause a marked heat loss from the lower layers of the air and a temperature inversion forms a few hundred feet above the ground. The early rounds can be very difficult, but by mid-morning the inversion has broken down and the lift is very strong from midday onwards. The trick here is to recognise when the change occurs, because the gentle temperature and streamer indications which sufficed in the early rounds can be misleading later on when the thermals are strong. When an anticyclone persists for days or even weeks the air tends to become pr ogressively more stable due to the process of subsidence. The inversion becomes more difficult to breach and a temperature rise alone is no guarantee of a thermal. Typically the winds are light and variable, so the wind itself becomes a good thermal indicator. In these conditions it is best to watch the thermal 'brew up' on thermistor and only launch when air movements indicate that the thermal has unstuck. A common feature of this type of thermal is its tendency to detach itself from the ground and ascend like a bubble, or more probably a vortex ring. Launch too early and the hot air is still stuck to the ground. Launch too late and the lift is far above your model, which sinks inexorably while models two hundred feet above continue to climb.

Local winds are another met feature of interest to the free flighter, although it is difficult to devise ways of taking advantage of them. The well-known land and sea breeze effects can cause the surface wind direction to shift by as much as 180° and its effect can be felt up to 50 miles inland in summer. Closer to the sea, the air which is borne on the sea breeze will usually be more stable than that which preceded it, a fact which the alert contest flier may be able to exploit.

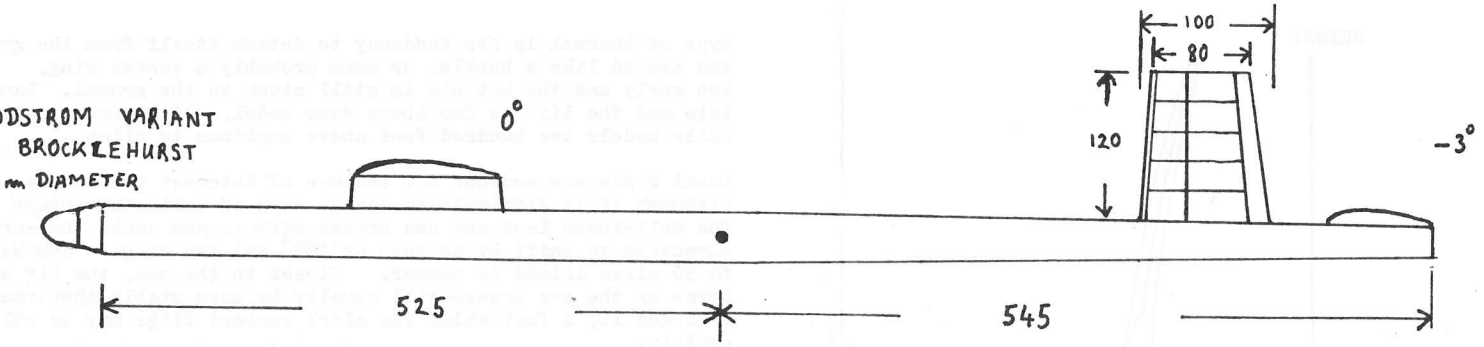
At Mostar in the 1980 European Championships a fresh breeze sprang up during the last fly-off round on the power day. The field at Mostar is bordered by hills on two sides; one side was in shadow while the other side was lit by the low sun. The wind was blowing from shadow to sun. Clearly the air on the slope in shadow was cooling as the ground cooled and was sliding downhill (Katabatic effect), but the air in contact with the sunlit slopes was warmed and thus tended to rise. Certainly, all the models which drifted towards the sunlit slope maxed easily and with dusk approaching the final fly-off round was postponed until the following day at dawn.



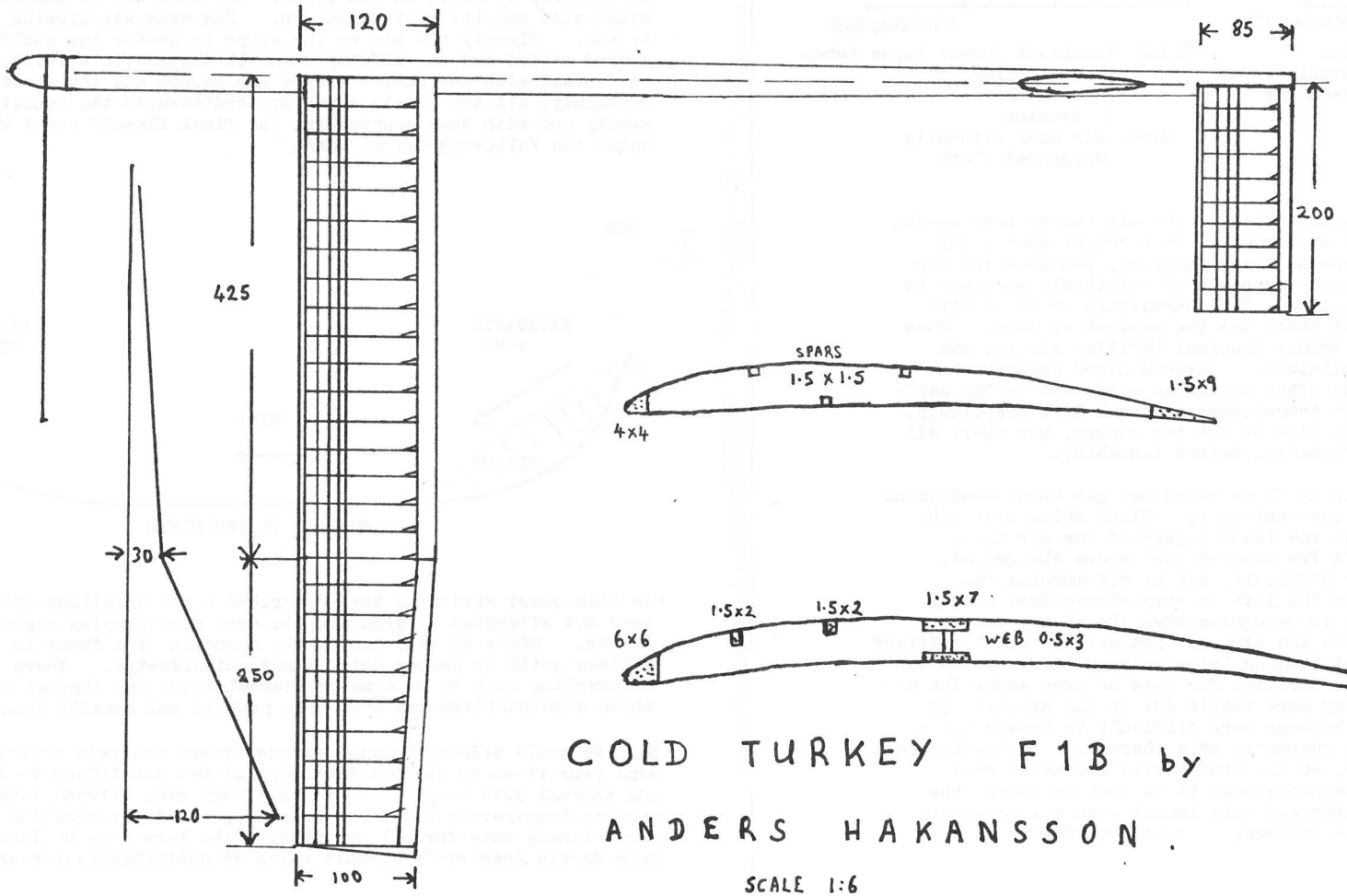
In this short article I have described a few idealised situations and have not attempted to describe the more more complex depressions and fronts. Since my reaction to the approach of a front is to seek shelter until it passes this is not coincidental. There is much interesting work to be done on microclimates and thermal structure, which aeromodellers can both take part in and benefit from.

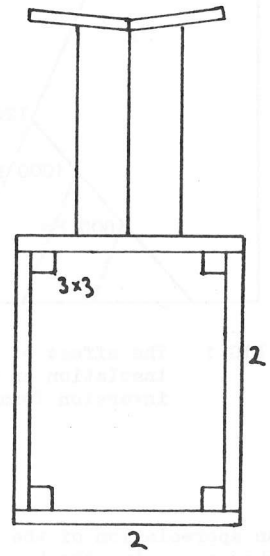
Ed: We would welcome correspondence around George's article. Please send your views on the relationships of met conditions to free flight and thermal detection. There is a vast step between being able to measure temperature and being able to predict the position of thermals - a cautionary note for all our readers who have been building detectors from Martin Gregorie's circuit which we published last year.

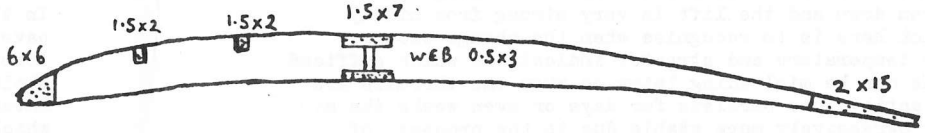
PROP: FLODSTROM VARIANT
ON BROCKLEHURST
600 mm DIAMETER



14 - 16 STRANDS 6x1 RUBBER.
50 - 54 SECONDS RUN.







COLD TURKEY F1B by

ANDERS HAKANSSON.

SCALE 1:6

COLD TURKEY F1B by Anders Hakansson

We owe thanks to Modellflygnytt for this plan (and also for Hans Lindholm's power model). To offset some of the missing details we are able to offer the coordinates of the wing and tailplane sections.

Gottingen 342 nose radius 0.7

Chord %	0	5	10	20	30	40	50	60	70	80	90	100
Upper	0.8	4.9	6.5	8.5	9.1	9.2	8.9	8.1	6.6	4.8	2.7	0.3
Lower	0.8	0.8	1.7	3.1	3.9	4.2	4.0	3.7	3.3	2.4	1.3	0

Hansson LH 5-38-07

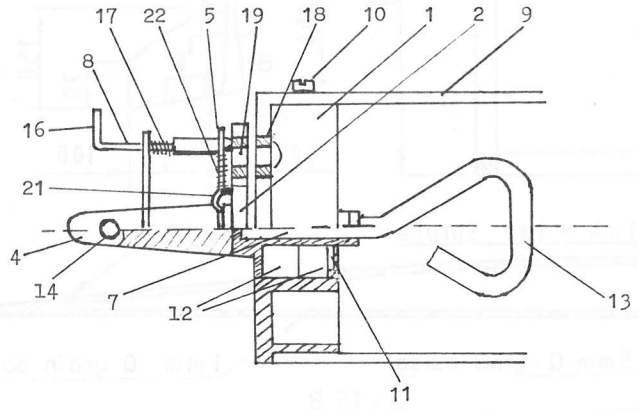
Chord %	0	5	10	20	38	50	60	80	100
Upper	1.0	4.2	6.0	8.0	9.2	8.3	8.0	5.1	0.5
Lower	1.0	0	0.5	1.3	2.3	2.8	2.6	1.8	0

MONTREAL STOP PATENT

Pim Ruyter has unearther a Russian patent on a mechanism which closely resembles the conventional Montreal stop system. This was filed by A S Matyashin on March 28 1978, the description being as follows :

Rubber driven model aeroplane - has air screw stop hub with sleeve fitted on bearings and calibrated spring connecting hub with cone.

The stop has hub (2) with brackets and boss (1), situated on shaft (7) at one end provided with hook (13) for rubber band attachment. The other end of shaft (7) is provided with cone (4) with openings (14) for winding mechanism attachment. The unit also contains a calibrated spring (22) and sprung stop (8) with handle (16) and spring (17). To increase the operation reliability, the hub (2) is provided with a sleeve (11) fitted on bearings (12) in boss (1). The sprung stop is fitted on the cone and the calibrated spring connects the hub with the cone. Boss (1) and hub (2) are provided with openings (18,19). Cone (4) is provided with lugs (5,6).



INDOOR NEWS

From the minutes of a meeting of the SMAE Indoor Technical Sub-Committee these news items emerge. Cardington shed no.2 is available for this year and is in good condition, so 10 contests are to be held there. The daily fees for the shed are expected to be half last years cost. A new EZB Pair contest event has been established with Novices being paired with Experts. The idea is that the Expert in each pair will assist the Novice. Pairings will be decided by draw and will be different for each day.

Bernard Aslett has been proposed as UK Team manager at the 1982 World Championships; it is rumoured that the Champs may have been moved forward by two weeks - confirmation of the date will be received at the CIAM meeting on April 16th.

In U.S.A there has been much publicity for an FAI indoor rule change proposed by Erv Rodemsky. This would replace the current F1D model specification by :

1 Wingspan 60 cm
2 Length excluding prop 60 cm
3 Weight excluding rubber motor 1 gram
4 Horizontal area of lifting surfaces 1200 sq cm Biplanes must include area of both wings
5 Motor weight 0.5 gram
6 No gears for motors or mechanical gadgets to change prop pitch or flying surfaces. All configuration changes must be aeroelastic.

The physical limits are chosen such that the model will fit in a 2 ft box for easy transport as airline hand baggage. Erv suggests that the models will be stronger and better able to take the torque of a fully-wound rubber motor, but conversely the rubber weight restriction will put a greater emphasis on rubber quality and force winding to the full (like outdoor models with limited rubber weight). No prizes for realising who are the targets for rule 6.

Many counter proposals and alternatives have been put forward in response to these rules - and also pleas to retain the status quo of F1D - and its quite likely that the USA will soon be submitting a proposal for new rules. The SMAE Subcommittee have discussed the rule and have formulated an alternative of 1.5 gram weight on the current rules. This will be tried at a Cardington contest on July 25th.

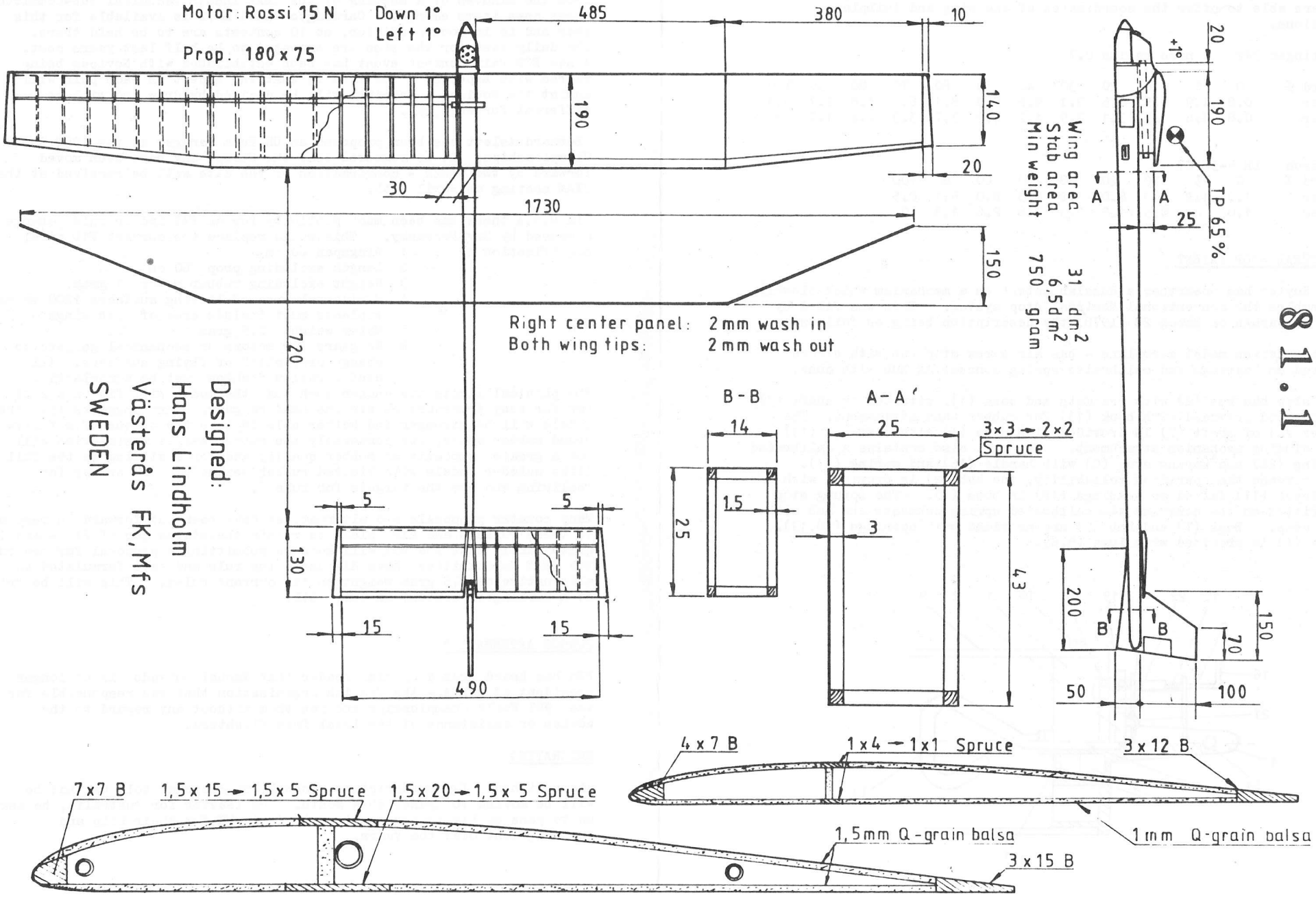
BURGOS AFTERMATH ?

FFn has heard from a Spanish reader that Manuel Guisado is no longer president of FENDA - the Spanish organisation that was responsible for the 1981 World Championships and ran them without any regard to the advice or assistance of the local free flighters.

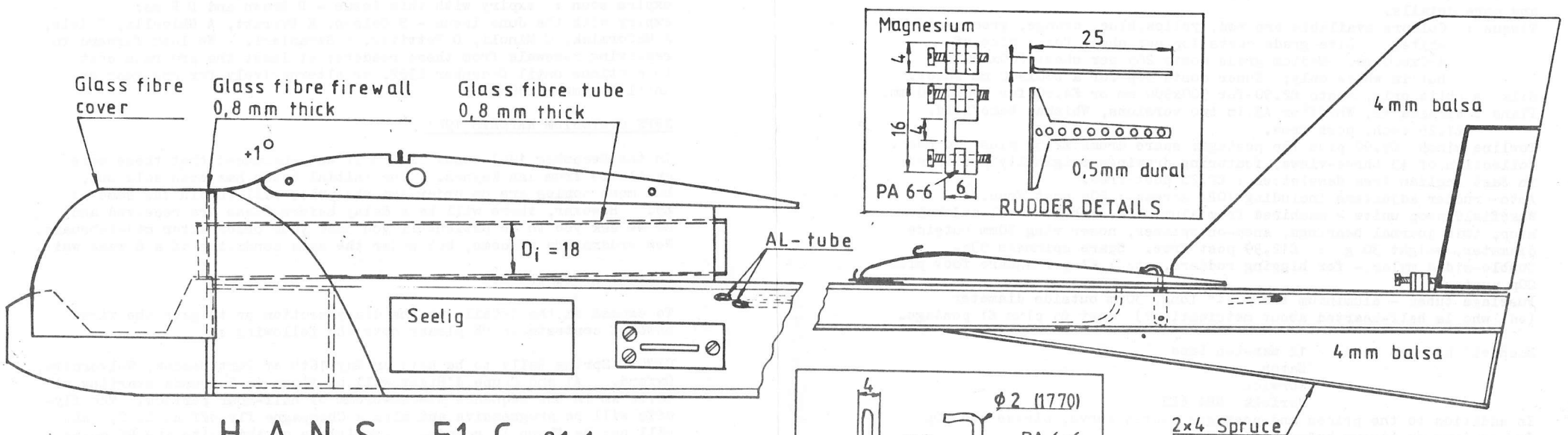
EMIGRATING

Along with his FFn subscription renewal Jon Fletcher told us that he will be moving to Sydney this month. On leaving for Australia, he asks us to pass on his thanks to his friends in UK for their help and encouragement over the years.

HANS F1C 81.1

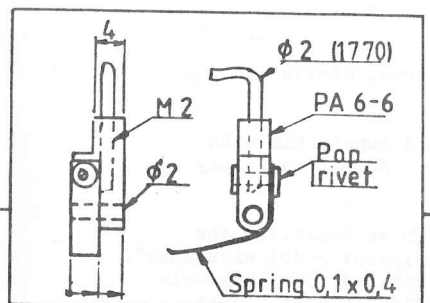


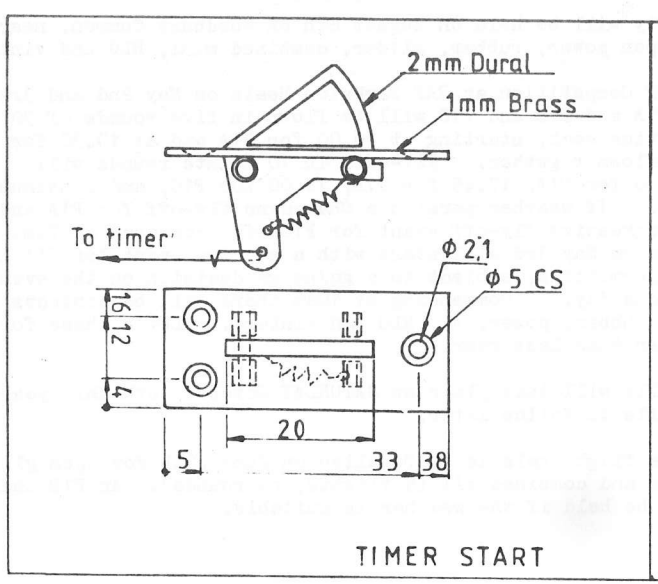
Designed:
Hans Lindholm
Västerås FK, Mfs
SWEDEN



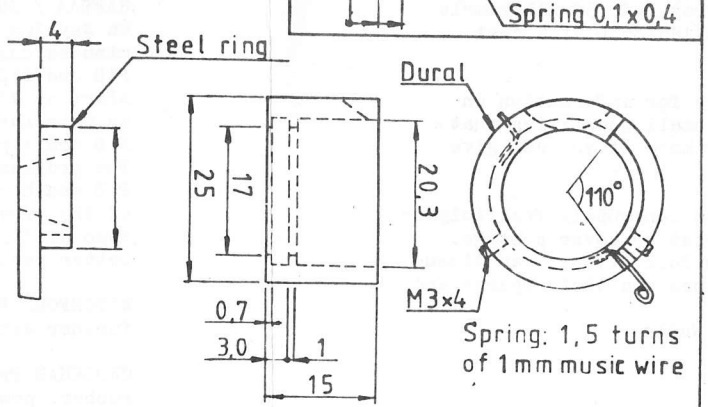
H A N S F1 C. 81:1

Fuselage details

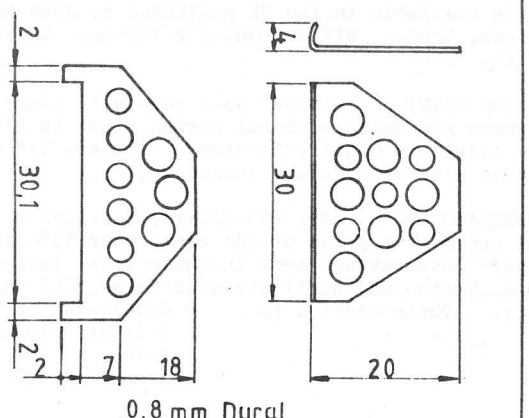




TIMER START



PROP. BRAKE



STAB DETAILS

NOTICEBOARD

WOODHOUSE GOODS : Michael has sent the latest details of the items he has for sale. A summary is given below, contact him for any more details.

Tissue : Colours available are red, yellow, blue, orange, green and white. Lite grade costs 13p per sheet for a size of 450x600 mm; Medium grade costs 28p per sheet 600x900 mm but in white only; Super costs 30p for a 600x900 mm sheet.

Silk in white only, costs £2.50 for 900x900 mm or £4.80 for 900x1800 mm.

Plans : Wichita A2, Whiffler A2 in two versions, Whiskas Wakefield. £1.25 each, post free.

Towline winch £9.90 plus 75p postage; spare drums £2.50 plus 30p post.

Collection of 43 three-views, featuring drawings originally published in East Anglian Area Newsletter : £2.20 post free.

Auto-rudder adjusters including 10BA screws : 80p post free.

Wakefield prop units - machined from aluminium with Montreal and hold stop, twin journal bearings, snap-on spinner, noser ring 30mm outside diameter, weight 30 g : £12.99 post free. Spare spinners 99p.

Double-sided mylar - for hinging rudders, etc : £1 per square foot plus 20p postage.

Fuselage tubes - aluminium tubes 24" long, 30mm outside diameter (ed: who is half-hearted about metrication?) cost £5 plus £1 postage.

Michael' address is 12 Marston Lane
Eaton
Norwich
Norfolk NR4 6LZ

In addition to the prices and postages quoted above, please add 30p for postage on tissue orders below £2.

Michael would like to hear from anyone who could supply him with copies of photos which they have featuring him. He offers to pay the costs.

RON WILLIAMS INDOOR BOOK : In the September FFn we described the fine book by Ron Williams "Building and flying indoor model airplanes". It is available in the UK published by John Murray Ltd, 50 Albermarle Street, London W1X 4BD under reference ISBN 0719538556 at a cost of £6.95.

CARBON FIBRE : We have had a couple of requests for information on sources for unidirectional carbon fibre in the small quantities that aeromodellers usually require. Please let us know if you can give any details of suitable suppliers.

MODELLERS DEN : For P30 fliers, Modeller's Den can supply Peck Polymer 9½" props at a price of 40p each, plus 15% of cost to cover postage. Other interesting items in their lists include Peck tissue, Jap tissue, bass, bamboo and small sizes of balsa, CO2 engines and their spares and kits. Their address is : Modellers Den
2 Lower Borough Walls
Bath
Avon BA1 1QR

FFn SUBSCRIPTIONS

As a reminder to our readers, the cost of an annual subscription for 1982 is £4.50 or £8.00 by airmail. The equivalent rates for payment by cheques in US Dollars are $13 and $23. These costs are particularly relevant to the following readers, whose subscriptions expire soon : expiry with this issue - D Brawn and D Ross; expiry with the June issue - S Colson, K Everitt, A Ghiselli, D Iele, J McCormick, C Minoli, D Pettifer, G Stranieri. We look forward to receiving renewals from these readers; at least the pro rata cost to continue until December 1982, or alternatively for one year or until December 1983.

NFFS SYMPOSIUM REPORTS 1981

In the December 1981 issue of FFn it was announced that these were available from Ian Kaynes. The initial batch has been sold out, but more copies are on order and the price will remain the same at £5. However, there will be a delay before these are received and so we ask you to be patient if you sent your order after mid-February. New orders are welcome, but under the same condition of a 6 week wait.

CONTEST ANNOUNCEMENTS

To expand on the details in the diary section or to give the first news of contests in UK please note the following :

OXFORD Spring Rally to be held on May 16th at Port Meadow, Wolvercote, Oxford. A1 and Coupe d'Hiver will be flown in 5 rounds starting at 10.00 am in the sequence A1-CdH-break of half-hour periods. The fly-offs will be progressive and also a Champagne fly-off at 6.30. HLG will not be flown in rounds. Conditions of this site are NO power models, no car parking on Port Meadow (park at Wolvercote Bathing place) and insurance essential. Port Meadow is bordered by a river and a railway line.

WOODBURY Rally will be held on August 8th on Woodbury Common, near Exeter for open power, rubber, glider, combined mini, HLG and vintage.

RAFMAA / SMAE Competition at RAF Barkston Heath on May 2nd and 3rd. On May 2nd F1A and F1B and F1C will be flown in five rounds of 30 minutes duration each, starting at 10.00 for F1A and at 10.30 for F1B and F1C flown together. Fly-offs in 10 minute rounds will start at 17.30 for F1A, 17.45 for F1B, 18.00 for F1C, and continue as necessary. If weather permits a Champagne fly-off for F1A and F1B and a progressive fly-off event for F1C will commence at 7pm. The programme on May 3rd will start with a sunrise event for F1A and F1B weather permitting, subject to a go/no go decision on the evening of the previous day. Commencing at 10am there will be contests for open glider, rubber, power, A1, HLG and vintage. Let's hope for better weather than last year.

WITCHFORD Rally will take place on SATURDAY October 16th this year, further details to follow later.

CROOKHAM Free flight gala is at Beaulieu on June 20th for open glider, rubber, power and combined FAI (5 flights, no rounds). An F1B Champagne fly-off will be held if the weather is suitable.