

Smoke Trails 30

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The good news this month is that Rapiers are back! I was going to say, “back with a bang”, but that phrase could, with some irony, come back to haunt me. George of SAMS Models took consignment of about 2,000 L2s in April, batches of which he then sent to Shorty’s Basement in the US and Mike Woodhouse. George also had a few boxes of (new stock?) L1s and Mike had some L3s. What was especially pleasing was that these arrived in time for the ‘Mayfly’ event at Old Warden, where, despite the inclement conditions, enough motors were fired up by André Bird, Steve Bage, Andy Blackwell, Chris Strachan and myself to justify the following observations:

1. The new L2s come in packs of ten with fuses but no indication of specification. There is fine writing around the nozzles to identify the type. Some motors sport pink nozzles and plugs. We don’t know why.
2. They are the same weight (7g), perhaps just a tad longer and a bit slimmer (10.5 mm diameter as opposed to 11mm) than those of yore. The latter is good news for those lazy modellers who use the commercial holders and don’t ‘roll their own’. The ‘red’ is due to the actual cardboard matrix and not red paper wrapped around post-manufacture.
3. Ignition was easy with a fuse or cautery tool. Little ‘boring out’ was required. The standard motors had enough thrust to over power my Sharky (which prefers 95-100 mN), but were just fine for Andy’s X-1E, André’s Apparition and X-13 Vertijet and Chris’s M.52. The ‘burn time’, as measured by my antique stopwatch, was about 17-18 sec (Steve thought it was longer than this). Their thrust was estimated at $\approx 110-120$ mN, not enough for Steve’s Thunderflash or Chris’s MiG 21, but then these models really do need a ‘proper’ L2 HP.
4. The new L2 HPs seem very good: Steve estimated their thrust at over 200mN, more than enough to drive the Thunderflash and the MiG 21, the former in wide climbing circles and latter to great height and impressive speed. Burn time was a very reasonable 15 seconds.
5. André remarked that motors burned quite hot. Whilst there were no ‘burns-through’ as such, some motors did give cause for concern:



Above: a selection of the new red L2 motors ‘post-flight’. Note various degrees of scorching of the casing.

From the left: two (standard) L2s with some scorching, though the case is intact; next, a typical L2 HP. None of these showed any sign of damage; next, two standard L2s with rather more scorching and the case could be indented with a finger nail; lastly, two standard L2s where a finger nail could easily penetrate the casing. No casings failed in flight, and no one ended up with a burnt model, but it looks to have been, in some cases, a close run thing! Call me pusillanimous, but, whilst I could be persuaded to put an L2 HP in my already damaged Skyrocket, I will not, yet, put a ‘standard’ L2 in my MiG 15 or Avro Arrow. Andy, however, was happy with the motors and made some great flights in the tricky conditions.

Howard Metcalfe estimates the thrust of the new L2s at ≈ 140 mN, sufficient to loop a flat-winged Skyray, (which 120mN fails to do), and the L2 HPs at ≈ 250 mN. Perhaps it was warmer in Hampshire? Howard notes the scorching occurs where the mounting tube is *not* in contact with the motor casing. Curious, since one would have thought they got hotter inside the mount tube. Would the scorching have been worse had the weather been less cold? If stocks hold out to July we shall see!



Above: diminutive KK Attacker and Semo Lansen. Note the 'Blast Deflectors' on both models. The Attacker, reduced from the original's 13" to 8½" span, flew well even with the feeble L1s of recent manufacture. The Lansen needed at least 65 mN.

I was disappointed with my 'new' L1s, and André had problems with his 'new' L3s. The former had insufficient power to fly a Wren, implying a thrust of less than 55 mN and had only just enough grunt for a Keil Kraft Shadow Attacker reduced to 65% of the original. The L3s had grunt, but had an unfortunate tendency to blow out their end caps, damaging André's all sheet 'Floater' (*Smoke Trials*, Aug 2009) which had hitherto been going very well.

To conclude: two (not three) cheers for the new batch or Rapier L2s, which have given us some cause for hope. I shall be happier when a new 'new batch' (if you see what I mean) arrives and we can confirm the generally favourable impressions so far, and can entertain hopes that supplies will be maintained. I would also like some L2 LTs. The 'new' L1s are less impressive, with as little thrust as the batches we saw towards the end of 2008, and André, for one, would like to get his hands on some reliable L3s!

If I was disappointed with the L1s, I was more than happy with the performance of the Attacker (see *Smoke Trials* Aug 2009) and the Veron 'Quickie' Sea Hawk (*Smoke Trails* 29). Not unexpectedly, the Sea Hawk, which was originally for Atom 35, needed an L1 that had a bit of pep, but both flew (as they say) 'off the board'. Steve writes: "The antics of [your columnist's] profile models were particularly memorable. The little Attacker with gutless L1s flew in a most entertaining way – nose high at very slow airspeed, rarely getting over head height, which caused all sorts of fun as it meandered through the assembled flight line, sending people scattering in all directions. It appeared to have a homing instinct on anyone holding a camera"! Hmmm ... that it made any progress at all means it's not that slow – when it 'meandered' along the flight line, living up to its name, it was flying upwind! That the Seahawk and Attacker flew at all in those conditions is of great credit to Phil Smith and Albert Hatful.

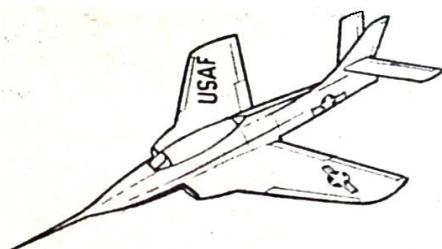
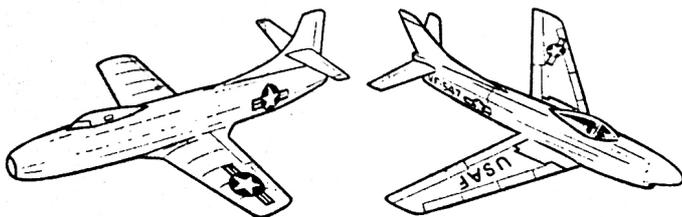
The SAAB Lansen profile, originally kitted as a catapult glider by Semo in Sweden in the fifties, (see (*Jet*) X Files 20), had been on my 'to do' list for some years. Fortunately (?), an enforced time of relative inactivity due to a fractured sternum enabled me to hunt out Sten Persson's scans of the original kit and put one together in time for Mayfly. As with the Veron Quickies, the scans were of excellent quality, requiring little cleaning up with *Paint Shop Pro* before printing on tissue and transfer to balsa (see last month's column for the method). I was very pleased with the result, it's a pity the illustration is in black and white, as the yellow, red, blue and salmon pink are very appealing. At a little under 9" span, 11" length and 12.5g, it is perfectly suited to an L1 of any reasonable specification. The only modification I made, apart from adding a motor, was to change the decalage from 0-0 (which is sensible for a catapult/chuck glider) and reset the wing at +3°.

I had a lot of fun with it, using up all my stocks of dubious L1s that I had obtained from various sources. With a slightly rearward cg, and at least 65 mN up its behind, it flies in a very similar way to Howard's little Hawk or Bill Dean's Hunter, and the flight pattern is most exciting – Immelman turns, tail slides, recovered spins and manoeuvres that Neville Duke says were never in his book! I really hope we see some better L1s this year; those of just a few years ago were rated at 70-80mN, perfect not only for the Lansen but also for all those Wingdings, Natters, Wrens and 'Sharkettes' (small Sharkies) that are, at the moment, effectively grounded.

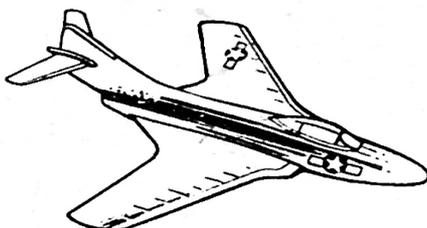
I need not be too shamefaced about recreating the Jetex ARTFs of my childhood, as they have received the approbation of several SAM Stalwarts (“they look just like I remember”) and the artwork has been admired by expert modellers like Mike Stuart and Peter Illife. If you would like templates please let me know. These will be much cheaper than building an original kit – one stallholder at Old Warden was asking an exorbitant £35 for a Veron Panther! Still, if he had had a KK Shooting Star I would have paid up like a lamb. I didn’t show him my replicas.

Jetex in the USA

Over the years I have compiled a comprehensive list of the ‘Jetex’ kits produced and articles, plans, and advertisements published in the UK. Creating an analogous list for the US is a daunting task: not only was the US market far larger, US magazines published Jetex related stuff long after the *Aeromodeller* and *Model Aircraft* had lost interest. If it were not for Paul Del Gatto’s *All about Jetex*, published by Telasco in the fifties, which gives an authentic insight into those times, one might despair of being able to make any sensible generalisations about what was a very vibrant and creative period in US modelling history. Recently, courtesy of eBay and generous colleagues on *Jetex.org*, I been able to examine a few more US ‘Jetex’ artefacts. I was pleased that these have confirmed, or at least not disabused, a couple of our previous impressions. Readers will remember the curious reticence some US manufacturers, for example Guillows, had about how their jet models were actually supposed to fly. Would the Comet Skyray, I wondered, be an unfortunate exemplar of this phenomenon?



KIT Y6
REPUBLIC THUNDERFLASH F84F



KIT Y7
GRUMMAN COUGAR F9F-6

I had seen the plans for the Panther and Skyray (*Smoke Trails* 6&9), but the Skyray is the first Comet kit I was able to examine first hand. And what a disappointment it turned out to be! The box top proclaims, “Model Building builds Model Boys’, but, what it would undoubtedly have done for me, with

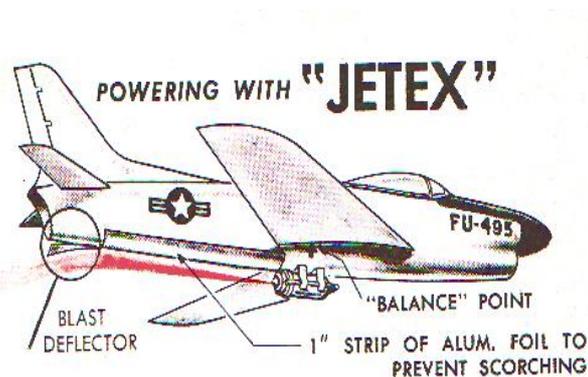
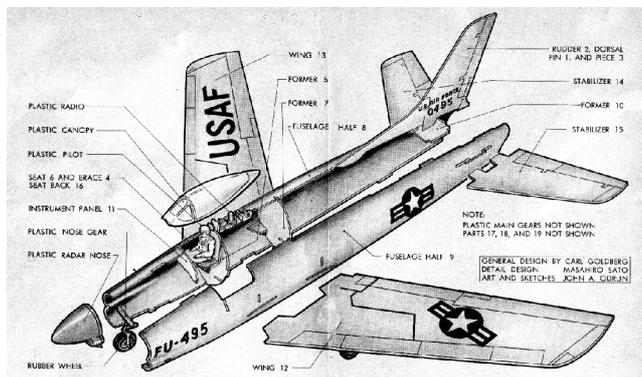
Its complex construction and a canopy that wasn’t moulded but fabricated from bits of balsa and acetate sheet, is to have caused much frustration and ‘un model’ language! This might, or might not, have been ameliorated by the cookies and bottle of Coke (note the product placement in the photo). There are no flying instructions. Marty Richey opines the designers expected their models to be built for static display, but if so, why the ‘Flying Scale’ and ‘It really flies’ blazoned on the box top? Other (later? Comet designs were for Jetmaster, and we know from Steve Bage’s Panther that they can be made to fly well. I hope the instructions for the other jets in this range (left) at least suggested a motor and where to put it.

Caley Hands sent me an example of an Airplane F-86. Here, the possibility of Jetex power is at least alluded to, but, again, the contents do not justify the box top’s hyperbolic ‘Flies like a Real Airplane’.



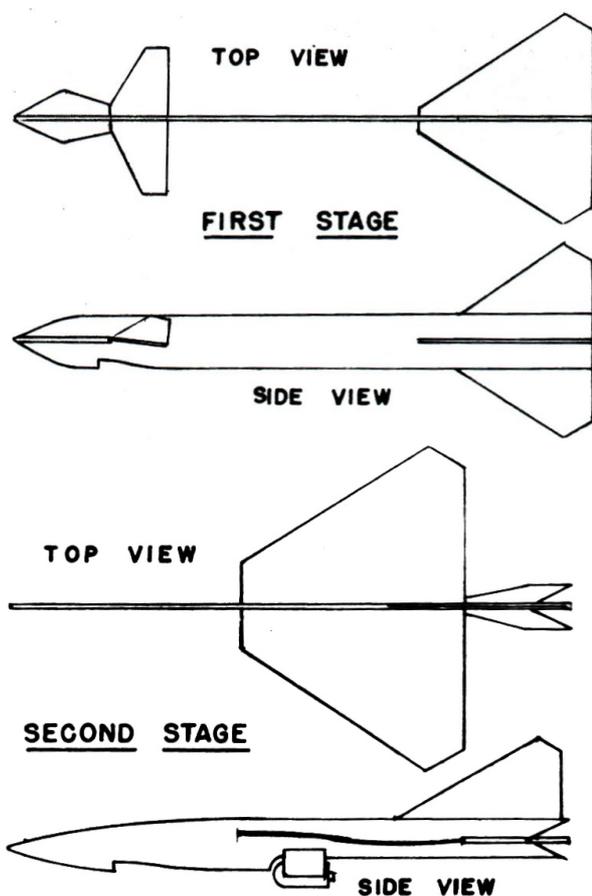
Above: The Airlane F-86. The balsa is of good quality and nicely die-cut, but scarcely matches the box top's, 'All parts finished ready to assemble'. Note the unattractive canopy which has to be cut out from card and a woeful lack of decals. The instructions are quite inadequate: for example bending the top sheet to match the curved formers would be almost impossible without pre-soaking the single sheet, but this is not explained. Even worse, the tailplane dihedral is specified, but we are told to 'cement the wings on the fuselage' with no indication of incidence or dihedral. Nevertheless, this simple 16" span all-sheet model would have been a more sensible choice for a boy than the Skyray, but only if he ignored the only flying instructions I could see, "Model will fly beautifully with a Jetex 100 engine. Mount engine under fuselage between wings". Oh dear!

Top Flite, too, were somewhat reticent about their products' motive power, at least in their adverts, (see *(Jet) X Files 20*). Jay Criswell recently sent me the illustrations from an actual kit. The standard of these is very good, and they make the mode of propulsion explicit.



Above: Goldberg's 'Superform' F-86 Sabre. These models, like the Jetex 'Tailored' kits, featured moulded fuselage shells. But the kit also included cockpit details, pilot and undercarriage, though the latter is sensibly left off the flying version. The inverted commas around 'Jetex' are strange. Are these ironic? What was Top Flite ashamed of? The instillation of the Jetex 50 appears to be in the nature of an afterthought, but it is viable, especially with the provision of a thrust tab, or 'blast deflector'.

Another feature of the US Jetex scene we have noted before is the ambitious nature of some of the designs, for example Paul Del Gatto's book includes models like his Bomarc with two or even three motors. This 'can do' engineering hubris is reflected even in their ARTFs. The kit below is more complex than either the Jetex Viper or Isacson's Matador or Jupiter C (ST 9).



The X-16, produced, in July 1958, was well presented, and the balsa parts – and as there are two stages there are quite a lot of them – were cut out, partly pre-assembled and decorated. Being Berkeley, the recommended motor was the ill-favoured PSST 50. Assembly, well within the capability of a young boy, results in two nice looking models that I, at that age (or even now) would have been proud.

The flying instructions begin sensibly, each stage being tested separately until the customary 'smooth flat glide' was achieved, and we are told: "Either stage can be flown separately using the rubber band catapult", which is how I guess most lads would use it. For two stage launching, the second stage with the loaded motor was slotted into the first stage. After positioning the rubber band, it is, "stretched as far as possible pointing the model nearly vertical with a slight right bank. . . have your assistant light [the] motor fuse and release catapult when motor begins to hiss. Models should climb skyward together and the second stage separate at the top of the flight, continuing to climb".

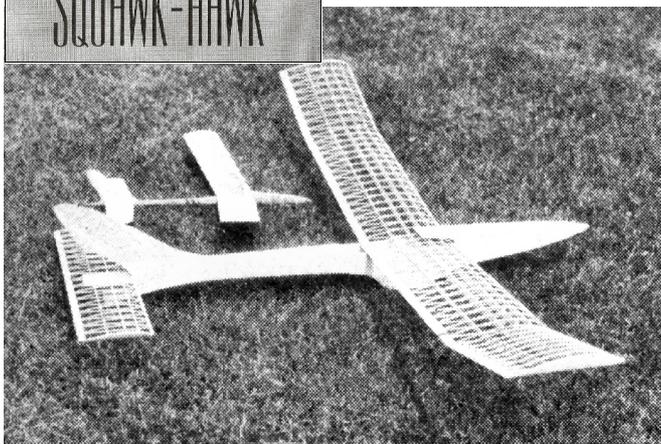
Berkeley, perhaps with an eye on the sales of their motors, pellets and fuse, also suggested 'advanced dual-powered flight', where the first stage was fitted with a PSST 50 motor and the second stage with the PSST 'Double 50' motor. The ambitious flyer is told: "Light both stages and catapult. Both units will continue to climb until the first stage burns out, then separation takes place'. This is fanciful stuff, especially given the known difficulties of lighting the 'Double 50'. But the X-16 is an interesting model. I will make scans of my mint example, and – since US ARTFs are grossly underrepresented on the flying field – put a couple together, using 1/16" balsa sheet rather than the 1/8" of the originals. The second stage should go very well with an L2 HP. I doubt I shall ever try a dual-powered flight, but a two-stage catapult launch is perfectly feasible, especially if it facilitates getting the second stage above the turbulence at Old Warden on a windy day! Tracking and retrieving the first stage in such conditions will not, however, be easy and definitely require an assistant of the calibre of Andy Blackwell!

If US ARTFs aimed at young flyers were ambitious, designs in magazines could be even more so. Gray, who writes the 'Sports Channel' column in *RC Model Flyer* recently came across this Don McGovern creation. Gray writes: "It really is a magnificent project and a masterpiece of free-flight ingenuity. The delayed ignition system is fiendishly clever though each flight would have consumed a lot of fuse!"

Though published in *Flying Models*, 1963, the Jetmaster and 50B indicate an earlier design date.



Awk! Awk! It's
"MOTHER-HAWK"
and her awkward gawk
"SQUAWK-HAWK"

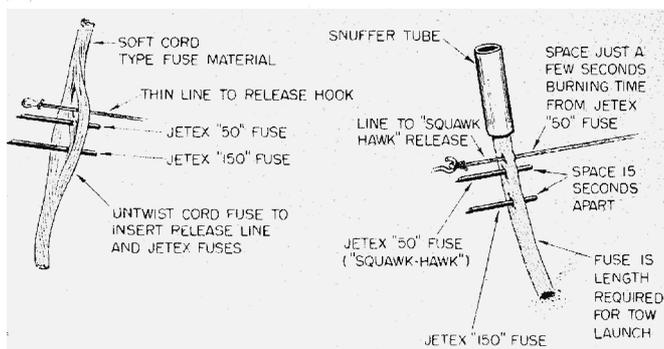
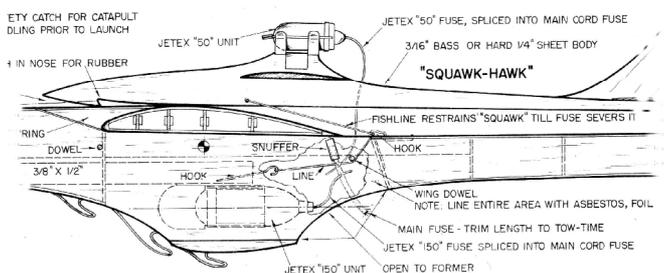


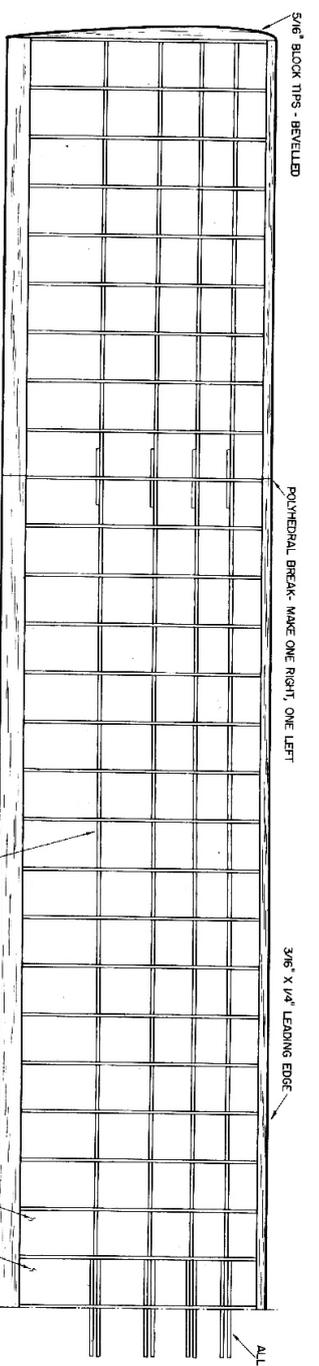
There is nothing unusual about the individual gliders – though the construction of the mothership's wings is a little 'OTT' – it's the piggy-back combination that is unorthodox. I trust the timing mechanism and conjunction of models are quite clear from the photos and diagrams on the left

If all goes well, the sequence of events was (or should have been): 1. Attach models to each other, tensioning the rubber band that goes from the nose of the M-H and launches the S-H at the correct flying speed. 2. lock in place, attach dethermaliser fuse with Jetex wick inserted. 3. Light D/T fuse, tow combination to height, D/T fuse ignites Jetmaster wick. 4. release line when Jetmaster starts to fizz. 5. Admire flight pattern of combination. 6. Second wick ignites Jetex 50 B, D/T fuse releases catch, and the Squawk is catapulted from mothership to the 'oohs and 'aahs' of the admiring onlookers. 7. Retrieve both models, which are hopefully in the same county.

Now there are a lot of 'ifs' here and I wonder if it ever quite worked as planned. Mr McGovern, whom I trust was not in any way attached to Project Mercury or Nuclear Energy, recommends that the potential builder/flyer should have some gliding experience 'under his belt'. Just so. He also discusses other possible designs for the parasitic model, and admits, "We do not know all the answers [he doesn't say what the questions are] ... try a variety of missile combinations ... we hope you will take it from here for higher flying. Drop us a photo". I wonder if anyone ever did. Gray comments, "A successful launch and piggyback separation must have been truly spectacular ... with micro R/C, the Mother-Hawk Squawk Hawk duo is now more feasible. Any Takers?"

This being the thirty-sixth *Smoke Trails/Smoke Trials* article, I am going to hang up my word processor and take a Summer Break. But please keep up the correspondence, and see you on the Flying Field!





5/16" BLOCK TIPS - BEVELLED

POLYHEDRAL BREAK - MAKE ONE RIGHT, ONE LEFT

3/16" X 1/4" LEADING EDGE

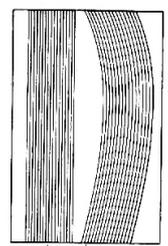
ALL GUSSETTS ARE 1/16" X 3/16" HARD Balsa STRIP
WING AND STAB ARE EASY TO BUILD, LIGHT

FLY IN CALM WEATHER

"MOTHER-HAWK"

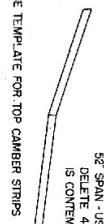
"SQUAWK-HAWK"

WIRE FITTINGS



STRIPPING RIBS

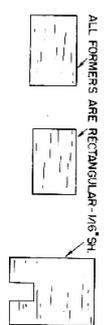
CUT MED 1/16" SHEET TO EXACT CHORD LENGTHS, PRE-CUT END GRAIN WITH CENTER, BEFORE MAKING STRIPPING



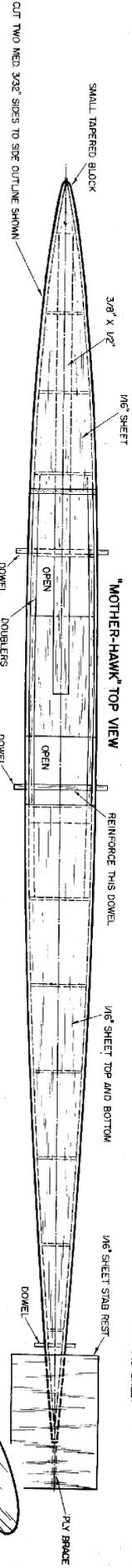
"MOTHER-HAWK" WING
5/2" SPAN - USE UP TO 300 FEET OF BUTTON-THREAD TOWLINE
DELETE 4" TO 6" FROM SPAN IF JETEX "50" POWER ALONE
IS CONTEMPLATED DELETE 2" FROM STAB ALSO

POLYHEDRAL-DIHEDRAL DETAILS

FUSELAGE DOUBLERS - TYPICAL FORMERS



"MOTHER-HAWK" TOP VIEW

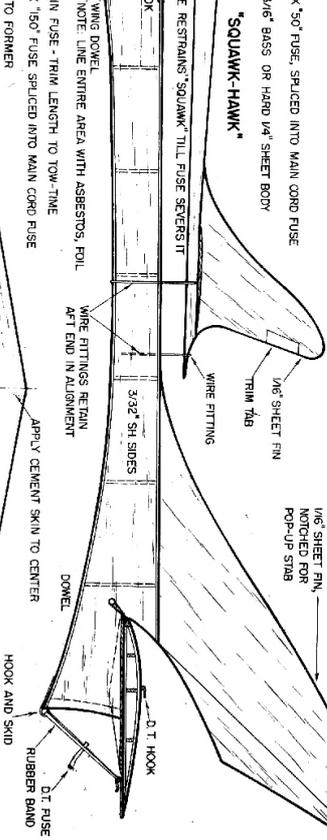


CUT TWO MED 3/32" SIDES TO SIZE OUTLINE SHOWN

NOTE: DENSE SAFETY CATCH FOR CARTRIDGE FOR GROUND-HANDLING PRIOR TO LAUNCH

NOTE: NOTCH IN NOSE FOR RUBBER

"SQUAWK-HAWK"



NOTE: CENTER "JETEX "50" IN FUSELAGE, MOUNTED ON 3/16" X 1/2" GOOD AIR CLEARANCE ALL AROUND. COIL-SHROUD IS OPEN AT BOTH ENDS AS IS FUSELAGE TOP AND BOTTOM IN FUSE AREA YOU MUST LINE ENTIRE ENGINE AREA WITH ASBESTOS/ALUMINUM FOLI, FOLD OVER TO SHIELD WING

CARTRIDGE HOOK

STRETCH ONE TO SEVERAL 1/8" RUBBER BANDS FROM HOOK TO NOSE

"MOTHER-HAWK"

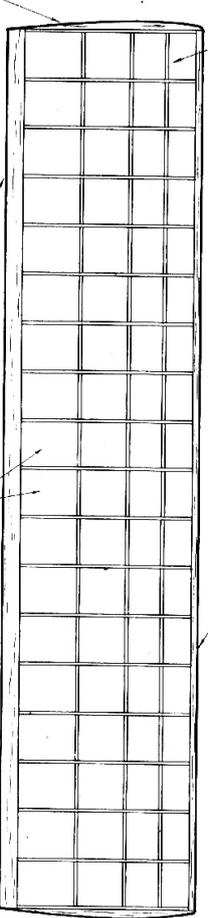
NOTE: THIS IS LEFT OPEN FOR AIR-COOLING JETEX

TOW-HOOKS ARE FORMED OF SINGLE WIRE

1/8" X 3/16" LEADING EDGE

"MOTHER-HAWK" STABILIZER

0.1" HOOK
0.1" RISE
RUBBER BAND

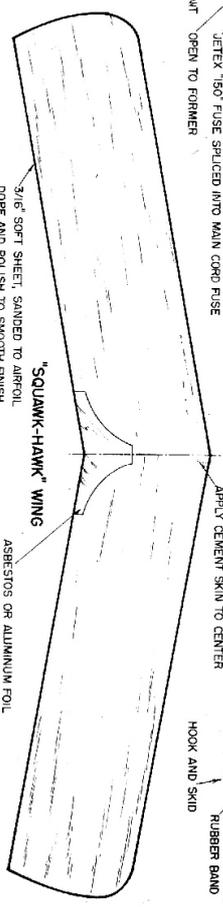


3/16" STOCK STAB TIPS

3/16" TAPERED TRAILING EDGE

DOUBLE-COVER CENTER TWO PANELS

NOTE: USE 1/16" THICK PLY BOARD FOR CENTER PANELS



3/16" SOFT SHEET, SANDED TO AIRFOIL DOPE AND POLISH TO SMOOTH FINISH

ASBESTOS OR ALUMINUM FOLI

"SQUAWK-HAWK" WING



SCALE

DESIGNED & DRAWN BY DON MCGOVERN

