

SKY PUP NEWS



Newsletter No. 1

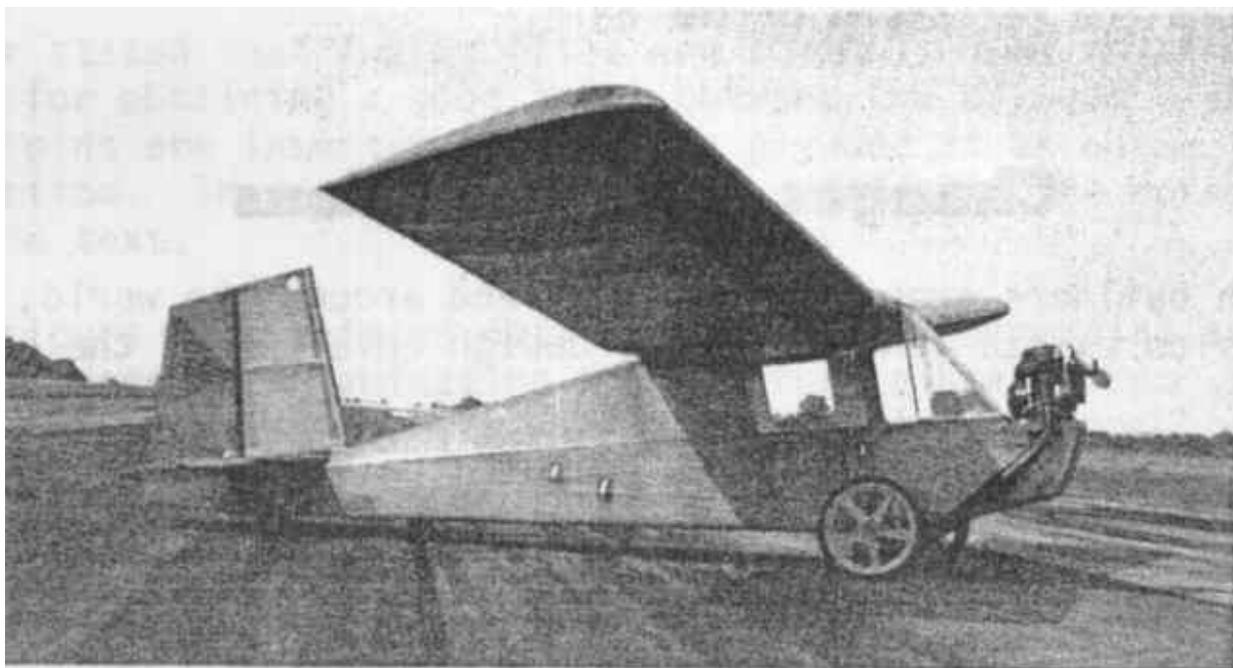
October, 1983

Sky Pups Take To The Air
Plans Updates
Changes & Modifications
Building Tips

This newsletter is the first in a series which will be written on a quarterly basis to update Skypup builders and make them aware of revisions, suggestions, and ideas which are brought to our attention. Since the newsletter should suit the needs of you, the builder, we constantly solicit your input in the form of photos, ideas, and time or money-saving tips. If you discover a quicker, easier, or less costly way of getting your Sky Pup into the air, please share it with your fellow builders by sending it to Sport Flight, c/o NEWSLETTER.

Since the price of the Sky Pup did not include a margin for newsletter service, we cannot provide it free of charge. This first issue is being sent for free to give you an idea of what type of material and information will be included in upcoming issues of the newsletter. Subscriptions for the newsletter will be \$12.00 per year foreign please add \$6.00, Canadian please add \$2.00). A year subscription will include four issues, and the newsletter will continue for as long as a reasonable demand exists.

SKY PUPS TAKE TO THE AIR



Word of plans-built Sky Pups being finished and flown in various places is beginning to spread. Please let us know the status of your projects, and dates of completion and first flight. We are keeping a Sky Pup scrapbook of builder projects, and can only include information about your Pup if you send it.

Ray Macke, of Marissa, Illinois, has been flying his Sky Pup, SN 1092, for quite some time now. He reports good handling characteristics and performance, as well as good overall satisfaction with the project. Ray's Pup, which is shown in the photo below, sports a few extras, including: windshield, instruments, and steerable tailwheel. The colors are medium blue and light orange—very nice! Ray says his total airframe cost was just under \$750, and the total cost to build (including the extras) was \$1500. Ray was able to buy a used engine with 6 hours running time for about \$600.

We'll be including pictures of other Pups in upcoming issues of the newsletter, so keep up posted on your progress. We're looking forward to seeing large litters of Pups at some of the fly-ins next spring.

PLANS UPDATES

Since the release of the first printing of Sky Pup construction plans, a small number of omissions and needed corrections has been brought to our attention. The following updates all apply to plans sets with Serial Numbers between 1000 and 2000. Item 1 applies to all Serial Numbers .

1. The material for the wing spar caps is Douglas Fir. Some builders who have already constructed their spars using Sitka Spruce may leave them as they are. Any new construction should utilize fir because of its strength advantage. Builders who have spruce spar caps should be aware that their spars have static strengths approximately 15% less than that for spars with fir caps.
2. The zipper panel, which is shown in the Fuselage Details sheet of the plans drawings, should be deleted. Experience with the prototype Pup has shown that the zipper is too prone to clogging and jamming to provide satisfactory service. The prototype is currently being operated with the floor hole open, but Velcro or upholstery snaps would be preferable to the zipper, if closing of the hole is desired.
3. Sheet 9 of the drawings shows one intermediate nose rib between the wing joint and the fuselage side. The photo on page 14 of the construction text shows two intermediate nose ribs for that portion of the centersection. The drawing should be changed to agree with the photo, so that two nose ribs should be equally spaced between the joint and the fuselage side. No remedial action is required for builders who have already completed centersections with only one intermediate nose rib.
4. A material callout for the diagonal member extending between the aft end of the engine mount board and the bottom of the lower engine bearer (see Section CC-CC, sheet 13 of the drawings) should be added. This member is to be $\frac{1}{4}$ by $\frac{3}{4}$ fir or spruce. Note that the member is really made of two pieces (per side) that are interrupted by the upper engine bearer. Also, the fuselage side-foam ends at the aft face of this member.
5. In order to allow the airframe to “breathe” and release moisture which could become entrapped, vent holes should be added after the fabric and finishing processes are complete. The vent holes should be from $\frac{1}{8}$ to $\frac{3}{16}$ ” in diameter, and should be located at the lowest point (where water would collect) of any sealed bay or compartment. The holes should be in the lower surfaces only, and are most easily made by melting through the fabric with a round-tipped soldering iron. The iron will melt the fabric edges, with the benefit of preventing any subsequent unraveling or fraying around the periphery of the hole.

CHANGES & MODIFICATIONS

In corresponding with builders around the country and around the world, it has become apparent that some confusion exists concerning the design envelope of the Sky Pup.

The Pup is a carefully conceived and designed flying machine. Since it was designed and flown before the release of FAR Part 103, it was impossible to anticipate the exact requirements which would have to be met to maintain ultralight status. Fortunately, our “gut-feelings” about the outcome of the FAA rulemaking were conservative, and the Pup had no problem qualifying as a legal ultralight. Had we known the eventual outcome of Part 103, however, some parameters of the Pup would have been selected differently.

Although the Sky Pup’s empty weight is far below the specified legal maximum of 254 lbs, the gross weight which was used for stress analysis throughout the design process is the vital number with regard to structural integrity. Sky Pups must be built and operated within the specified design limits of speed and weight in order to keep the loads at a safe level. The addition of larger or heavier engines, or the addition of equipment which would render the aircraft above the gross weight, or capable of speeds in excess of the specified limits, is dangerous, and should be avoided religiously. Resist the urge to modify the aircraft without consulting with us first about the change. Some slight modifications may be allowable, but do not try to make the Pup into something it was never intended to be. It could prove disastrous.

The “design” or “ultimate” load factors (the terms are interchangeable in the aircraft industry) specified for the Pup, represent optimum failure load levels, not load levels which may be achieved in flight. The “limit” load factors used in establishing the design are approximately 60% of the design load factors, and represent the loads that could be reached at some time in the normal life of the aircraft.

The Sky Pup is NOT AEROBATIC, nor is the structure “over-designed” to allow gross margins for poor building technique or operation outside the design speeds and weights listed in the plans. Building and flying “by the book” will reward you with many years of safe, fun flying. If you have a change or question regarding structural integrity, please contact us and allow us a chance to review the idea before incorporating it.

BUILDING TIPS

The following are some suggestions and tips which have been submitted to us by Sky Pup builders. Please feel free to send us any others you have found to be helpful.

1. An alternate method of attaching the fabric to the airframe has been mentioned by several builders with model airplane building backgrounds. Rather than applying the fabric while the contact cement is wet, these builders recommend applying two full coats of latex contact cement and allowing them to dry completely. The fabric is then layed onto the surface and finger pressure is used to “tack” it down into place. When the fabric is positioned as desired and free of wrinkles, a third coat of cement is applied through the fabric from the outside. This coat softens the original coats and allows the fabric to be cemented without the hassle of working the fabric over wet cement.

2. Many builders have suggested using the wood spar caps as the hot-wiring guides for the foam webs. This method could be used on wing and empennage spars, and seems so obvious that we’re ashamed to tell the method we used on constructing the prototype spars.

3. One builder stated that T-pins (like are commonly used in aircraft fabric work) are very handy for obtaining a good joint between the plywood D-skins and the foam nose ribs. The pins are inserted through the plywood at an angle to provide the desired clamping action. These pins are used in addition to the methods described in the construction text.

4. Several builders have pointed out that there are commercial adhesives for foam which may be used when laminating foam to form a spar core. Some of these can be cut with a hot-wire, so that the intermediate step of spot-bonding the pieces until after they are cut is eliminated. Be sure that any adhesive chosen will maintain adequate strength (failure in the foam—not in the bond line) in prolonged exposure to a moist environment.

5. When ordering plywood for your Pup project, please note the significant price difference between “inch”-dimensioned plywood and metric. Apparently metric plywood is not domestic, and is therefore 40-50% less expensive, while maintaining the same strength properties.

SKY PUP NEWS



Newsletter #2

January, 1984

**Kansas Sky Pup Flying
Miscellaneous
Building Tips
Changes & Modifications**

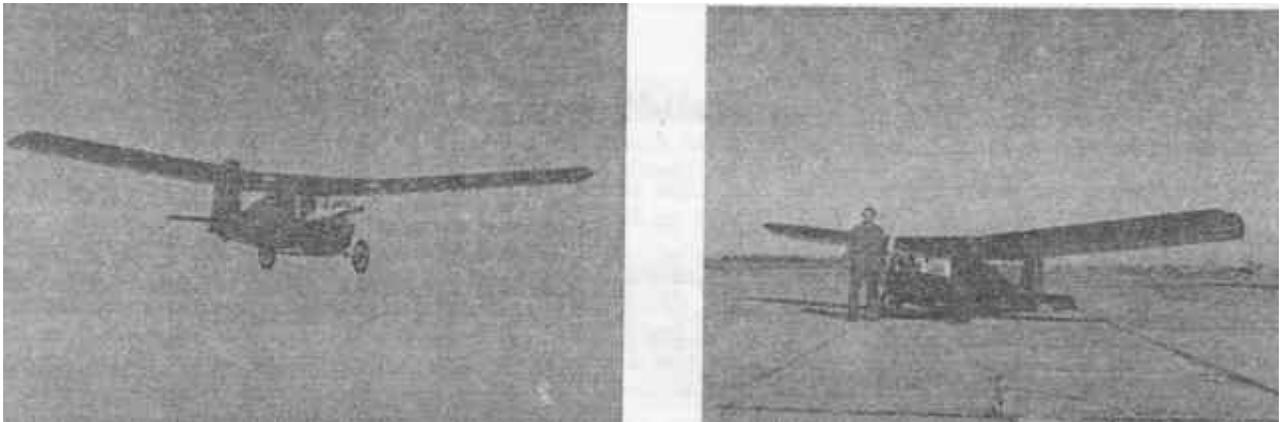
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KANSAS SKY PUP FLYING

Allen Scott of Neodosha, Kansas recently completed and test flew his Sky Pup, SN1354. Allen reports that he spent 400 hours on the project between 5-28-83 and 12-4-83, and finished his bird for a total airframe cost of \$1100. Allen's Pup is very much "per plans" as evidenced in the photos below.



The Cuyuna 215 engine was purchased from a dealer-friend for near cost, and Allen carved his own propeller which is working very nicely. He noted the biggest problems encountered during construction was selection of wood and availability of desired fabric colors. It seems that color selections in the fabric stores vary from season to season—bright colors are most easily found during spring and summer, while "earth-tone" colors are more available in fall and winter. Overall, Allen says, "Construction itself was fun, with no real slow spots to get hung up on".

With regard to flying the Pup, Allen reports a first flight date of 12-12-83. He had some exhaust tuning problems on the first outing which he quickly cleared up. "The Pup handles perfectly in the air and on the ground," says Allen. "It's the easiest flying plane ever. Never had to do thing to it after the first flight. But the most delightful thing of all is the landing—just lands itself!"

Allen is contemplating fiberglassing the perimeter of the hole in the cockpit floor because he keeps catching his feet on the edges. He glassed the area under the pilot's heels for extra wear protection. Allen is about 6'3" and 190 lbs and says the cockpit of the Pup is "just a little cramped".

MISCELLANEOUS

Sport Flight is currently testing the new tractor version of the ULTRA-PROP by Competition Aircraft. As soon as the zero-degree weather and snow subside long enough to allow completion of the testing, Sport Flight will be able to supply these propellers to builders. Initial test results look very promising, and the ULTRA-PROP should be a boon to builders since the pitch can be changed to

suit altitude and temperature conditions for different locales. Please allow us about three more weeks of testing time before inquiring about the ULTRA-PROP.

Aircraft Spruce and Specialty is now an authorized distributor of Sky Pup materials kits and hardware. Please contact them directly for pricing information at:

Aircraft Spruce and Specialty Co.

Box 424

Fullerton, CA 92632

(714) 870-7551

Always specify that you are building a Sky Pup when ordering materials from them.

Word has it that ROTAX will soon be introducing a new “free air” version of their popular Model 277 engine. This engine is designed to operate without a cooling fan by the addition of extra fin area, and should work nicely on tractor-type ultralights, such as the Pup. This development is important since the present 277 is quite heavy for the Pup and the new one should be significantly lighter.

BUILDING TIPS

The following are more suggestions and tips which have been sent to us by Sky Pup builders. Please send us any others you have found to be helpful.

1. It has been found that WELDWOOD brand latex contact cement is unsatisfactory for us in the fabric covering process. This cement dries to a very unsightly yellowish color, and seems to always leave a very bumpy texture to the surface. ELMERS brand (as called out in the plans) is the best cement for the purpose, with KINGCO (as supplied by Wicks) running a close second.
2. Many builders are painting the foam areas (such as fuselage sides and sides of wing ribs) with ordinary latex house paint prior to fabric attachment. This paint will help provide a fuel barrier, and should offer better protection against damage by ultraviolet than regular polyurethane varnishes. As an additional note, one builder has reported the existence of a clear polyurethane varnish which is labeled as having some type of UV barrier in it. Sounds good, but we haven't seen any of it yet.
3. Rather than using an iron or heat gun for shrinking the fabric after attachment to the airframe, one builder says that he used a 250 watt heat lamp (5" diameter face) for the job.
4. Another builder has informed us that #7 Plymouth rubber bands are the perfect size and tension for holding the plywood D-skins tightly against the nose ribs during the leading edge skinning process. These should be available from an office supply store.
5. Several builders have noted that they have used a band saw to cut the foam component of their Pups to shape (espec. wing ribs). For those builders who have access to a band saw, this may take less time than setting up a hot-wire. The major difficulty to this method is preventing damage to the template by the saw blade. Guide blocks or blade with very little “set” in the teeth seem to be good solutions.
6. It seems that Dow blue Styrofoam is not shipped to regions west of the Rockies in full 4'x 8' sheets. 2' x 8' sheets are the common size out west, but everyone we've heard from says they're easier to work with anyway.
7. An excellent idea for holding templates in place on the foam parts during the cutting operations is the use of double-faced tape. This “carpet” tape is very inexpensive, and makes a lot more sense than staking the templates to the foam with shingle nails, etc. I would seem especially superior to other methods when using the spar caps as the hotwire guides for the foam cores. Once again, “wish we'd thought of it”!

CHANGES & MODIFICATIONS

Many builders have asked about the conversion of the Pup to three-axis control by the addition of spoilers, spoilerons, or ailerons. Since the Pup was designed from the beginning to be a two axis machine, several features of the aircraft are tailored specifically to produce roll response through rudder input, and therefore preclude the easy addition of these extra lateral control devices.

The large amount of dihedral in the Pup's wings (which is needed to produce a rolling momentum when the aircraft is yawed) would be undesirable for a machine with ailerons. And, the dihedral angle is used to gain spar depth at the wing root for additional strength with little weight. Decreasing the dihedral angle would require a complete re-thinking of the wing structure.

Torsional loads on the wing due to the deployment of a control surface can be significant, and were not part of the design criteria of the Pup. The wing would require additional torsional stiffness and strength if these controls were to be added. This would mean adding diagonal ribs or a rear spar and revising the fuselage and joint attachments.

The argument in favor of three-axis control is, of course, that two-axis will not provide adequate roll control in some situations. While there are some ultralights which utilize the third axis to their benefit, the majority of the three-axis machines are the result of market pressure by “conventional” pilots, i.e. the guys who want to be able to wiggle the stick sideways and see something on the wing move. Within the boundaries already posed by the mandatory low stalling and top speeds of the ultralight, we feel that two-axis control is a very effective and logical solution to the rolling problem. It offers substantial savings in weight, building time, cost, and structural

complexity without handicapping” the pilot’s control of the airplane. People who have flown Sky Pups remark favorably about the roll authority of the aircraft.

So...adding roll control devices to the Pup is not impossible, but it is more involved than it might first appear. This is true of almost any change which affects the structure or aerodynamic characteristics of an aircraft. Please allow us an opportunity to review and trouble shoot changes you may be considering before you implement them.

We will try to devote a portion of each newsletter to approved changes and modifications in the future. Let us know which ones you’d most like to hear about.

Sky Pup News



Newsletter No. 3

April, 1984

First Nebraska Pup Flies
Miscellaneous
Oshkosh Plans
Building Tips
Changes & Modification
Steerable Tailwheel Option

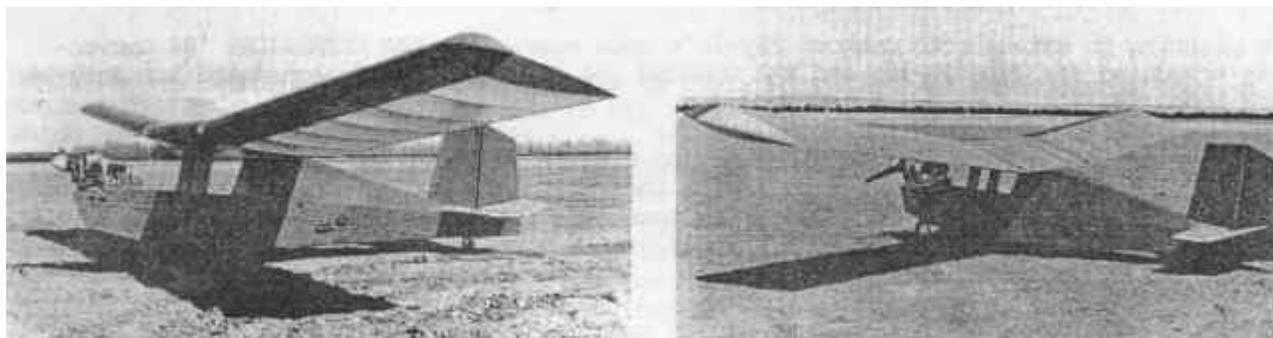
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FIRST NEBRASKA PUP FLIES

Don Kerbel, of Morrill, Nebraska, finished his Sky Pup (SN1850) on January 20 of this year after two month and two weeks of building time. Don used the spare time during his winter season as a farmer to construct the Pup which has logged 22 flight hours at the time of this writing. The photos below show SN1850 in a field on Don's place. (City dwellers, eat your hearts out!). Transporting the bird was not a consideration to Don since he has lots of flying room right out his back door.



Don reports a building time of 425 hours, and a total cost of \$2250 which includes \$445 in phone calls, spares,

and miscellaneous costs associated with the project. His Pup is two-tone blue, and is very "stock" with the exception of a steerable tailwheel and some minor internal changes. The Cuyuna 215 is fitted with Competition Aircraft ULTRA-PROP of 59 inch diameter, and 12°pitch blocks. Don says the performance is very lively with this combination, and claims a cruise speed in the high 50's, with a climb rate of 600 fpm. (Morrill is 4500 feet above sea level.)

The Pup was Don's first airplane building project, but he is a licensed private pilot with about 300 hours in Cessnas. He bought an extra prop by attempting to taxi the Pup around the yard without the wings on. (Beware—it's a little nose heavy that way!) Don has also incurred some light damage in a landing through a electric fence which he says "was no fault of the plane". Don says he thoroughly enjoyed the project, and could build a second Pup for considerably less money. He felt that some details in the plans were a little tough to "cipher out", and that the cockpit could stand to be widened and lengthened a couple of inches. Don says his Pup flies beautifully, and that his biggest surprise was how well the aircraft responded in roll through the rudder input.

MISCELLANEOUS

The two vendors below are the only authorized distributors of Sky Pup materials kits:

Wicks Aircraft Supply 410 Pine St.

Highland, IL 62249
(618) 654-7447

Aircraft Spruce and Specialty
Box 424
Fullerton, CA 92632
(714) 870-7551

Remember to always specify that you are building a Sky Pup when ordering materials from them.

Sport Flight has just received a Rotax 277 "free air" engine for testing on the Sky Pup. Results of the installation and flight-testing should be well documented in a couple of months. After flying some other ultralights powered with this engine, our concern is that it might have a little too much power for the Pup.

A couple of items missing in the construction plans have been brought to our attention. The material callout for the leading edge strip and trailing edges were inadvertently omitted. The leading edge strip should be labeled "softwood" per the definition in the text, and the trailing edge should be fir. Also, on sheet 8 of the construction drawings, there are a couple of reference lines and dimensions which do not relate to anything and have caused confusion. Particularly, in the front view of the leading attach joint, the dimension "2 3/16" and its related dimension lines should be ignored.

OSHKOSH PLANS

We are planning to attend both Oshkosh Fly-Ins this year. The EAA ULTRALIGHT '84 Convention is schedule for June 15-17, and EAA OSHKOSH '84 (the BIG one) is scheduled for July 28 through August 4.

In an effort to get as many Pups together at one time as possible, we are soliciting input from Pup builder who think they may be taking their birds to either event. The Ultralight meet will be a smaller event, and would allow more time for "shooting the breeze" and flying in uncrowded skies. Please let us know which fly-in you prefer to attend so we can advise others who may be undecided.

We will be giving forums on Sky Pup-type design and construction at both fly-ins, so come prepared to ask lots of good questions. We can't wait to see some Pups flying formation in the fly-by pattern!

BUILDING TIPS

The following are suggestions and tips which have been sent to us by Sky Pup builders. Please send us any others you have found to be helpful.

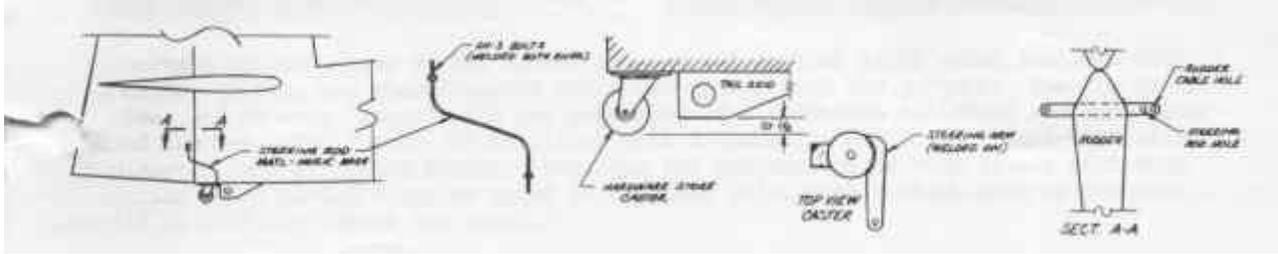
1. One builder reported an alternate method of attaching the wing rib caps to the D-skins on assembly. Rather than using nailing strips (or staples) to hold the forward edge of each cap strip in place, he simply spot-glued it with super glue. This gave an instant bond which held the cap until the remainin portion could be glued in place with epoxy or Titebond. He also mentioned that clothespins work well on the trailing edge to obtain good gluing pressure between the rib cap and the trailing edge.
2. Two people have told us that they used motorcycle-type bungee (tie-down) straps to hold the wing D-skin in place for installation. These are used with 3/4" square blocks which go against the rear face of the spar, and support the metal ends of the bungee straps. Six of the straps are adequate to work each section of the D-skin.
3. Several builders have found that the difficulty of drilling the entire 4" depth of the wing attach bearing blocks without excess drill wobble and misalignment can be overcome by simply drilling the hole halfway from either side. Care must be taken in laying out the centerlines of the holes exactly before the operation, but this may be the best way to achieve good alignment with minimal effort.
4. A number of builders have told us that they made two rib templates rather than one so that they could "stack cut" the ribs all at one time. This saves time, and guarantees greater accuracy of the rib contours than the single cutting method.
5. It has been pointed out to us that many of the varieties of nylon bicycle wheels do not have the same inside hub diameter as the Troxel brand wheels use on the Pup prototype. In particular, Tuff Wheels, have a 1 1/8" inside diameter hub rather than a 1 1/4" as the plans-specified wheels have. If it is easier to obtain wheels with the smaller I.D., the axle should be changed to 1 1/8" x .095 wall minimum 4130 steel to insure adequate axle strength.
6. "SIG-BOND" a product of Sig Manufacturing, is reported to work very well on either wood-to-wood or wood-to-foam bonds. This product is an aliphatic resin, and is available from: Sig Manufacturing, Montezuma, IA 50171

CHANGES & MODIFICATION

Many builders asked about adding tailwheels to their Pups. Below is the method used by Ray Macke (SN1092)

to add a steerable unit to his bird. The tail wheel is a common 2"-3" caster which has been modified by th addition of a steering arm, attached to the tail skid attach block with 3/4" wood screws or bolts. Attachment with screws would provide some "tear-away" link in the installation and prevent damage to the aft fuselage structure if severe loads were encountered. Steering is accomplished through a rod attached to the rudder control horn. The tailskid attach block should be made longer than shown in the plans to extend to the

forward end of the tailskid which has been moved forward. The skid remains to provide protection for the tailwheel when operating off of very soft surfaces. Thanks Ray!



Within the last two weeks, we have had conversations with builders who have finished Sky Pups with empty weights in the 240-250 lb category. In both cases, the builders stated that they had followed the plans fairly closely, and the source of the dramatic weight increase was found to be in the application of excessive varnish or paint to the fabric. One of the builders admitted to using 7 (!) gallons of varnish on the exterior fabric surface.

When finishing the Pup, only the amount of finish need to adequately seal and protect the fabric should in applied. Unlike dope, polyurethane finishes have a large percentage of non-evaporative solids which remain on the fabric after the finish is dry. Thus, the bulk of weight of each gallon will be added to the aircraft's empty weight.

There are plenty of Pups flying with empty weights in the 195-205 lb bracket.-it can be done. Please resist the urge to "make improvements" or try for a show-stopping finish at the expense of extra weight.

All builders should be advised that **FLYING THE SKY PUP IN EXCESS OF THE PUBLISHED GROSS WEIGHT WILL REDUCE STRUCTURAL STRENGTH MARGINS TO A DANGEROUS LEVEL**

P.O. BOX 2164 * Grand Junction, CO 81502 * (303) 245-3899

Sky Pup News



Newsletter No. 4

July, 1984

Pennsylvania Sky Pup

Rotax Power

Beware of Bonding

Building Tips

Special Bulletin: Heavy Pups due to excess varnish.

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PENNSYLVANIA SKY PUP

This issue's featured Pup is SN 1863 which was constructed in about six months of spare time effort by Terry Rockwell of Susquehanna, PA. Total building cost for the per-plans project is reported as \$2200, although Terry says he could build another one for a lot less.

Terry was assisted during the construction by his father, an eleven year old son, and a very supportive wife. The bird is black and orange (Uh...Terry...about your choice of colors...) and is Cuyuna powered. SN 1863 is shown with its builder in the photos below. The one on the right is Terry posing with his clipped shirt after his first solo!



Terry had an interesting experience on his very first test hop which rivals about any first flight story we've heard yet. It seems that he was at the airfield doing some taxi and crowhop work when he found himself airborne and committed to go around. On climbout, the belt reduction system decided to start slipping with resultant loss of power (even though the engine was still running to beat the band!). Since the surrounding country was very heavily wooded, Terry aimed the Pup toward the only open area in sight—the Susquehanna River! He underflew a set of powerlines spanning the river, and "ditched" the bird in the water at what he hoped was a reasonable swimming distance from an island. To his surprise, the water was less than a foot deep, and he made a good landing with the aircraft remaining upright. Terry pulled the Pup out of the water and onto the island to dry off a bit while he contemplated his next move.

As luck would have it, a couple of friends were returning to the airfield in a Cessna 150 and spotted the damp duo on the island. Surmising that possibly Terry was in need of some assistance, the friends hastened to the shore of the river with a borrowed rowboat and paddled over to the island. The three men hoisted the soggy Pup onto the boat and floated back down the river to the airfield

where the Pup was returned to its hangar. After a thorough drying and close inspection, the bird was found to be no worse for the wear, and the cause of the belt slippage was remedied. Terry has since logged about a dozen flights without further incident.

Terry is a fledgling pilot with most of his experience in R/C models and flight simulators—he works for LINK. He got some dual in a Cessna 150 and practiced slow flying and rudder-only turns in preparation for the Pup's two-axis control system. He reports the Pup is very easy to fly, and that the project was a very enjoyable one.

ROTAX POWER

The Sky Pup prototype has been flight tested with the Rotax 277 engine over the last two months. The following are our observations of the testing.

Installation of the Rotax is simple, but does differ from the Cuyuna installation in that the bottom of the Rotax is not a flat surface which can be bolted directly to the engine breadboard. The integral gear drive is in the upright position to allow as much prop clearance as possible. Rotax installation drawings are available for Sport Flight for \$10.00 ppd.

Performance with this engine is quite remarkable, with 100-foot take-off rolls and 1000 fpm climb rates in sea level conditions. Torque is noticeable in climb—probably because it is opposite that normally encountered since the prop is left-hand rotating. Vibration levels are a little higher than with the Cuyuna at all RPM's, but no evidence of vibration-induced problems have been found.

Since the installed weight is about two pounds greater than that of the Cuyuna, the Rotax may be out of the question for those builders who are fighting to stay under the 400 lb gross weight limit. The Pup will meet the speed limits of Part 103.7 with one knot to spare by both flight testing and calculated performance criteria.

Perhaps more important than the "legal" speed limitations, however, are the speed limitations of the design envelope. The Pup will encounter its highest airframe loads under gust conditions at high speeds. The higher the airspeed, the more severe the resulting load. Like many relatively "clean" aircraft, the Pup is capable of going faster than it is safe to operate in turbulent conditions. **REGARDLESS OF ENGINE USED, THE PLAN SPECIFIED OPERATING SPEEDS MUST BE STRICTLY FOLLOWED TO AVOID POSSIBLE STRUCTURAL PROBLEMS.** When in rough air, it is the PILOT'S RESPONSIBILITY TO SLOW DOWN.

One possibility for reducing the weight of the Rotax installation might be to disregard use of the factory exhaust system, and replace it with an appropriate length of flex tubing and a motorcycle-type silencer. Some power loss would no doubt result, but the Rotax has plenty of that to spare, and that stock exhaust system is quite heavy.

Sport Flight can provide a complete package, including engine, carburetor, exhaust, reduction drive, fuel pump, tool kit, manual, and Culver propeller for \$1140. This includes shipping costs to points in the continental U.S. Please contact Sport Flight for more details and ordering or delivery information.

BEWARE OF BONDING

Recently, we were contacted by a builder who felt uneasy about the integrity of the bonds between the spar caps and the foam cores of his wing spar assemblies. He stated that he was unsure of the bonds because they were made in a cold shop during the winter, and no epoxy "squeezed out" of the bondline when the spar caps were clamped into position.

We advised the builder of a method for proof-loading the spar assemblies, which he did, inadvertently loading them beyond limit load. The spars failed when the spar caps delaminated from the foam cores at a load level of 69% ultimate, which corresponds to about 4 g's. Inspection revealed that substantial voids in the bondline had resulted from epoxy which was simply too "thick" to spread and penetrate into the wood fibers. By the photos that he sent us, the bonds appeared to be about 40% void. This spar might have given the builder many years of trouble free service, but his initial hunch about the bonds was correct.

All builders should exercise extreme care and follow manufacturer's directions on temperature limitations, pot life, and etc. religiously, especially when making bonds as critical to the strength of the airframe as the one mentioned above. Use of commercially available epoxies which are not specifically recommended for wood structures should be avoided. When in doubt, rely on epoxies commonly used in aircraft construction.

BUILDING TIPS

The following are some of the suggestions and tips which have been sent to us by Sky Pup builders. Please send us any others you have found to be helpful.

1. When using toothpicks to temporarily "stake" together foam parts which are being bonded, waxing or soaping the toothpicks will eliminate the need to remove them before the bond has fully cured.
2. Obtaining proper alignment of the wing attach fittings during the process of bonding the bearing block into the wing spar cores is probably the most difficult step in the construction of the Pup. The following method has been suggested by several builders, and appears to be the most foolproof we've heard of yet.

The blocks and fittings are made to completion with the required accuracy. The fittings are the temporarily bolted to the blocks in their respective locations. Each block/fitting assembly is the attached to its mate with the main 3/8" attach bolt. The spar cores are set up in their correct relative location to one another, and the blocks are inlaid simultaneously. The end result is that the centersection and

outboard wing spars are attached via the 3/8" bolts, before the spar caps are added. Obviously, the spars can be disjoined while the spar caps are bonded in place for ease of handling. The only caution which should be mentioned with this method is that the assembled centersection and outboard spars should be handled gently to prevent damage to the bonds between the bearing block and the foam cores before the caps are in place.

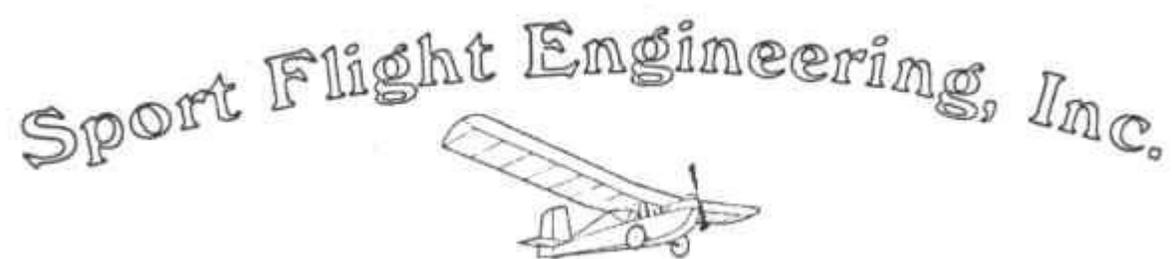
3. An easy method of profiling the nose ribs of the wing at the locations of the D-skin joints is to affix small piece of 1/16" plywood onto the straightedge used to block sand the ribs. With sandpaper on the lower surface, the nose rib will be profiled exactly 1/16" under the contour of the adjacent ribs.

4. Many builders have asked if the outer surface of the D-skin should be varnished before the fabric is attached, or if the wood should be left bare for better contact cement adhesion. The wood should be varnished for moisture protection. If the varnish has made a slick surface that the cement is reluctant to stick to, rough it up slightly with steel wool before beginning the covering process.

Note the following Addendum to the July 1984 issue:

July 27, 1984

SPECIAL BULLETIN



Sky Pup News



Newsletter No. 5

October, 1984

More Pups Flying
Building Tips
Miscellaneous

SKY PUP NEWS is a quarterly newsletter for builders of the Sport Flight "Sky Pup". The purpose of the newsletter is to make builders aware of revisions, suggestions and ideas which are brought to our attention. We solicit your input in the form of photos, ideas, and time or money-saving tips. Please share your progress and comments by sending them to Sport Flight, c/o NEWSLETTER.

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MORE PUPS FLYING

Because of the increasing number of builders who are sending photos and information about their Pups, we have decided to try and feature more than one in each issue. This issue features four Pups with brief descriptions of each based on the builders' comments. We'd like to thank these builders for sharing their photos with the readership, and encourage others to continue to contribute material when possible.

The Pup below (SN 1307) was built by Regis Castonguay of Charny, Quebec and is (to our knowledge) the first Pup to fly in Canada. Note the Canadian registration on the vertical tail and the "jazzy" trim scheme. Regis says that the first flight was so exciting (45 min!) that he forgot about the temporary small fuel tank and ran out of gas. The forced landing was uneventful, and didn't stop him from flying for long.



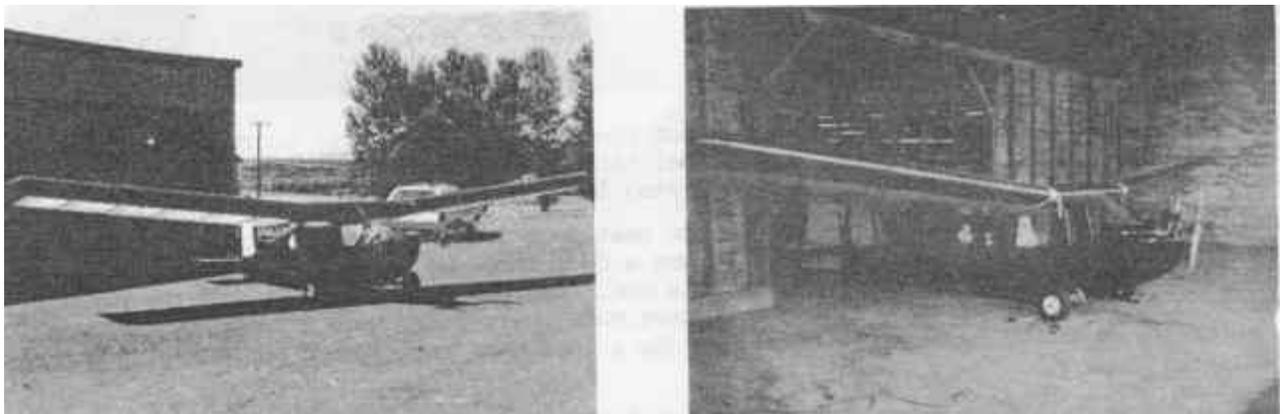
The Pup seen in the photos at the top of the next page (SN 1984) was built by Dave Haning and Bill Doty of Sidney, IA. Since Bill owns a body shop, we weren't too surprised to see a few pin-stripes accenting the finish on this one. Engine is a Rotax 277, and the builders report very good performance. Two people have made their first solo flights in this machine without any problem. Unusual features include a leaf-type tail-spring and a Second Chantz ballistic chute.

Bill and Dave called late one night to say that they had accidentally gotten the spar caps reversed! A little rework was required before proceeding, but the results look great.



Bill Mathis of Birmingham, AL, built the Pup shown in the photos immediately above (SN 1135) and report nice handling and good performance. Power is the Rotax engine with Culver prop, and the bird is pretty much “per plans” except for a few mods that Bill incorporated. One major change was the installation of a three gallon fuel tank in the leading edge D-cell of the center-section. Colors are red on the fuselage and leading edges, with medium blue on the control surfaces and aft portions of the wings.

Dave Beres of Walla Walla, WA, exhibited extremely good taste by covering his Pup with red and yellow (just like our prototype!). Dave’s Pup (SN 1941) has some interesting mods, as shown in the photos below. The left photo shows an installation of two chain saw engines for taxi and ground work (although Dave said they did manage to get the Pup airborne). At right is the “on purpose” installation of a Yamaha engine. Note the lowprofile wheels and simple windshield. Dave has been flying for 17 years and says the Pup “handles nicer than anything he’s ever flown”. ‘Nuff said.



BUILDING TIPS

The following are some of the suggestions and tips which have been sent to us by Sky Pup builders. Please send us any others you have found to be helpful.

1. Two builders with R/C modeling experience have informed us that epoxy paints (no brand named) are excellent for fuel-proofing foam. Be sure to test any paint on a scrap of foam before applying it to the airframe.
2. A time-saving tip for making the steel wing attach fittings is to take the stock sheet to someone in you area and have it sheared into strips before doing any cutting. This can usually be done by a fabrication shop for a few dollars, and saves a lot of hacksaw blades as well as time. Be sure to have the strip made a little over-size to allow for finish trimming.

3. Many builders report that acetone is the best all-around solvent for cleaning epoxy from brushes and tools. They recommend purchasing a gallon before starting the project so that it's always on hand.

4. One builder told us that he used 3M "FASTBOND 30" for attaching the fabric to his Pup. He was forced to look for alternatives since he could not obtain Elmers latex contact cement locally. He says that FASTBOND 30 is superior to all other brands he tested and that its ease of workability cut the covering time by 2/3's!

MISCELLANEOUS

As this issue of the 'NEWS goes to the printer, the FAA is about to hand down their findings on the successfulness of Part 103. Some additional regulation of ultralights is expected, but our inside source say that homebuilt ultralights will be little affected. We all need to pull together to keep our sport as safe as possible, yet as free from governmental regulation as we can. Contact your lawmaking representatives and let them know your views.

We are no longer recommending Titebond-type glues to builders starting Pup projects. Those who have completed aircraft using these glues should not be alarmed—our decision is made on the basis that it is easier for the novice to obtain good structural joints using epoxy or resin bonding agents. The epoxies are better for use in humid climates since they are truly waterproof while the Titebond-type glues are only water resistant.

An overwhelming number of people have asked us about the possibility of fitting floats to the Sky Pup. Since we live in an extremely arid area of the country, we would have to travel quite a ways just to try them out. We recognize that many of you live in places where float flying would be very practical and appealing, and if we undertake a new ultralight design, this will certainly have to be one of our first design criteria. We strongly discourage any Pup builders from attempting to convert their birds to floats since this would further limit the payload capability. Even the most careful installation would add 40 lb to the empty weight (not to mention the hassle of trying to build "hard" attach points in the fuselage) and render the Pup useful only to someone of extremely light weight.

Some builders have neglected to taper the wing attach fittings as shown in the plans, thinking that they were tapered only for reasons of weight savings. The taper of the fittings insures equal load distribution between the bolts in the wing, and is especially important for fatigue life of the parts.

This issue marks the first anniversary of the SKY PUP NEWS. We've had fun putting it together, and stated in the first issue that we would continue the NEWS as long as "reasonable demand existed". We're happy to report that the participation level has been high, and that the number of subscribers continues to increase each week. We want the newsletter to serve the builders, and constantly solicit not only material for publication, but comments on what type of material is most interesting and helpful. If you have questions about particular subjects that you would like to see addressed in future issues, let us know. We'll do our best to incorporate changes that will increase the effectiveness of the newsletter. Since this is the last issue for '84, don't forget to subscribe for '85 soon!

Original Newsletters edited by Sport Flight Engineering, electronic edition compiled by Edwin Lelieveld and Roger Ford.

Sky Pup News



Newsletter No. 6

January, 1985

**North Carolina Sky Pup Almost There
Update
Building Tips
Changes & Modifications
Airspeed Indicators**

SKY PUP NEWS is a quarterly newsletter for builders of the Sport Flight "Sky Pup". The purpose of the newsletter is to make builders aware of revisions, suggestions and ideas which are brought to our attention.

We solicit your input in the form of photos, ideas, and time or money-saving tips. Please share your progress and comments by sending them to Sport Flight, c/o NEWSLETTER.

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NORTH CAROLINA SKY PUP

The Pup featured in the photos below was built by Rick Autrey of Autreyville, NC in about 5-½ months of spare time effort. Total time invested was almost 500 hours, but Rick says he could "build another one in lot less". This was Rick's first airplane project and he appears to be hooked since he's already talking about selling the first Pup to finance a second one.

SN 2176's first flight was on January 6, 1985 and went off without any problems. Rick reports a "very lively" acceleration and climb, but feels that things will be even better when he takes care of a minor engine tuning problem.



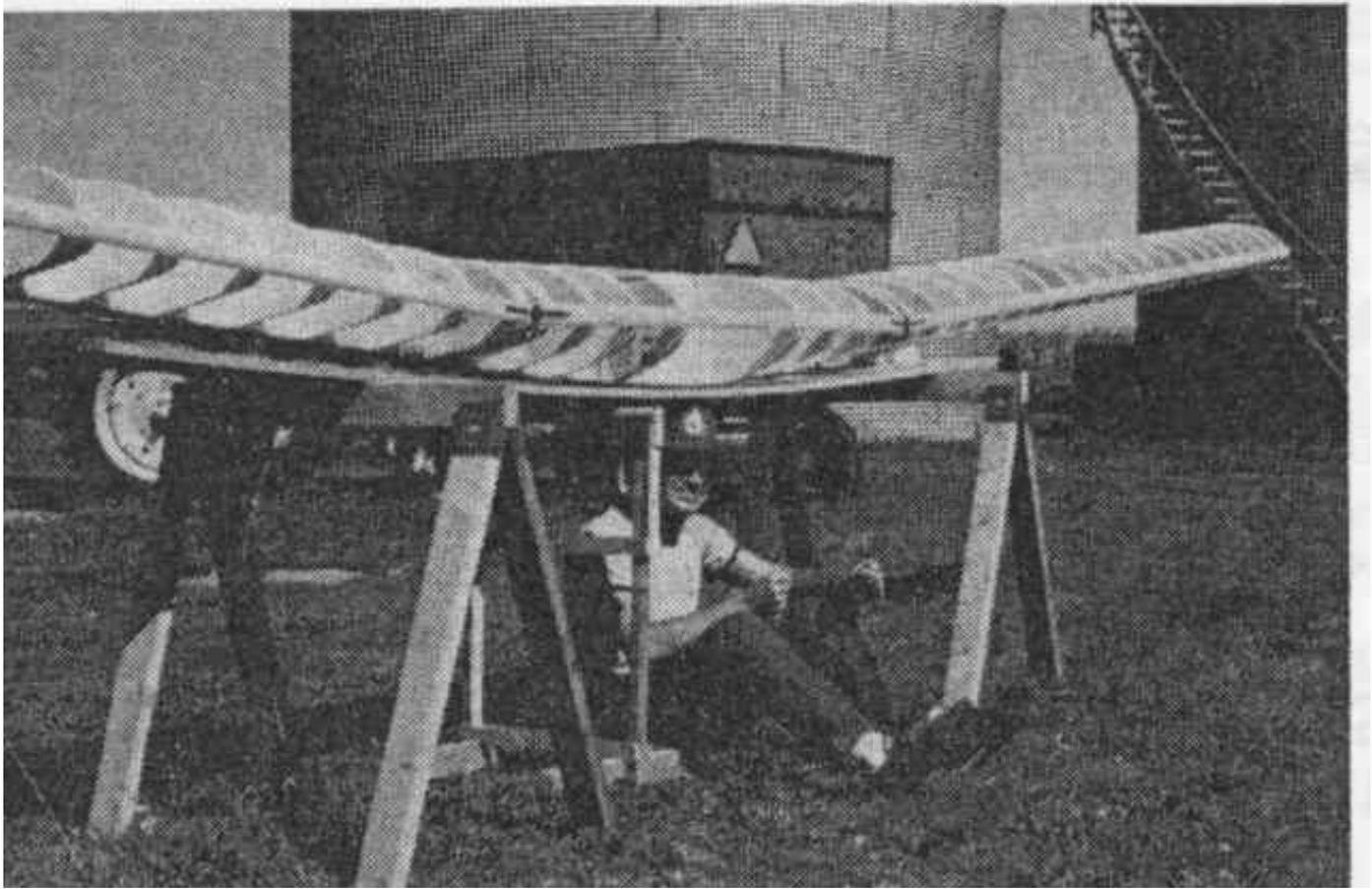
Power is a stock Cuyuna 215 with CPS reduction and a 59 inch Ultra-Prop. Colors are white overall with light blue trim and white wheels to match. This Pup appears to be pretty much per plans except for a unusual modification to the rudder control system. The rudder bar was replaced with pedals, and the cables were routed inside the fuselage—mostly for aesthetic purposes. Rick also added a steerable tailwheel and thinks it helps ground handling on the hard surface runways.

Rick has some previous flying experience in ultralights, and says that the Pup is very easy to fly. We enjoyed getting calls from him while he was under construction, since he was working in a radio station and communications were interrupted every three minutes while he went to "spin" a record or say something over the air. All in all, Rick liked the Pup project so well that he's ready to start another one!

ALMOST THERE

In previous newsletters, we have featured only Pup's which were completed and flying. The photo below, however, so captured the spirit of homebuilding that we felt we should include it. Dan Grunloh (SN 2028), of Potomac, IL, is about two-thirds done with his Pup and is shown engaged in one of those moments of daydreaming that all of us find time for. If the detail photos he sent are any indication, this looks like it could be one of the nicest Pup's we've seen yet. All the workmanship appears to be neat and clean, and

Dan hopes to be done in time for the summer flying season. Dan is also responsible for some of the building tips in this issue. Think ALTITUDE, Dan!



UPDATE

Several builders have suggested a general Sky Pup/Sport Flight update, so...here goes.

Since it was introduced in 1983, over 1600 sets of plans for the Pup have been sold. Approximately 85% of these are in the U.S., with about 10% in Canada and 5% in other foreign countries. We know of about three dozen Pups which are completed at this time. Undoubtedly, there are many flying that we haven't heard about. Conservatively, 250-300 are under construction, and the start/finish ratio seems to be going very well. Builders comment that the Pup construction is relaxing and fun, and that it seems to be a very "do-able" project compared to most homebuilts.

We also get frequent inquiries about the "next model" or encore to the Pup. While we have no intentions of doing a Pup "re-hash", we're always doodling with new ideas. Up to the present, our engineering consulting business has kept us too busy working on other people's designs to spend much time on new ones of our own. We have taken a couple of our ideas to advance design stages, but have not constructed any prototype because of a lack of clear input on the desires of sport flyer/builders. If you have ideas or design objective for an aircraft that you've been waiting to see, we encourage you to send them along. We can't design your dream machine until we know what you want!

BUILDING TIPS

The following are some of the suggestions and tips which have been sent to us by Sky Pup builders. Please send us any others you have found to be helpful.

1. Several builders have reported good results with thinning the polyurethane varnish prior to applying th finishes to their fabric. The thinner varnish apparently "wets out" the fabric more readily and saves in weight build-up on the total finish.
2. For those who wish to avoid the lock washers normally used on the axle attach U-bolts, coarse thread nylon locking nuts are available at many hardware stores. NOTE: The substitution of hardware store materials is not endorsed in any other place in the construction of the Sky Pup.
3. Two builders have recommended cellophane tape as a substitute for wax paper on nailing strips and other fixturing materials where it is necessary to avoid epoxy bonding. The obvious advantage is that the tape can be positioned and will remain in place for many jobs.

4. A suggestion for simple, inexpensive clamping (such as is required when bonding the spar caps to the foam cores of the empennage spars) is as follows. Clamp blocks are positioned at the desired station above and below the work. Rubber bands are used on each side to squeeze the blocks tightly and achieve the necessary clamping action.
5. When cutting the trailing edge stock for the wings and control surfaces on a table saw, a blade angle of 10-12° is said to produce the desired taper correctly on the first try.
6. When using staples to attach gussets and D-skins during the bonding process, blunt staples are less likely to cause splitting of the material beneath the plywood than chisel point staples. This is especially important when attaching the D-skins to the leading edge strips and the spar caps.

CHANGES & MODIFICATION

AIRSPPEED INDICATORS—We view the airspeed indicator as a top priority item in the list of instrumentation possibilities for the Pup, since speed control can be so important to safety. Those builders, who for any reason have made changes to their Pups which could allow them to attain higher speeds should be especially vigilant to stay below the maximum structural cruising speed unless in smooth air. (Please note that the max. structural cruising speed is not the same as the redline speed...it's lower!).

The best instrument is only as accurate as the installation of the sensing source. Two varieties are commonly used: the pitot/static type and the generator type. Many ultralight owner pilots honestly believe that their machines have stall speeds in the 12-15 mph range simply because that's what their indicators say during the stall. Many installations are made with complete disregard of slipstream and angle of attack consideration and are not real airspeed measuring devices even though they may have some value as a reference guide. The sensing source must be located in relatively undisturbed airflow in order to have accuracy. The logical location on a tractor aircraft (like the Pup) is ahead of the wing and well outside the propeller slipstream.

The most inboard wing location for avoiding the slipstream on the Pup would be just inboard of the wing attach joint. This location may still give some irregularities in high angle of attack or high angle of yaw conditions. It does, however, avoid the problems associated with disconnecting the sensing source when removing the wings. The tubing or wires between the sensing source and the instrument may be routed inside the D-cell of the wing, but care must be taken to avoid creating weak spots by over-large holes through the skins.

The preferable locations would be on the outboard wing panel. Some builders have made removable "booms" for the pitot or generator unit so that the risk of damage while handling the wing panels is reduced. One builder solved the electrical connection problem by attaching the sending wires to the upper and lower wing attach fittings so that the connection is automatic when the wings are attached to the center-section. After any installation is made, it should be calibrated by making timed passes between landmarks a known distance apart. Passes should be made in at least two different directions (into and with the wind) to compensate for wind effects on the aircraft's ground speed. Obviously, the more calm the conditions, the less chance of error in the speed checks. Builders who live anywhere in the mid-west will find that section lines are a very convenient reference as landmarks, but the distance between major ones can be obtained by measurement from any sectional chart.

Ultralights, in general, have gone overboard on un-needed instrumentation. Airspeed indicators are legitimate addition, though, and will help you stay inside the design envelope.

Sky Pup News



Newsletter No. 7

April, 1985

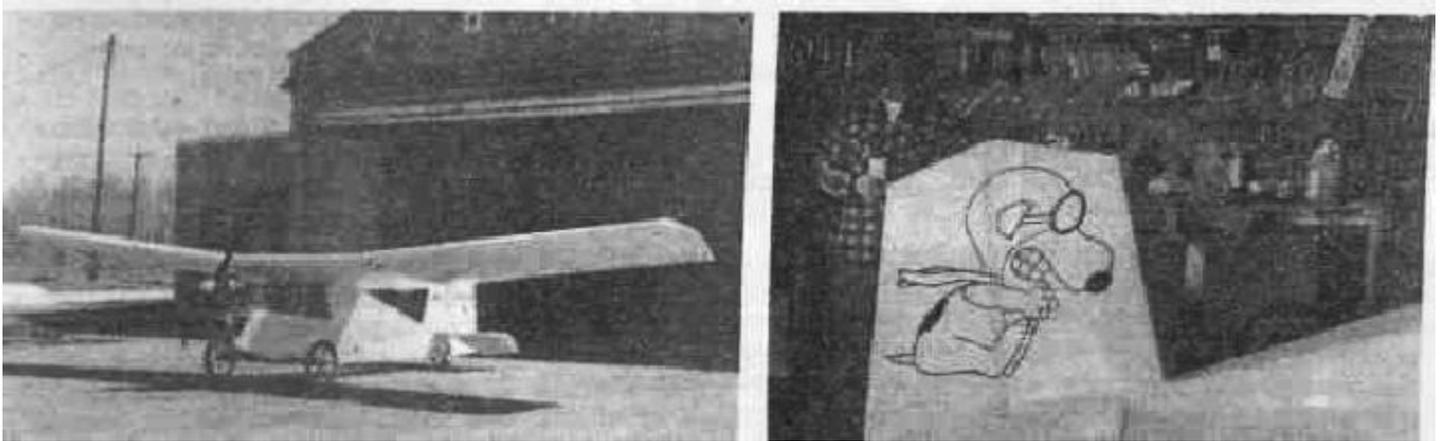
**Michigan Sky Pup
Survey Results
Building Tips
Important Points**

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MICHIGAN SKY PUPS

Gerry Coppock of Escanaba, MI has recently completed and flown his Sky Pup (SN 1173). Gerry is a low-time pilot with about 12 hours in "real airplanes", but reported no difficulties in test-flying his Pup after careful taxi testing and a few low-level hops at the local airfield. Gerry's Pup is built pretty much per plans with the exception of a steerable tailwheel for hard surface operation and use of Ceconite "7600" fabric covering process rather than the sheath lining specified in the Sky Pup plans. Fir was used throughout the airframe instead of just in areas where it is required. SN 1173 is white overall with a "Red Baron" Snoopy on the vertical tail for accent (see photos below).



A couple of interesting innovations which Gerry added were Lexan "see-thru" bombay doors over the floor opening, and the use of vinyl house siding material with snaps for wing gap fairings. Engine is the Cuyuna 215 with Manta reduction drive and Ultra-Prop. No trim problems were encountered and performance is very good. Gerry told us that the Pup "exceeds all my expectations and sure is FUN to fly". Given the relatively close proximity to Oshkosh, maybe we can talk Gerry into bringing it to the big Fly-In this summer.

Another interesting Michigan Pup project was reported to us by Lawrence Bloss of Allegan, MI through newspaper clipping he sent. It seems that EAA Chapter 564 is building a Sky Pup which at last report (late January) appeared nearly ready for fabric cover. By using the "divide and conquer" approach to the construction, the airframe was built by various individuals in the Chapter over a period of about two months. Quoting from an article in the "Twin Cities News"...Ed Crandall and Pete Bloss bought the plans for the Sky Pup in May, but...it was November before enough materials could be rounded up to really get under way...in January actual assembly of the major components is taking place...Certainly the project has helped to fuse the members of Chapter 564 into a single force capable of great accomplishments."

The members plan to use a Lloyd engine with a 54" propeller and think that they will meet their original goal of building an ultralight for under \$1000. We hope to hear an update on this project soon—it should be a inspiration to other Chapters in need of a low-cost project which can generate plenty of interest among the membership.

SURVEY RESULT

Those of you who received the January newsletter found inserted a questionnaire regarding what type of aircraft Sport Flight should develop next. We're happy to report that the response was very good (over 35% return of questionnaires) and we can present you with the results. In a nutshell, your preference is for a one- or two-seat, high-wing, tractor-engined, taildragger homebuilt available in plans or possibly partial kit format. LOW COST is the most important design consideration, with portability, short building time, one-man setup, and beginner suitability ranking high. Wood and operations associated with working it seem to be the most popular and expected. We interpret this to mean that most of you must like your Pups pretty well, but may have in mind an aircraft with a little more cross-country capability. We'll keep you posted on new developments.

BUILDING TIPS

The following are some of the suggestions and tips which have been sent to us by Sky Pup builders. Please send us any others you have found to be helpful.

1. When using staples to obtain gluing pressure under plywood gussets, one of the problems often encountered is removing the staples after the bond is cured without gouging or damaging the gusset material. Where nailing strips (as discussed in the plans) are not necessary for even distribution of pressure, twine, cord or plastic strapping material can be used underneath the staples. When the bond is cured, the cord can be used to pull the staples loose. Even the ones which do not come completely out can be easily removed with pliers without touching the plywood.

2. Among the many alternate methods (to hot-wiring) of cutting wing ribs and other foam parts to shape is the use of an electric knife. This is the same type used for cutting meat in the kitchen, and is reported to yield a very smooth cut surface without the hassles associated with hot-wiring and bandsawing.

3. Several builders have added fairings around the intersection of the vertical and horizontal tail surfaces. These were omitted from the prototype simply to save construction time, but can be very effective in increasing rudder power (by sealing the gap at the base of the vertical tail), and improving the appearance of the aircraft. Additionally, they prevent rain and insects from entering the aft fuselage bay. Fairings are fabricated of shaped foam blocks with fabric covering, but should not be added until after the aircraft has been test flown. This allows adjustments in stabilizer incidence to be made for correcting any pitch trim problems.

4. Several builders have encountered difficulty in obtaining taut fabric covering on their Pups while using the materials and fabric outlined in the construction text. The problem stems from intentionally leaving the fabric somewhat loose on attachment and anticipating some shrinking effect (as is common with aircraft dopes) when the polyurethane finish is applied. Polyurethanes are very non-shrinking, and will actually loosen the fabric somewhat when applied by either brushing or spraying. For that reason, care should be taken to attach the fabric as tightly as is reasonably possible to begin with. Additional shrinking with the heat iron should take care of any minor wrinkles which remain. Excessive tightening of the fabric could result in distortion or damage to the structure, but we haven't had any reports of this problem.

IMPORTANT POINTS

In talking with builders daily, we have become aware of some items in the plans which are frequently misunderstood or need to be emphasized. It seems that those who most need the additional explanation are those who probably do not subscribe to the newsletter, so forgive us if we are "preaching to the choir" so to speak. We all need to listen carefully when talking to other builders so that if we detect some confusion or lack of concern over critical areas we can help resolve a potentially dangerous situation.

Many builders neglect to taper or shape various components as shown in the plans, thinking that the taper is only for weight reduction and not worth the effort. In almost all cases, weight savings is a secondary consideration in the shape of the part. A good example, and an item which has been mentioned to us several times is the taper on the ends of the wing attach bearing blocks (at the joint). The taper is essential for reducing stress concentrations at the termination of the block and providing a smooth transfer of load from the block into the spar cap. Gradual transitions in cross-section are a structural engineer's method of avoiding stress concentrations in a structure. Often, the stress at an abrupt change in cross-section is amplified by a factor of two or three over the stress predicted by simple analysis. When the plans specify fish-mouth gusset or taper transition on a part, the integrity of the structure would be jeopardized by neglecting to follow the plans.

Other items which are very shape-critical are the fish-mouthed gussets at the attach points on the wing and empennage spars. Do not be tempted to cut them with square ends to save time since this could cause "notch" effect in the spar structure. Wing attach fittings should be tapered as shown also.

One point which was possibly not made clear enough in the plans and has caused considerable confusion is planform of the outboard wing spars. These spars are constant width for the first 15 inches from the joint and taper after that to the tip. The taper is on the rear face of the spar—the front face of the spar is a straight line from wing tip to wing tip. Some have attempted to taper the spars evenly on both the front and rear faces. Technically, this should cause no loss of strength since the net load carrying member is unchanged,

but it will certainly complicate the fabrication and attachment of the nose ribs. The leading edge attachment won't be very easy to fit either!

Although the plans allow locating the wing 1-½ inches above the nominal dimension, tall builders should be aware that making this change can provide somewhat limited extra head room. When the wing is moved up, the angle of the seatback becomes more upright (since the seatback still has to meet the wing trailing edge),

thus reducing the benefit sought. Tall builders should leave the lower surface of the wing uncovered between the two fuselage side ribs to gain the maximum amount of head room.

Pitch trim adjustments should be made by changing the incidence of the horizontal stabilizer. Raising the leading edge of the stabilizer will effect a nose down trim change, while lowering the leading edge of the stabilizer will effect a nose up change. Either type of change is accomplished by varying the length of the spacer between the front spar of the stabilizer and the fuselage longeron attach hole. Stacking washers up to three deep is acceptable, but the attach bolt should always be snug after the change is made. Some builders have attempted to solve minor trim problems by adding springs or bungees which bias the elevators one way or the other. These should be avoided since they generally detract from control "feel" at the stick and are unnecessary weight items.

Please remember to send us questions, comments and suggestions as your projects take shape. When sending photos, black and white glossy are preferable since they can be used in the newsletter more readily. Color shots with good contrast are fine if they're more convenient. Keep those photos coming!

Sky Pup News



Newsletter No. 8

July, 1985

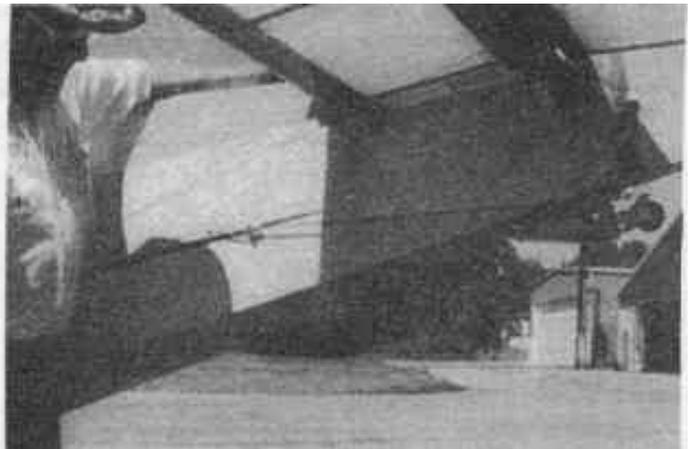
Long Time Coming
EAA Chapter 560 Pup
Building Tips
Spar Delamination Inspection
Engine Side Thrust
Control Surface Deflection

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LONG TIME COMING

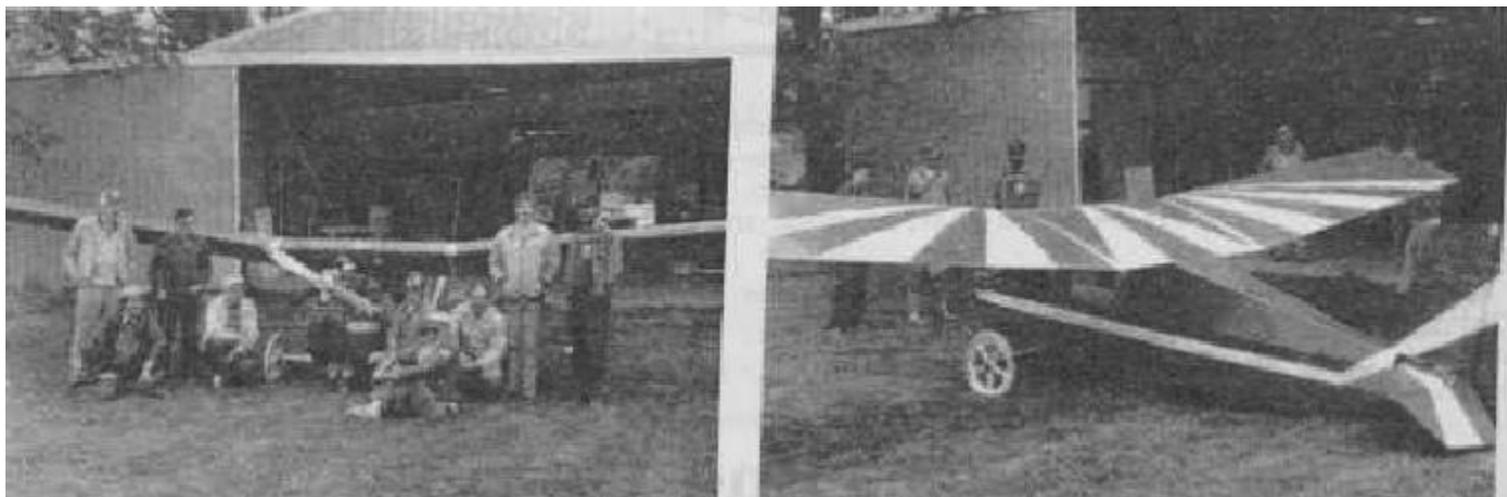
One of the most interesting stories behind a Sky Pup project came to us from Jesse Buckle of Lockhaven, PA. Jesse is 70 years young and spent 40 of those years with Piper Aircraft in Lockhaven where he was an inspection supervisor. Through the years, he had accumulated a fair amount of stick time in Cubs but never felt he had the resources to finance an aircraft for himself. After retirement and some other interesting projects (violins, steam engines, and an X-ray machine!) Jesse ordered his set of Pup plans and went to work in the basement. SN 1591 was completed and test flown on May 25 of this year. Jesse says the initial flights went very well with no trim adjustments needed. This Pup is yellow overall with navy blue leading edge on the wings and a black lightning stripe on the fuselage—not unlike the venerable Cubs which Jesse knows so well.



Jesse's Pup appears to be very faithful to the plans with Cuyuna 215 and Manta reduction for the powerplant. A 2" steerable tailwheel was added as shown above with a "yoke" in the rudder cable (it appears that the line between the rudder cable and the tailwheel may be bungee or something with some give). Heavy-spoked steel rim wheels were used in place of the molded nylon variety. Jesse also made an airspeed indicator which involves a washer moving up or down a wire (sorry, no details available). Total cost of the project was between \$2200 and \$2250. Jesse had fun building the Pup and hopes to enjoy it for a long time to come. Our thanks to him for sending the photos and a fine article on the project from THE EXPRESS, a local newspaper.

EAA CHAPTER 560 PUP

In the last issue of the newsletter, we gave a progress report on the Pup being built by EAA Chapter 560 of Allegan, MI. Chapter president Lawrence Bloss was kind enough to send the photos below of the recently finished project. Power is the Lloyd two-cylinder—details of reduction and propeller are unknown.



Lawrence says they are enjoying the Pup and hope to have all the members fly it. Note highly visible sunburst paint scheme—a very nice touch!

BUILDING TIPS

The following are some of the suggestions and tips which have been sent to us by Sky Pup builders. Please send us any others you have found to be helpful.

1. Some builders have reported using an old-time building trick in the application of the wing D-skins. In order to obtain very tight skins (no wrinkles), the plywood is dampened a very small amount just prior to laying it into position. This can be accomplished with a moist sponge which is wiped over the outer surface only. The plywood will thus expand or “relax” on installation, shrinking back as the bond cures. The result is drum-tight skins.

2. Two builders have reported the appearance of bulges between the nose ribs in the leading edge D-skin after the aircraft is completed. This phenomenon is caused by difference in pressure between the inside of the D-cell and the atmosphere (brought about by changes in temperature and ambient pressure). On aircraft which are already complete, venting of the nose bays can be accomplished by drilling 1/8 – 3/16” holes in each bay just ahead of the lower spar cap, and just outboard of each nose rib. I.E. the lowest point in each bay. If construction is still in progress, these holes may be added before fabric and finish are applied. After covering, holes can be made in the fabric with a solder tip as discussed for general drain hole installation.

3. Since our recommendation that epoxy be used throughout the construction process (see Newsletter No.5, October '84), several builders have pointed out that the materials list should reflect the increase amount of epoxy needed. Most builders report a total epoxy usage of around 1-1/2 gallons, which should allow for a substantial amount of waste.

SPAR DELAMINATION INSPECTION

We were recently contacted by a builder who experienced a spar cap delamination on the centersection of his wing during the construction stage. The centersection was fabricated during the fall and winter and stored in his basement until summer when he resumed work. Inspection revealed that the lower spar cap was delaminated from the foam core along its entire length with exception of the areas where gussets were bonded to it.

Several factors may have been involved, and the exact cause of the delamination is subject to some conjecture. The spar assembly was subjected to a rather dramatic change in humidity without the benefit of any protective finish—thus the moisture content of the wood went from one extreme to another. A moisture content rise would cause the wood to expand in each dimension, the most noticeable being length. An increase in length of the cap could cause it to bow away from the foam core (which is extremely stable with regard to moisture content) thus causing a peel load along the bondline. This type of problem could also be aggravated by making the spar cap thicker than specified in the plans or using a too-small radius in the transition area at the fuselage sides.

No other caps on the centersection or the outboard wing spars suffered any delamination in this case. All builders should inspect spars, especially those which may have been stored for any length of time without protective finish on the wood and where a significant change in humidity may have been encountered. We have not heard of any other cases of this occurrence, but solicit input from anyone who has had a similar problem. The important point in this instance is that the builder caught the problem by visual inspection before construction continued, thus avoiding a dangerous situation with the finished structure.

ENGINE SIDE THRUST

All builders using the Rotax 277 gear-drive engine on their Pups should be aware that side-thrust setting is opposite the direction indicated for the Cuyuna installation in the plans.

This applies to any installation with a left-hand turning propeller, since the torque of the engine acts in the opposite direction of a right-hand turning propeller- To determine the rotation direction of any propeller, stand behind the engine so that the slipstream will be blowing in your face--the direction of movement of the prop at the top of the prop arc is the direction of rotation. E.g., if the propeller is rotating clockwise as viewed from behind, the propeller is right-hand.

* c optional Rotax installation drawing details the changes necessary and should be on hand for anyone using this engine. An engine installed with sidethrust opposite the correct direction will cause an increase in rudder deflection required for trimmed flight, a potentially dangerous situation. Builders using engines other than the Rotax 277 or Cuyuna 215 who are not sure of the proper sidethrust should contact Sport Flight before making the installation.

CONTROL SURFACE DEFLECTIONS

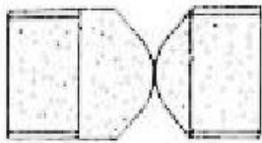
It has come to our attention that some Sky Pups may have inadequate control surface travel caused by improper shaping of the foam along the hinge-lines. The radius of the corner at the hinge-line should be 1/16 to 1/8" in order to prevent the hinge from binding before full travel of the control surface is obtained. Care must also be taken when attaching the control surfaces so that the hinge material itself is flat against the foam and "crowding" the movement.

The necessary control surface deflections are as follows:

Elevator -- 27 degrees of up of and 15 degrees of down travel

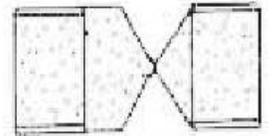
Rudder -- 30 degrees of travel in each direction (left and right)

These values are minimums, and are referenced from the chordline (centerline) of the fixed stabilizer portion of the tail-plane. Additionally, the rudder should not be able to contact the elevator when deflected fully. All Pups should be checked to insure that the above control deflections are attainable before flight. Inadequate control travel could cause serious control deficiencies. Again, when in doubt, please give us a call.



INCORRECT

TYPICAL HINGE CROSS-SECTIONS



CORRECT

Sky Pup News



Newsletter No. 9

October, 1985

**Another Flying Pup
Konig Powered Pup
Changes and Modifications
Windshields
Oshkosh '85**

Since the introduction of the SKY PUP NEWS in October of 1983, this newsletter has served to make builder aware of building tips, revisions and suggestions. It appears that most of the major items have been addressed and that the Sky Pup has become established and accepted as the leading plans-built ultralight to date. We feel that the time has come for the newsletter to evolve from a building-oriented periodical to on covering the social aspects of Pup-dom through which builders can keep one another informed of their progress. Due to the completeness of technical information contained in the previous newsletters Sport Flight has decided to make this October, 1985 issue of the SKY PUP NEWS the last one written entirely by us.

Dan Grunloh (SN2028), Rt.2 Box 82, Potomac, IL 61865, has volunteered to be one of the coordinators of builder-written Sky Pup newsletter if reasonable interest is shown. This newsletter will concern itself mainly with the social aspects of Pup builders and flier, i.e. howlings within the litter. We feel that this will give many builders an opportunity to write about their Pup projects. Also, the newsletter will keep builders abreast of the future fly-in and "bull" session schedules. If you are interested in a continued Sky Pup newsletter please contact Dan and help him get off to a great start.

Discontinuation of SKY PUP NEWS does not mean that Sport Flight is leaving the ultralight business or abandoning Sky Pup builders. In fact, we wish to emphasize that Sport Flight will continue to offer builder support along with plans sales and other technical services just as we have in the past. We have enjoyed putting together the SKY PUP NEWS over the last two years and would like to thank the many builders who have sent letters and photos to us. We would like to encourage builders to continue to send photos of their partial or completed Pups to keep in our scrap book.

Those subscribers who have already paid for their 1986 SKY PUP NEWS subscription will find a refund check enclosed. Back issues of the 1984 and 1985 SKY PUP NEWS will still be available from Sport Flight for \$6.50 per year while supplies last.

ANOTHER FLYING PUP

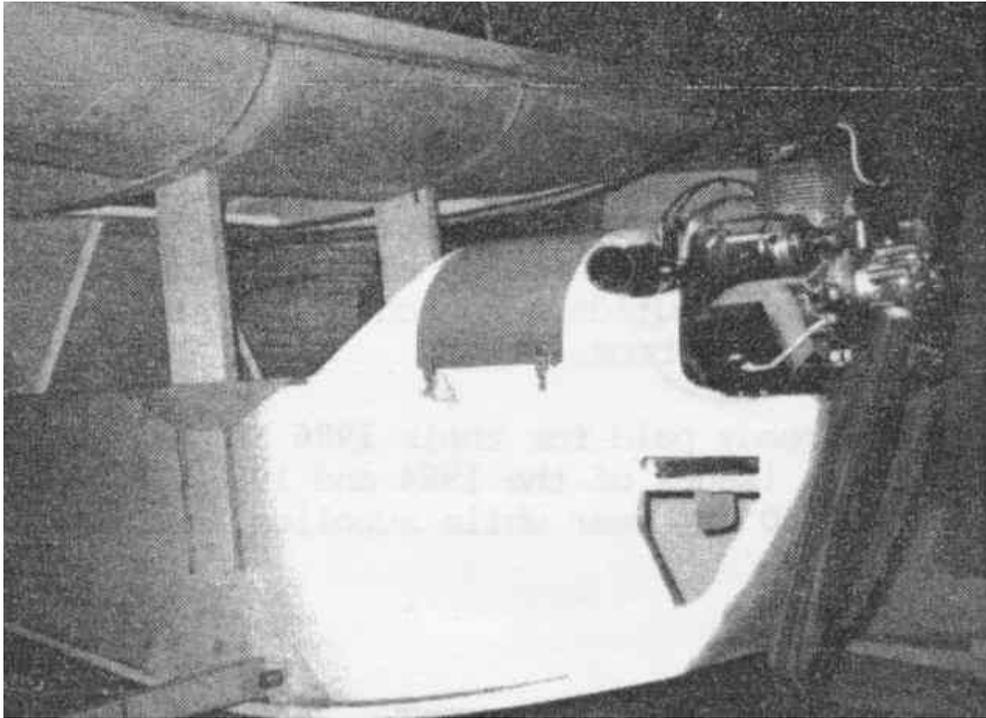
Phil Hartzell of Aurora, Nebraska made the maiden flight in his recently completed Pup (seen in the photo at the top of the next page) near the end of July. SN 1746 was covered using the Ceconite 7600 process and finished in yellow with white trim using Ureglo urethane paint. An irrigation pipe equipped with a J-3 style gauge (cork float with wire) was used for a fuel tank. Phil opted to use T-88 adhesive throughout the structure of his Pup. Provisions for a radio were made since Phil is a HAM radio operator. He is also the owner of Hartzell Auto Interiors, so naturally his Pup is equipped with the "Hartzell Super-Duper Deluxe Tuck Seat"!



“The Pup is fun to fly” reports Phil, having logged several hours the last we heard. He tried a steerable tail wheel but converted back to the tailskid because “...it’s more romantic”. Like many homebuilders, Phil likes building as much as flying and can’t wait to get started on a new project.

KONIG POWERED PUP

A nice installation of a Konig 3 cylinder engine on a Sky Pup has been completed by Newton Borden (SN 2625) of South Weymouth, Massachusetts. The engine is equipped with an electric starter and a direct drive ground adjustable propeller, yet, reportedly weighs less than either the Cuyuna or Rotax powerplants. The bottom fins on the lower two cylinders were trimmed and the exhaust pipe was modified for this installation.



The neatly designed cowling, shown in this photo, incorporates a hatch which allows access to the battery, fuel tank and instruments. Newton plans to attach a windshield as soon as some hinge details are addressed. This should prove to be quite an interesting and unique Pup variant when completed.

CHANGES AND MODIFICATION

Due to the number of builders who have asked about the addition of windshields to their Pups, a brief discussion of this modification is in order. The addition of a windshield to any Rotax powered Pup will render it too fast to meet the F.A.R. Part 103.7 paper test. Since the presence of the windshield awards the aircraft a lower net drag factor (regardless of its true aerodynamic value), a tail wheel or other device can be added to meet the paper test if desired. Cuyuna powered Pups will meet the speed limit requirements with a windshield installed and no additional modifications.

Since entry and egress from the cockpit is through the opening ahead of the wing, any windscreen will need to be removable to accommodate easy access. As a rule of thumb, the top of the windshield should meet the wing centersection at a point below the leading edge to avoid possible turbulence problems. 1/16” plexiglas is entirely adequate, but watch the weight of this and any other additions.

In our estimation, the only two factors which warrant serious consideration of a windshield installation are bugs and bitter cold. The first problem can be easily solved by wearing a helmet with a face mask, while the second probably cannot be solved entirely by any method. Consider the extra weight, cost and building time carefully before deciding to add a windshield.

OSHKOSH '85

We would like to close this newsletter with a unique photo of “Gerry’s Dog House”, as seen at Oshkosh '85 (compliments of Dan Grunloh). This Pup (SN 1173) is owned by Gerry Coppock of Escanaba, MI and was featured in the April 1985 SKY PUP NEWS. Gerry reported that a large crowd of Pup builders and would-be builders kept him company throughout the week long event. The photo shown below reflects the quantum step that aviation has taken in the years since the development of beasts like the Concorde. Maybe next year more builders will be able to bring their Pups to Oshkosh enabling the public to experience a real LITTER!



As we sign off in this the final issue of SKY PUP NEWS, we want to express our thanks to all the enthusiast builders that have made the Sky Pup a very enjoyable project for us. It is our hope that the fraternity of Pu fans will remain active and united for many years to come. We encourage any builders who are passing through our area to drop in and visit if possible—we really enjoy meeting you. Let's all do what we can to keep the concept of simple and low-cost flying alive for future generations to enjoy.

SKY PUP NEWS



Newsletter No. 10

January, 1986

Howlings In the Litter
Parachute Attachment Ideas
Wing Gap Covers
Building Tips
Sky Pup Historical Trivia
Miscellaneous

SKY PUP NEWS is a quarterly newsletter for builders of the Sport Flight "Sky Pup". The purpose of the newsletter is to provide for the open exchange of information and to encourage builders to share their experiences of building and flying the Sky Pup. Beginning with this issue, the newsletter will be written by Sky Pup builders and enthusiasts. Unless specifically stated, all ideas, suggestions and building tips are strictly the opinion of the contributor and have not been approved by Sport Flight Engineering Inc. No warranty is made as to the airworthiness or suitability of modifications or building tips. When in doubt, you should follow the plans as close as possible and contact Sport Flight Engineering if you have questions.

SKY PUP NEWS is compiled and distributed by Dan Grunloh... Rt 2, Box 82, Potomac, Illinois, 61865. Subscriptions are \$7.00 per year (\$10.00 overseas) and will include four issues. This issue is being sent to all 1985 subscribers so everyone will have a chance to be included. Please send your comments concerning the type of material you would like to see in future issues. I have collected enough material for this first issue, but I need to receive additional articles, ideas and photos from you the subscriber if the newsletter is to be a success.

HOWLINGS IN THE LITTER

This issue will begin with some of my own ideas, opinions and observations. Next time let someone else take their turn at "howling in the litter". For my own part, I realized when I started building my Pup in late '83 that the design would become a classic. Most homebuilt ultralight before that time were modified hang gliders. Many other homebuilt designs are not actually ultralights and are much more expensive. I believe the success of the design will be difficult to challenge until someone comes up with building materials cheaper than wood and foam. The possibility of doing your own repairs (at low cost) will be invaluable as manufacturers of other kitbuilt planes go out of business and no longer supply replacement parts.

I first met the prototype Sky Pup and its designer at Oshkosh '83 where I was working as an ultralight judge. We gave it an award for "Outstanding Engineering Innovation". It was the first such award given and candidates in recent years have been harder to find. At Oshkosh '85, I spent a lot of time with Jerry Coppock and other Sky Pup builders. I remember some long "bull sessions" that went late into the night. Next time we will organize a group camping area and have our own Sky Pup "headquarters".

Many builders still ask about changes and modifications. Even I've been tempted by the thought of spoilers for glide path control. Any change must be carefully checked for its effect on structural strength and on aerodynamics or flying characteristics. Changes in the airfoil, landing gear arrangement, wing structure, and such cannot be made without a complete redesign of the aircraft. It is basic truth that the best aircraft are optimized for specific design goals. For the Pup, it was the combination of low cost and excellent performance. In contrast to flying machines built by "rule of thumb", a well designed aircraft includes only the materials needed to meet the design goals. All the extra "stuff" adds cost and weight and reduces performance.

If you are thinking about a minor change or modification, please check with Sport Flight Engineering first and try to devise methods which can be used after the airframe is completed so others may benefit from your ingenuity. If you were to talk with builders who are already flying their Pups, you would find that most proposed improvements are simply not necessary.

And now a message for slow builders like myself. If you don't have a heated workshop or only work irregularly on the project, it can take a couple of years to build. The prototype took 700 man-hours to construct. For first time builders like myself, the most difficult decisions relate to clamping, fixturing and alignment. Each builder must make these decisions based on his skill and available equipment. I was astounded by the ingenuity and variety of methods being used by Sky Pup builders. It's obvious that each Pup is unique because each is built a little differently. If you are still building when you thought you would be flying, don't be discouraged. Lots of Sky Pups are still under construction. A large number of Pups, including my own, are nearing completion and will join the litter this year.

I hope that as more Pups are completed and flying, we will have more articles on the flying and social aspects of pupdom. Eventually, we may try to organize some local or regional fly-in specifically for Sky Pups. Write and tell us about your flight experiences or the

performance with your particular engine. For instance, the prototype has reportedly flown for 3 hours on 2.5 gal. o gas with the Rotax engine. Is there anyone out there flying who can match or exceed that record?

PARACHUTE ATTACHMENT IDEAS

As you may realize, the Sky Pup was not designed for a parachute attachment point. The shock loads on deployment are probably greater than any other load the Pup would be expected to endure. No one can guarantee that any method used would be totally satisfactory. However, if your wife insists that you have a parachute, then you must have something to hook into. At a Sky Pup builders forum at Oshkosh, someone suggested that the seatbelt bolt be used for the attachment. A hardwood block could be inlaid between the wing support members for reinforcement. I extended the antipeel fiberglass to include this area, though I haven't yet decide how to attach the caribiner to the bolt. Another possibility is at the landing gear and seat crossmember area. A webbing loop, as used on hang gliders, might be able to pass under and around these two members. Some experts have stated that a Kevlar bridle will absorb some of the opening shock better than a steel cable. The decision to deploy a parachute should be based on whether or not the aircraft is controllable. Once the parachute is open you lose all control and may drift into powerlines or other obstacles. Please send your comments.

Wing Gap Covers

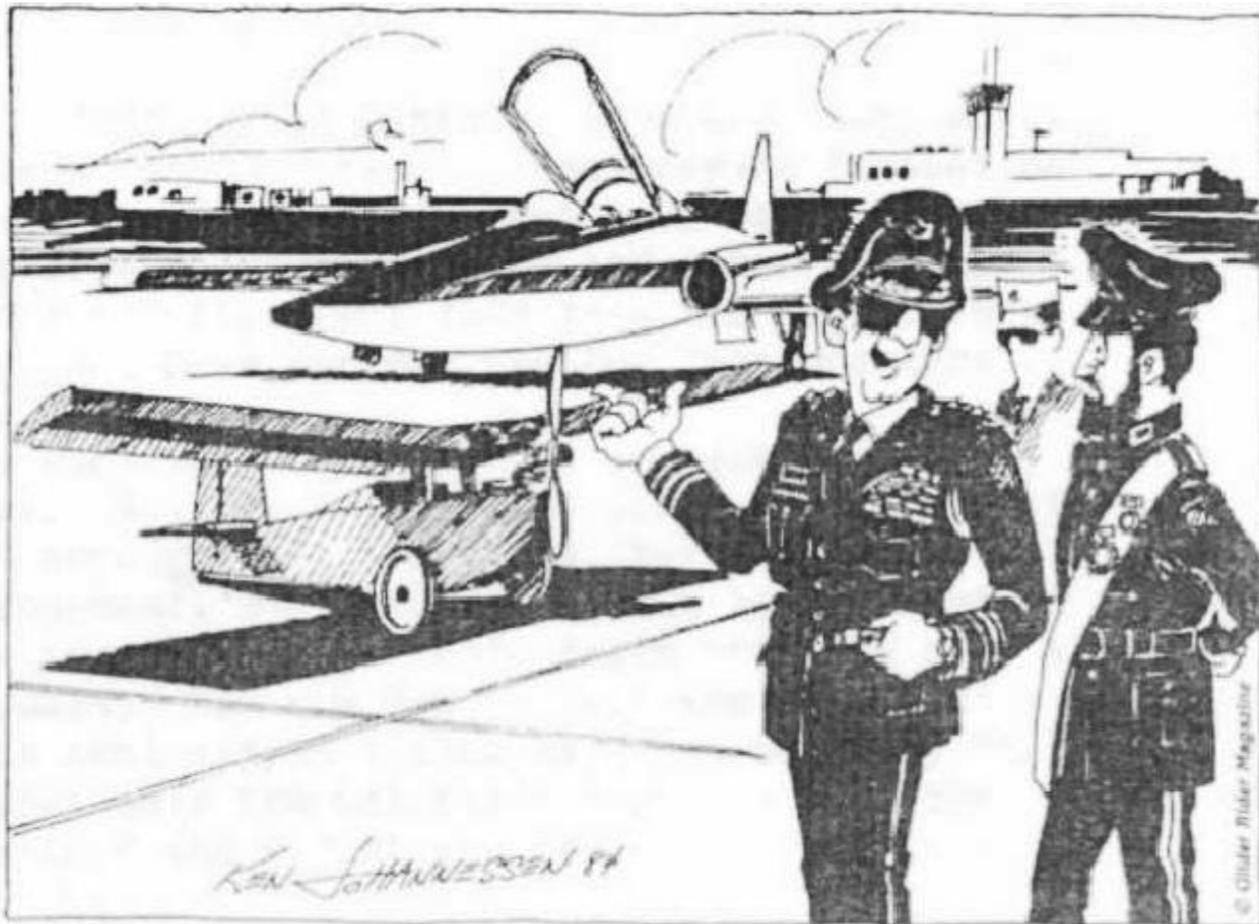
1. The prototype used an aluminum sheet metal strip joined under the trailing edge wit screws. The only reported problem is that the metal may tend to chafe the fabric. Steve Wood says that it is not critical if the covers tend to sag away from the fabric on the underside of the wing.
2. Jerry Coppock used white vinyl siding (smooth side out) held in place with snaps. His covers seem lighter than any other method I've considered. Vinyl siding, like aluminum sheet, cannot be rolled up for storage when not in use.
3. I've seen a Mitchell B-10 with a strip of naugehyde (seat cover fabric) wrapped around the wing with Velcro under the trailing edge to join the ends. This method would probably result in a greater weight increase but would eliminate the problem of chafing of the fabric.

BUILDING TIPS

1. Several builders reported they pre-laminated the forward fuselage upper longerons to the required curve using a simple jig. This ensures that both sides are identical and simplifies their installation.
2. I joined the aft ends of the fuselage sides with the upper ply gusset and skid block befoer the aft fin spar and side gussets were added. With this method, the joining strips can be sanded to achieve the best possible alignment of the aft fin spar and the front stabilizer spar mounting holes.
3. One builder stated that his plywood sheets for the leading edge were enough over-size that they were bonded in place as a continuous piece from upper spar cap to lower spar cap.
4. Leading edge plywood splice doublers were added to the outside of the plywood by one builder. This is easier than undercutting the splice noseribs and inlaying the doublers. The resulting bulges would probably not be a problem.
5. Hotwiring the underside of the intermediate centersection noseribs was a problem for me. The procedure worked fine but resulted in the ribs being undercut too much. It's possibl to end up with a compound curve to which the plywood cannot conform. I suggest removing material gradually with frequent checking for the best fit.
6. At the insistence of several "wood experts", I decided to use white ash instead of maple for the landing gear spring. Ash is lighter, not quite as strong, and more springy than maple. I'll let you know how it works out. Because it can be difficult to find a really good piece of maple the required size, it would be nice to have an alternate method of lamination from smaller pieces. I've been told that epoxy is not used in propeller lamination because of excess rigidity.
7. I decided to steam and bend the wingtip cap strips to reduce stresses in the wood and make them easier to bond into place. If you try this, remember the secret is the heat. Once the wood reaches the necessary temperature, it will bend easily and it will stay bent when it cools.
8. Most fabrics, including sheath lining, tend to shrink more in the lengthwise direction tha perpendicular to the bolt of the cloth. For best results, this difference must be kept in min when applying the fabric to the airframe.
9. Jerry Coppock sends the following suggestion for windshield installation. The windshield should be hinged so the direction of the airflow from the prop will tend to hold it close while in flight. (Hinge on the right side for the gear-drive Rotax and on the left side for the belt-drive Cuyuna).

SKY PUP HISTORICAL TRIVIA

The first and only cartoon which I've seen about the Sky Pup is reproduced here for those who may have missed it. It was seen in Glider Rider magazine, July 1984.



CONSIDERING THE SIZE OF YOUR COUNTRY'S AIRFORCE, WE RECOMMEND...

Our thanks go to the artist Ken Johannessen and to the publisher Tracy Knauss.

MISCELLANEOUS

The state of Michigan could claim the title "The Land of the Sky Pup". In 1985 there were more subscribers to Sky Pup News from Michigan than from any other state. As many as 18 Sky Pup may be under construction in that state. California ran a close second.

For a description of a method for covering the wheels with fabric, see the following article; The Wheel Thing by Frank Beagle, EAA Ultralight magazine, March 1984.

News from Sport Flight Engineering is that a new design is in the works. I have no details about the new design or even if a prototype is under construction. Possibly future issues of the newsletter could include a paragraph or two from Sport Flight.

I would like to include information in future issues about the different engines that might be use for the Sky Pup. If you are flying with an engine other than the Rotax or Cuyuna, please sen some details so we can share the information.

I want to extend my personal thanks to the following builders who sent letters of encouragemen and ideas for the newsletter; Raymond Maynard, Irving Gitten, Ken Hayward, Tom Anderson, Donald Diggs, Paul Pontis, August Reil, Ken Thompson, and Jerry Coppock.

Original Newsletters edited by Sport Flight Engineering (issues 1-9) and Dan Grunloh (issue 10-), electronic edition compiled by Edwin Lelieveld and Roger Ford.

Sky Pup News



Newsletter No. 11

April, 1986

Sky Pups Around the World

Patriotic Pup from Maine

Loyd Powered Pup from Michigan

Safety Item from Sport Flight

Inadequate Bend Radius in Centersection

Plans for Oshkosh '86

Building Tips

Miscellaneous

SKY PUP NEWS is a quarterly newsletter for builders of the Sport Flight "Sky Pup". The purpose of the newsletter is to provide for the open exchange of information and to encourage builders to share their experiences of building and flying the Sky Pup. Beginning with this issue, the newsletter will be written by Sky Pup builders and enthusiasts. Unless specifically stated, all ideas, suggestions and building tips are strictly the opinion of the contributor and have not been approved by Sport Flight Engineering Inc. No warranty is made as to the airworthiness or suitability of modifications or building tips. When in doubt, you should follow the plans as close as possible and contact Sport Flight Engineering if you have questions.

SKY PUP NEWS is compiled and distributed by Dan Grunloh... Rt 2, Box 82, Potomac, Illinois, 61865.

Subscriptions are \$7.00 for the calendar year (\$10.00 overseas). Your comments from the previous newsletter have been very encouraging. I wish I could meet and talk with each and every one of you. If you want to talk about the Sky Pup, or about airplanes and homebuilding in general, please feel free to call me at (217) 569-

2121 late evenings. Keep sending your letters and photos. Color photos are fine if they have good contrast.

SKY PUPS AROUND THE WORLD



The photo on the left is from Kim Ashton from Perth, West Australia. This has to be one of the neatest trim schemes seen on a Pup. The logo on the tail fin is reproduced on the back page of this newsletter. The simulated cabin window painted on the headrest side panels is a nice touch. Landing gear axle tubes pivot at the ends of the wood gear spring and are supported by rubber bungees at the inside ends. A hinged cockpit cover includes a small windshield. (Builders should note that use of low profile wheels could increase landing and take-off speeds by reducing the angle of attack in the 3-point position. Ground clearance of the propeller will also be a consideration).

The photo on the right is from Dr. Helmut Bucker from West Germany. No details are given but this Pup has wire-spoked wheels, a tailwheel and a twin cylinder engine with a belt drive. Control surface hinges appear to be a metal pivot type probably made from short sections of aluminum channel. Converting the dimensions to metric units and accommodating the use of metric hardware and materials would be an added challenge.

PATRIOTIC PUP FROM MAINE

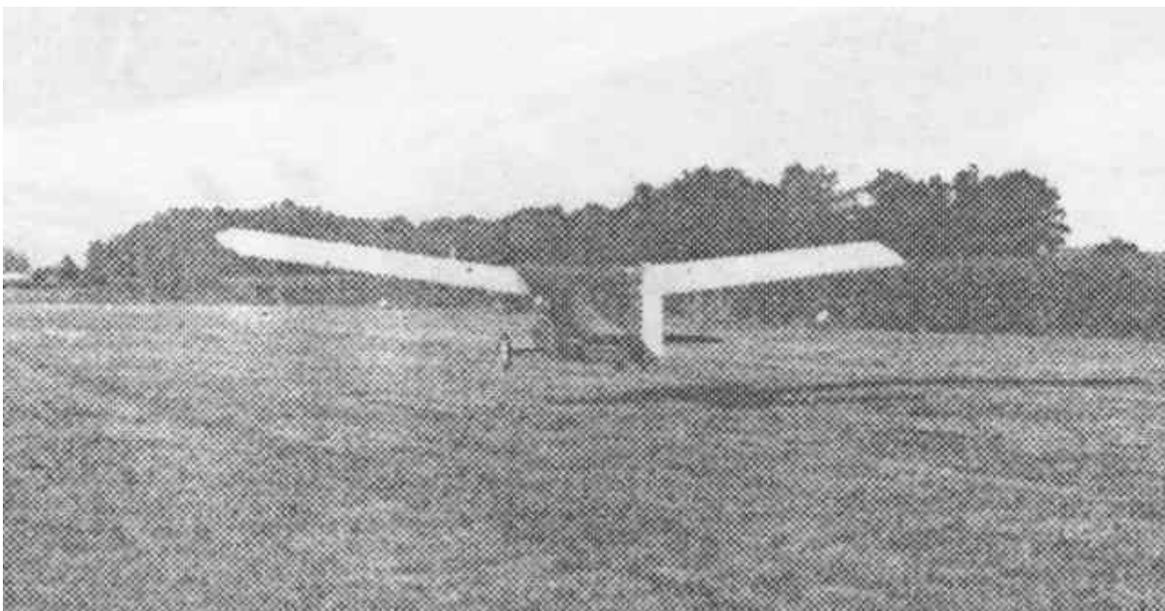
Sky Pup SN2469 is red, white and blue and was built by Leroy Thomas from Belfast, Maine as a retirement project. He is 69 years young and says he has worked as an electrician, plumber, farmer, cabinet maker and deputy sheriff investigator. Construction took eight months and the total cost was \$1986. First flight was September 18, 1985. The engine is a Rotax 277FA with gear drive and a 60x27 prop. Empty weight is 228 lbs. Weight and balance gave the CG at 5.2 in. No corrections were necessary. He plans to recover the aft portion of the wings because his original covering sags badly in cool or wet weather. It tightens up fine on hot dry days.



Leroy reported considerable vibration (not his exact words) but it is not known how it would compare to other Rotax powered Pups. He moved his instruments from the forward deck to a location under the centersection to avoid vibration damage. (All builders should be aware that a new prop is not always correctly balanced. My Shettler prop was way off. Also note that the breadboard holes must be chamfered enough so that the rubber stoppers are not over compressed). High cylinder head temps were a problem with his Rotax even though exhaust gas temps were near normal. He points out that the cooling fins on the head are curved the wrong way to scoop in air from a left-hand prop. If anyone else has overheating problems with the Rotax, please let us know about it. (Builders using the Rotax should follow the recommended one-hour break-in procedure religiously and avoid doing lots of continuous low speed taxi work immediately after break-in. When the break-in procedure is completed, either fly it or try to simulate normal operation).

LLOYD POWERED PUP FROM MICHIGAN

Cecil Bosworth of Charlotte, MI. sent this photo of his Pup coming in for a landing. He says it flies very good, has good climb and no problems except for crosswind landings on a narrow runway. Ground handling was very easy for a tail dragger. The colors are blue and yellow. The engine is a Lloyd 386cc twin with the fan housing removed and the exhaust is a tuned straight pipe of about 24 inches. Empty weight is 229 lbs. Since his engine cost him only \$150 and he made his own belt drive and propeller, the total cost of the complete aircraft was only \$1000!



Construction took about 500 hours. Cecil says he is a life-long mechanic (both aircraft and automotive) and he has previously built a Heath Parasol and a Longster. He felt that some parts of the Sky Pup construction were harder than anything on his previous homebuilts. The covering on his Pup is aircraft fabric and the finish is two coats of semi gloss acrylic latex paint. (I am aware that

several other ultralights have been finished with latex house paint including the Minimax and some of the Fisher geodetic designs. The results look very good and I'm told it's very easy to apply but I have no first-hand information about fuel resistance, flexibility, or possible weight build-up). Cecil says he learned (as have other builders) that a hard crosswind landing can damage the lower longeron under the landing gear. In a one-wheel landing, a downward load is applied to the longeron on the side still off the ground. Trying to straighten out a crabbing approach just before touchdown may raise one wing. Some reinforcement in the form of a wood doubler or extra fiberglass might be advisable. (On my own Pup, I added a short piece of softwood under the longeron at the gear location to serve as a "hard point" for blocking up the fuselage during construction or repairs).

SAFETY ITEM FROM SPORT FLIGHT

Steve Wood reported that they have reason to suspect that a centersection wing spar which was proof-loaded by the builder, may have failed because of inadequate bend radius in the lower spar cap. He says the specified bend radius of 72 inches was carefully calculated to allow a known amount of prestress in the wood. If the bend at the attach upright location is too sharp, then considerable stress will be applied to the wood even before flight loads are included. My own experience was that a gentle curve extending several inches of either side of the point of bending will allow for bonding of the spar cap without using excessive force. Some difficulty in bonding the lower centersection plywood to the resulting curve is to be expected. Incidentally,

Steve says that they have been keeping busy consulting on various interesting projects including a 6-place canard and a very special one-of-a-kind design intended to break a world speed record for propeller drive piston engine aircraft. He says not to worry though, they haven't forgot about the little guy (like us).

PLANS FOR OSHKOSH '86

Since the next newsletter will be out in late July, I've decided to include some details and suggestions about Oshkosh. Several Sky Pup builders have indicated they hope to bring their Pups to Oshkosh this year. For those who've never attended, convention registration is \$9.00 per day (\$50.00 for all 8 days) and includes the flight line pass for EAA members. Avoid trying to arrive or depart during peak hours on the weekend due to heavy traffic. To fly at the convention, you should have a minimum of 15 hours total and 7 hours on the aircraft. Camping with either a tent or vehicle is the most convenient way to stay overnight. Showers and grocery store are available. EAA campsites are \$10.00 per day. Plan to arrive early or your camp will be long walk from the showgrounds. My favorite spot is a private campsite, Ollie's Farm, which is just outside the ultralight entrance. The silo marks the ultralight landing approach. Space is almost always available and the location is very convenient for the UL exhibit area. Look for my green tent and probably a Sky Pup sign in the front yard. The evening of Saturday July 2nd after the last ultralight flying period would be a good time for a group gathering of Sky Pup builders. If you plan to attend, call me in July for last minute details at (217) 569-2131.

BUILDING TIPS

1. Gerry Coppock says be sure to provide for drainage of the upper forward wingtip compartment before you cover the wings. Because of wing dihedral, a drain hole in the fabric will not suffice. You need small hole in the tip rib or gusset.
2. Jim Beatie reported he developed a strong sensitivity to Apco Saf-t-poxy. He switched to Gougeo marine epoxy and used PR-88 hand protectant from Wicks Aircraft Supply (allergic reactions to epoxy can be very serious so you should avoid direct contact with the skin. The PR-88 cream is very highly recommended)
3. Phill Hartzell sent a sample of "Herculite" fabric which he used to make the wing gap covers. It's strong, lighter than naugheyde and will not stretch. Attach with Velcro.
4. Several builders reported that covering the fuselage sides is simplified if the control cable fairleads are added after the fabric has been applied.
5. Harry Grape (SN2729) installed Teflon bearings in the wheels, around the elevator torque tube and on the rudder slide block. Glue will not stick to Teflon so small screws or bolts must be used.
6. Foam brushes are ideal for applying the polyurethane varnish (especially the last coat). I also use foam brushes to apply the latex fabric cement.
7. Be sure to bend the control horns with at least a 3/32 radius. One builder said all of his broke before the first flight. It's recommended that all bends be perpendicular to the apparent "grain" of the metal.

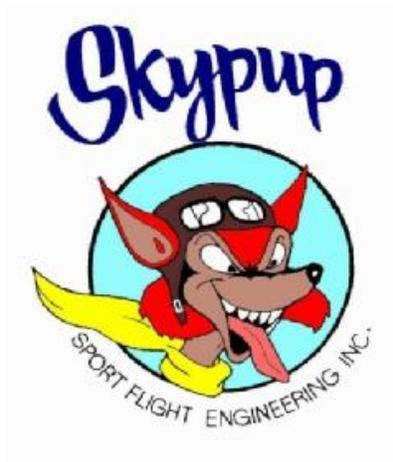
MISCELLANEOUS

The next issue will have pictures and details of a Sky Pup built by A. Napper of Kingsgrove N.S.W. Australia. also received pictures from Newton Borden whose Konig powered Pup is nearing completion. This is a very sharp deluxe model. Paul Pontois (also nearing completion) sent pictures and detail drawings of his ballistic chute installation. The canister mounts above the centersection on wood and foam reinforcements which include a false aft spar component. The bridle is attached to the spar and has back-up straps going to the seat cross member area. More details later.

Several builders have asked about clamping and fixturing. An excellent short article on the subject is, "Clamps and clamping in general" by Tony Bingelis in EAA Sport Aviation magazine February 1983. It has lot of good information in a few pages

A significant number of subscribers have only recently started construction of their Pup. We can expect to see Sky Pups being hatched out for many years to come. Here are some of the builders whose Pups are nearing completion - Jim Beatie, Lake Geneva, I - Donald Diggs, Monon, I - Lanney Fields, Rimersburg, PA - Paul Pontois, Quebec Canada - Paul Rasmussen, Urbandale, IL - Newton Borden, So. Weymouth, MA - Larry Meyer, Alberta Canada - Todd Douma, Appleton, WI - Dan Grunloh, Potomac, IL

Sky Pup News



Newsletter No. 12

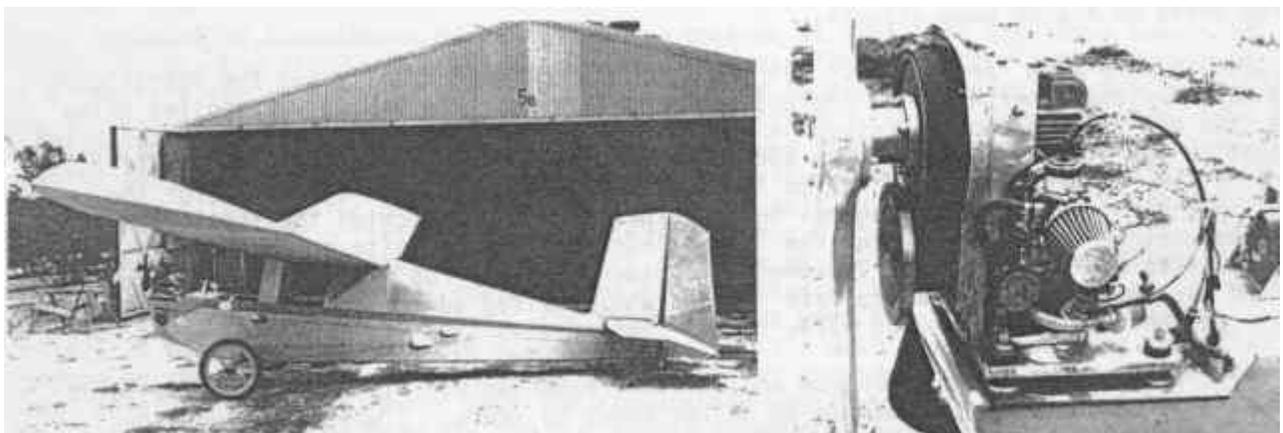
July, 1986

Fuji-Robin Powered Pup
Newsletter Editor's Pup Flying
Canadian Pup Ready to Fly
Feedback from Early Builders
Miscellaneous and Building Tips

SKY PUP NEWS is a quarterly newsletter for builders of the Sport Flight "Sky Pup". The purpose of the newsletter is to provide for the open exchange of information and to encourage builders to share their experiences of building and flying the Sky Pup. Beginning with this issue, the newsletter will be written by Sky Pup builders and enthusiasts. Unless specifically stated, all ideas, suggestions and building tips are strictly the opinion of the contributor and have not been approved by Sport Flight Engineering Inc. No warranty is made as to the airworthiness or suitability of modifications or building tips. When in doubt, you should follow the plans as close as possible and contact Sport Flight Engineering if you have questions.

SKY PUP NEWS is compiled and distributed by Dan Grunloh... Rt 2, Box 82, Potomac, Illinois, 61865. Subscriptions are \$7.00 for the calendar year (\$10.00 overseas). If you want to talk about the Sky Pup, or about airplanes and homebuilding in general, please feel free to call me at (217) 569-2121 late evenings. Please keep sending your letters and photos.

FUJI-ROBIN POWERED PUP

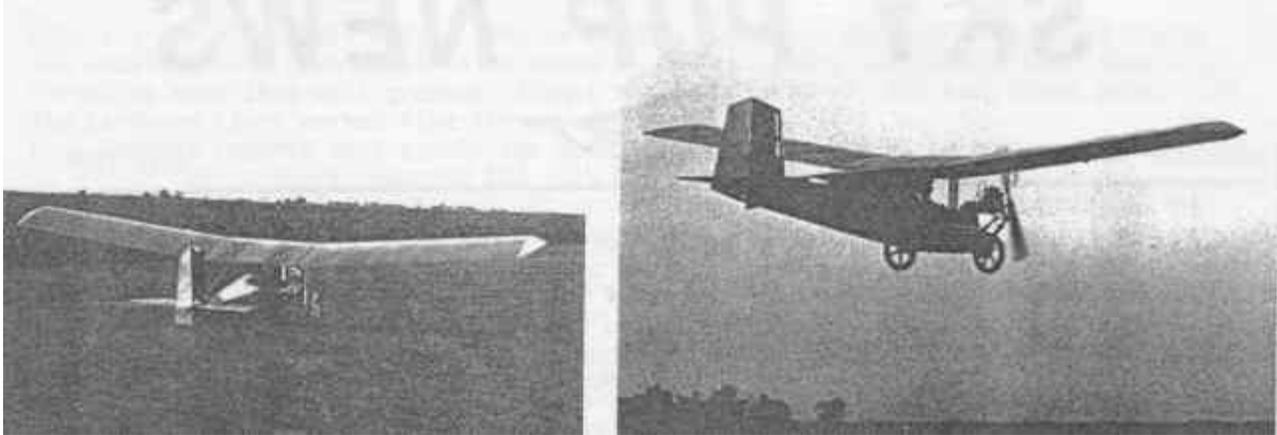


This Pup was built by Alfred Napper of Kingsgrove N.S.W. Australia. The color is white with a yellow nose and fuselage stripe and matching yellow wheels. He says he has previously owned a DH82 Tiger Moth, a DH85 Leopard Moth, a MK5 Auster and a BD-4 which he built and flew some 450 hours. His total flying time of 2000 hours was not much help, he thought, when it comes to flying

an ultralight. He says he is gradually becoming its master with 30 hrs. logged to date. The fabric covering is 1.7oz Polyfiber with Stits polyspray finish. piece of local hardwood of unknown species for the landing gear has stood up to some terrible abuse. A 2.5 gal. fuel tank was installed just aft of the wing spar above the shear panel and has a simple float type gauge.

An 18hp Robin EC25 engine brings the weight to within the allowable limit. (The Robin engines are popular in Europe and are built by the makers of the Subaru automobile). He originally installed a 4-cycle horizontal twin cylinder engine which was too heavy but performed beautifully. He abandoned it because of the lack of forward visibility. There was no way to look over, under, or around it when flared for a landing. Small spoilers which were added between two wing ribs proved useless for roll control so they were removed. homemade airspeed indicator of the spring-loaded vane type was installed near the wing joint. It was calibrated by mounting it on a car and driving down the runway on a calm day.

NEWSLETTER EDITOR'S PUP FLYING



Sky Pup SN2028 built by Dan Grunloh of Potomac, IL made it's first flight on July 3rd, 1986 after over two year of construction. The colors are brown and gold, the empty weight is 225 lbs. and the total cost was \$2200 with a Rotax 277 engine. I have 6 hours on my Pup at this time and I am absolutely delighted with its performance. The Rotax engine starts easily and has more than enough power. The Pup was my first airplane project and my first solo powered flight. The first three flights exceeded the airtime I accumulated in my three years of flying hang gliders.

SN 2028 is very much "per plans". All the wood was obtained locally and the fabric covering is "Gloriosa" sheath lining and polyurethane varnish. The fabric was applied using the "two dry coat" method described in the October '83 newsletter. I attribute the extra weight to the generous use of epoxy and latex fabric cement.

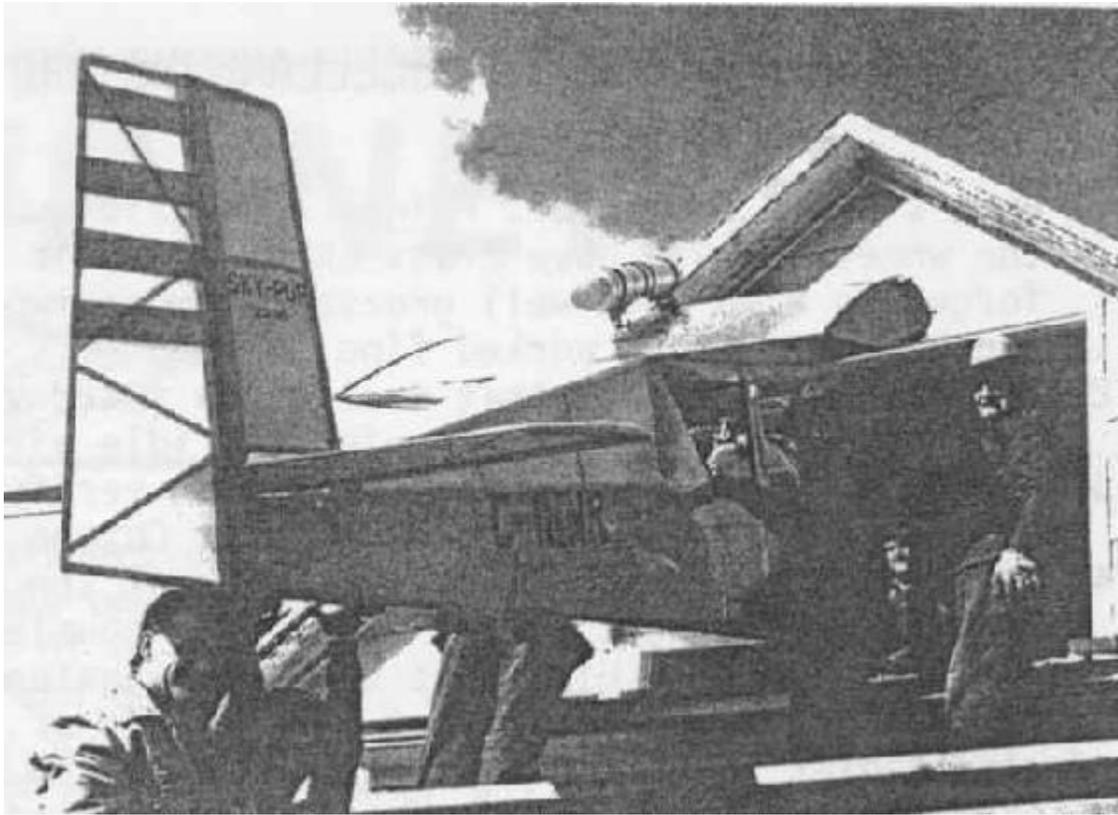
For me, the most difficult parts of the project were ripping the 14 ft. fir lumber to uniform thickness for the wing spar caps, fitting the diagonal headrest panels, and attaching the fabric hinges for the control surfaces. Shaping the leading edge strip took quite a few hours as I was reluctant to use power sanding equipment.

Incidentally, my Pup was built entirely with my own two hands. I was glad to have friends who provide advice and encouragement and a very patient and understanding wife. Total construction time was about 800 hours

My first flight was a most rewarding and exciting experience. Flying my own homebuilt aircraft is something have wanted to do for about 20 years. I was not nervous or worried about the airframe because I have come to know every stick of wood and glue joint on a personal basis. Cylinder head temps were above 400°F the first few hours even though the EGT was only 1100°F. The CHT seems to be coming down as the engine loosened up more with time. The landing gear spring of white ash (instead of maple) proved it's worth on the first landing. When I throttled back on final approach, the idle setting was too low and the engine stopped, I immediately discovered that my airspeed was too slow and made a hard "pancake" landing from 30 feet. From the descent rate, I was certain that the landing gear and prop would be damaged, but the impact was softened by the springy gear and possibly by the ground effect on the wing. There was virtually no damage. I climbed out and danced around the Pup waving to my friends at the other end of the field. I was very thankful that Steve had designed the Pup to be a very forgiving little airplane.

After about ten flights I have learned that with a CG of 4.3 inches, my Pup is still nose-heavy even after adjusting the stabilizer. With a full load of fuel (2.5 gal.) it wants to be wheel-landed. When low on fuel, it flies much better and is easier to land. I need to add some weight to the tail. A Hall airspeed indicator mounted just below and in front of the wing at the attachment joint has not proved entirely satisfactory. I' experimenting with the mount to get it out of the high pressure area near the wing. Vibration with the Rotax can become bothersome on long flights as the "tingling" in your feet becomes numbness. Rubber mats o the floor boards reduce the problem.

CANADIAN PUP READY TO FLY



Sky Pup SN2236 built by Paul Pontois of Quebec Canada is shown being carefully lowered from an upstairs attic which was his workshop. The window was built to fit the dimensions of the Pup. Note the ballistic parachute mounted above the centersection. Paul has sent detail photos and drawings of the parachute installation. If you are interested, please let me know and I will gladly share the information with you. The engine is a Rotax 277FA with gear drive. He has apparently named his Pup "La Tulipe" which is very appropriate as the color is a brilliant red-orange. I must confess to a certain amount of envy as the workmanship and finish appear to be flawless. Even the photos I just received are of the highest quality. Paul is currently taxi testing and doing low hops. He will probably be flying by the time you read this. "La Tulipe" is one very attractive Sky Pup.

FEEDBACK FROM EARLY BUILDERS

Terry Rockwell of Susquehanna PA writes to say that he is beginning his third summer of flying his Sky Pup #1863 which was featured in the July '84 newsletter (No. 4). He says it's really a fun ship and he only flies when the wind is down. He doesn't enjoy rough air one bit and goes out of his way to avoid it. He has 121 hrs. on his Cuyuna powered Pup and went through several propellers before he found one that would allow the engine to develop the full RPM. The engine will bog down and quit running if the prop has too much diameter or pitch. A Ritz 54x20 prop on a 2.25 ratio belt reduction has worked fine for him. His Pup came out a little nose-heavy and has about 4 lbs. of lead in the tail. The Pup weighs 235 lbs. and requires slight back pressure on the stick for level flight. Before flying this year, Terry replaced the fabric elevator hinges which were of the model airplane type (not the sewn method). The rudder hinges were fine but dirt and debris collect in the elevator hinge and may contribute to its wear. He also noticed that the varnish on the wing fabric seemed to be cracking along the edge of the capstrips on the ribs. He glued strips of fabric over the ribcap for reinforcement. Terry says he's having fun taking aerial photos from his Pup but hasn't tried changing roll of film while in flight. When not flying his Pup, he is in the process of building a Kolb Firestar.

The following passage is from a letter to Sport Flight from Dave Beres of Walla Walla WA. SN1941 was featured in the October '84 newsletter (No. 5). Here are his own words. "My little plane is still flying, strong as ever and has just logged its 400th hour! I'm still running an old point fired Cuyuna 215 which has had two majors (two pistons) and a few seals. On that engine I have only dead stuck once, fortunately into a horseless horse pasture. The plane crashed badly once due to a sick Yamaha engine so it has a repair in the main spar of the left wing but 390 hrs. have been put on that spar. The plane is starting to show some age and patches but that just helps nostalgia. I'm on my 2nd set of tires, 3rd tailwheel, 3rd strobe bulb, and lots of engine parts. The longevity of the Pup is due to a good design, good care, and staying out of bad weather. I don't fly in the heat of the day due to thermals and don't fly in wind at all. Earl morning and dusk are great and I get lots of flying in during those times. My longest trip was 60 miles one way. I cruise at 43 mph and slow down to 36 or so if it gets bumpy. It's a good solid little plane and is hangared next to a Piper Colt which I also own but can't afford to fly much. The Pup fits the bill for anyone who loves to fly and will stay together a long time."

Sincerely, David E. Bere

MISCELLANEOUS AND BUILDING TIPS

1. Here's a tip from Sport Flight. The axle tubes which are usually a loose fit inside the wheels should have brass shims added to reduce wobble and prevent wear should you forget to keep them well greased. Almost two full turns of .010 inch sheet brass from the hardware store worked fine for me.
2. Paul Pontois reports that excess low speed vibration in the Rotax engine can be caused by a rich fuel mixture. Opening the idle air screw should cure the problem.
3. Several builders including myself can verify that the fuel consumption of a Sky Pup at moderate cruise with the Rotax or Cuyuna is one gal. per hour or less!
4. It has been suggested that abrasion of the tailskid from a hard surface runway can be reduced by having a welder lay down a couple of beads of extra hard material on the underside of the skid. Some type of tungsten alloy was suggested, I think?
5. It has been pointed out that some brands of polyurethane varnish claim to have an ultraviolet inhibitor or absorber. I talked with someone in the paint industry who said that virtually all reputable name brand of exterior polyurethane include UV inhibitors and other additives not present in interior varnish. Exterior polyurethane should have the words "oil alkyd resin" in the ingredients. The price will vary depending on whether the resin is derived from linseed, soybean, or Tung oil.
6. Several builders have offered a reminder that vent holes must be provided in the wing and fuselage compartments as soon as possible after the fabric is sealed with varnish. A large change in temperature or pressure can bulge and stretch the fabric. I saw my fuselage puckered inward on morning because I had sealed the drain holes with varnish.
7. A small triangular heat sealing iron available at hobby stores is very handy for shrinking the fabric in hard to reach spots. To remove air bubbles, first prick the bubble with a pin. Then, iron out gently, avoiding over-heating as steam from the latex cement will enlarge the bubble and worsen the problem.

SKY PUP NEWS



Newsletter No. 13

October, 1986

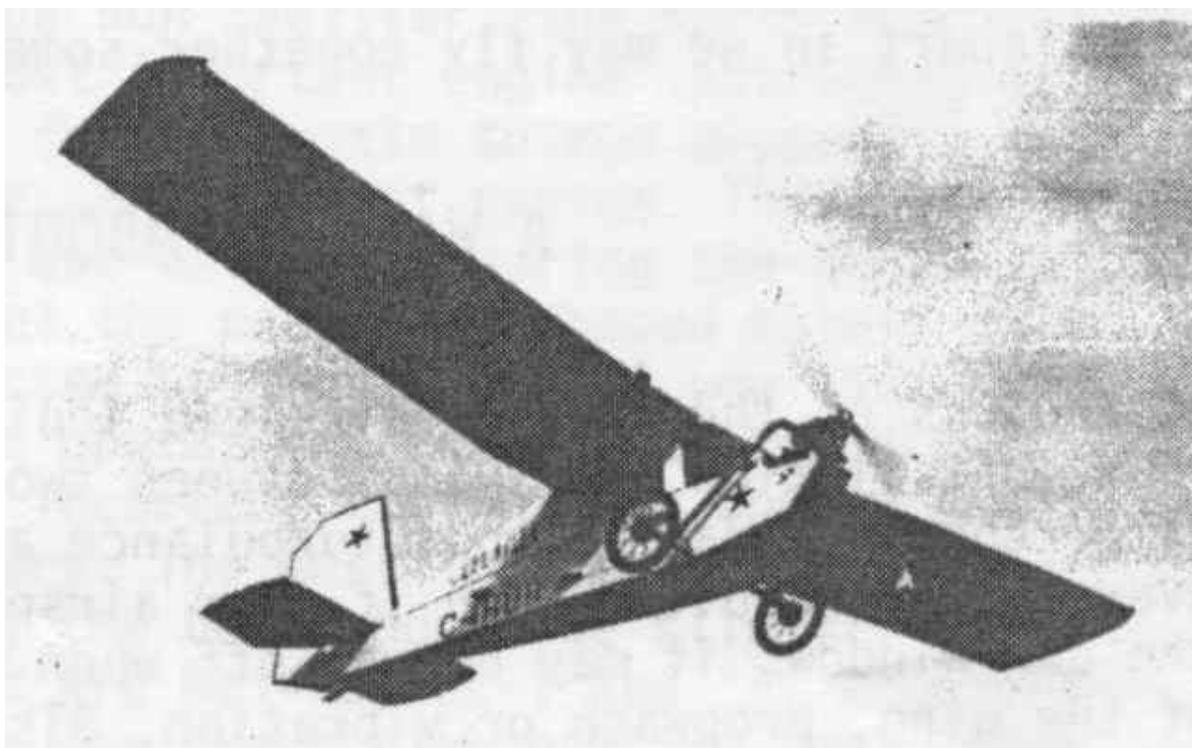
Another Canadian Pup Flying
Oshkosh '86
Report Indiana Pup Nearing Completion
A Warning About Airspeed Indicators
"La Tulipe" Flying in Quebec
Care and Feeding of the Rotax 277
Miscellaneous
Real Adventure Right Here In Illinois

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This issue (No. 13) marks the end of the first year of SKY PUP NEWS as a builder written newsletter. For me, it has been a very rewarding experience. As long as there is a continue interest and builders and pilots send letters and photos, I shall continue the effort. All subscribers for 1986 will receive the January issue for 1987 (No. 14). However, the newsletter is not a profit-making venture so please send your subscription for next year if you wish to be included.

It has been suggested that we, the Sky Pup builders and pilots, should form an official SK PUP PILOTS ASSOCIATION. The newsletter would be just one part of that organization. Another function might be to maintain a current directory of Sky Pups and their owners. If anyone has experience with a similar group or any ideas how we could start, please share it with us. It is up to us, the pilots and builders, to keep the design alive for the future. We are very select group of people and we should be proud because very few ultralights or homebuilt are built entirely from plans. It is a significant achievement. Like any other aircraft, the Pup has certain limitations but it's unique combination of low cost, docile handling, and excellent performance put it in a class by itself. As for myself, I wouldn't consider trading my Pup for any other ultralight on the market.

ANOTHER CANADIAN PUP FLYING



Sky Pup SN2666 shown here was built by Jean-Claude Hivon from La Perarde, Quebec. The color is white with black trim and black wingtips. The name on the side of the fuselage is "L'Epervier" which translates as "The Sparrow Hawk". First flight was just a few weeks ago with no problems reported. The engine is a 14hp Rotax twin-cylinder of snowmobile origin. He modified the engine himself for use in the Pup. He says it has minimal vibration and uses only $\frac{3}{4}$ gal. of fuel per hour. The bottom line of the rudder is angled upward slightly and wire spoke wheels are visible in the photo. Total construction time was 500 hours. Jean-Claude is a fast builder as the entire project took only 3 months. After completing the Pup, he had to wait to fly it while he earned his ultralight pilots license, a requirement in Canada. Jean-Claude built his own hangar and has a 1000 foot runway in front of his house. A pair of Mitchell B-10's share the hangar. When all three ultralights are inside, the Pup hangs from the ceiling by strap around the center spar. SN2666 has also been equipped with skis for winter flying. Paul Pontois says there are at least two Pups flying with skis in Quebec. Jean-Claude's English is minimal so Paul has provided some details and the translations for this article

OSHKOSH '86 REPORT



Only one Sky Pup was shown and flown at Oshkosh '86. Gerry Coppock from Escanaba Michigan returned for the second year with SN 1173 "Gerry's Dog House" which was feature in newsletter #7 and #9. I had hoped to have my Pup there but with only 6 hours of airtime and no trailer, it just wasn't possible. Gerry had built a large enclosed trailer which also serves as camper when attending airshows. The Pup was flown frequently during the week and attracted much attention even when not flying because of its light-hearted trim scheme and detail. Gerry complains that many aircraft have dull, drab colors and trim. His philosophy is that flying should be fun and his plane is decorated accordingly. Sky Pup enthusiast Dale Fullerton suggested that original personalized trim, decorations, logos, etc. could well become trademark of Sky Pups everywhere. Gerry surprised all of us at Oshkosh because he told no

one that he had painted "Sky Pup" in large letters on the bottom of the fuselage. It can't be seen when the Pup is on the ground but shows up very well when coming in for a landing. We should be very thankful that Gerry has had the willingness and dedication to bring his Pup to Oshkosh these last two years. He alone is responsible for keeping the Sky Pup idea alive among the convention attendees. A considerable number of builders and plans buyer stopped by to see the Pup and visit with Gerry. I'm certain we will have a lot more Pup attending next time

INDIANA PUP NEARING COMPLETION



Donald Diggs of Monon, IN reports that his Rotax powered Pup is nearing completion. the color is Navy blue with white trim. Unique features include a foam and plywood engine cowl with windshield and a 2 gal. aluminum fuel tank installed behind the main spar under the centersection shear panel. He hopes to be flying by early next spring. We live only 100 mile apart so we may fly together someday

A WARNING ABOUT AIRSPEED INDICATORS

Regardless of the kind of airspeed indicator you install on your Pup, you must calibrate you installation by flying between two points a known distance apart and recording the time. Choose a day without turbulence and make several passes upwind and downwind and average the results. Even if your airspeed indicator checked out fine when sticking out the car window, it may be way off when mounted on the airplane due to aerodynamic effects of the wing, propwash or vibration. Also you should make test runs at several different airspeeds to ensure that it works properly throughout the range of flying speeds. I have experimented with a Hall ASI mounted in various positions and have observed a variety of strange effects. In some cases it was perfectly accurate at 40 mph but wouldn't read over 45 mph even if I flew 60 mph. Several builders have recommended that plumbing be installed in the wing so that a pitot type ASI can be installed in the outboard wing panel well beyond the effect of the propwash. I wish could make more specific suggestions but every instrument and airframe combination is unique. You must work it out for yourself. You should be able to fly safely without an airspeed indicator, but don't be fooled by one that is inaccurate especially at the higher airspeeds

"LA TULIPE" FLYING IN QUEBEC



Sky Pup SN2236 mentioned in the previous newsletter made its first flight just prior to Oshkosh '86. It was built by Paul Pontois, 1890 Range des Chutes, Ste-Ursele Quebec (J0 3M0). He has over 15 hrs logged to date and says that it "flies like a wonder". The longest flight was 60 miles cross-country to a glider club field. The glider pilots were very interested in the Pup which was the first they had seen. The shape of the vertical tail was changed slightly for aesthetics and the turtleback has two equally spaced foam supports instead of one. This pup has a custom built 3 gal. fiberglass fuel tank of trapezoidal shape. Paint pigment was added to the epoxy to give the tank color. The original attachment was with aluminum angle which were glassed into the corners of the tank but they could not stand up to the vibration. (All fuel tanks whether metal or fiberglass are best attached with straps of metal or webbing. Hard attachment points will eventually crack and develop leaks.) Paul reported that he cracked a lower longeron at the gear axle on an early flight due to a hard landing. His Rotax powered Pup came out somewhat nose heavy. So did mine and quite a few others. The recommended fix is to lower the leading edge of the horizontal tail by reducing the spacers used at the front mounting bolt. Adding weight to the tail has also been tried. Springs or bungee tension devices in the control system are not recommended. Paul suggests reducing the down-thrust of the engine by adding washers under the front engine mount rubber stoppers. This has proven very effective on his Pup and on mine. Now we cruise hands-off, climb with forward stick pressure, and glide with slight back pressure. (I previously held light back pressure all the time.) With the Rotax, this adjustment is quite sensitive. Paul says there are at least five Sky Pups completed and flying in Quebec. Quite amazing when you consider that most people there do not speak English and that the Pup wasn't advertised in Canadian ultralight magazines

CARE AND FEEDING OF THE ROTAX 277

Here are some tips from a forum at Oshkosh '86 given by Ron Shettler, the North America distributor of Rotax engines. According to Ron, the most important engine instrument is the tachometer. The engine must turn the specified RPM at full throttle to run properly. This will require a correctly matched propeller, carburetor, and exhaust system. These conditions must also be met for proper break-in to occur. Do not use extra oil during the break-in period. He says a common mistake is to attempt to re-jet the carburetor based solely on the indication from cheap gauges or those which are affected by vibration. If you have other indications such as spark plug readings or poor engine operation, then check for a clogged air or fuel filter, bad fuel, mismatched propeller or incorrect timing. The engine should run properly with the carburetor as set up by the factory. The most important carburetor adjustment is the fuel bowl float level. When removed, the bowl should be slightly less than one-half full of fuel. Oil currently recommended are Bel-Ray UL-1 and "AV-2" which is available from CPS and L.E.A.F

It is important to use fresh high quality fuel which can be leaded or unleaded but with no alcohol. Fuel composition varies widely throughout the country and all fuels and oils are not compatible. You must find a combination which works well in your area. Another mistake with the Rotax is failure to check the timing in the first 20 to 50 hours of operation. As the point wear-in, the timing can change and cause serious problems if not corrected. If you have a truly unexplained engine stoppage, the exhaust manifold should be removed and the piston checked for scoring. The engine may run after a partial seizure but it will get worse each time the engine is worked hard and can lead to repeated engine stoppages

MISCELLANEOUS

My thanks to Wm. Stacy from Buffalo Iowa who sent me a "fresh" batch of rubber stoppers for my engine mount. My original stoppers, though new, may have already been several years old. They lacked flexibility and did not absorb vibration well. I've also learned that soft "pure gum" stoppers (white) can be ordered from laboratory supply companies.

Note: The following is an addendum to the volume 13 Sky Pup News

REAL ADVENTURE RIGHT HERE IN ILLINOIS

Are you bored with watching television? Does bowling and back yard barbeque lack the thrills and excitement you crave? No need to climb distant mountains or canoe wilderness rivers. Just get yourself and your ultralight and join us for a week-end cross-country flight.

On Sunday September 28th, four members of the Illini Skyriders (Gary Buck, Greg Dembeck, Marion Evans, and Dan Grunloh) departed from Busboom's on a 55 mile flight to the Fosdick RLA near Fairbury where member Jim Steidinger keeps his Easy Riser and his Ercoupe. Other ultralights from the northern part of the state were also invited. I had heard that a pair of Easy Risers had flown in on Saturday afternoon so I really wanted to "go for it". The early morning weather report gave a line of thunderstorms 200 miles northwest with a 30 percent chance of reaching our area in the afternoon.

At dawn I flew the 10 miles from Homer to Busbooms under clear skies with a light tailwind. The weather seemed perfect and I calculated that even if the storm did come this far south, we would arrive at our destination long before then. The air was smooth and we made good groundspeed on the first leg so we bypassed our 1st potential fuel stop at Patton and continued on to Roberts. Weldon Garrelts keeps his BI-RD at a field near there. We cruised alone at different altitudes watching the landscape roll by. Marion Evans seemed to prefer a low altitude when following roads. At times I wonder if he's trying to read the road signs. Greg likes to be up much higher where he can get the overall view. Weldon's BI-RD had been damaged in a windstorm two days before and we could see the remains of the hangar roof scattered across the field near the strip. After landing we topped off the fuel tanks and inspected the rare old classic Luscombe Sedan (a 4-seater) which is based there. By the time we arrived at Roberts there was a definite layer of hazy clouds to the west and signs of cumulus development behind it.

Our final destination was only 20 minutes away so instead of getting a weather update or turning back towards home, we decided to keep on going. After take-off, Gary Buck in his phantom joined our formation. He departed Busbooms somewhat after us and actually flew the entire trip non-stop. It was becoming obvious that some weather was headed towards us with the tops of more and more cumulus showing above the haze. We were also flying towards it. Suddenly a bright blue lightning bolt snapped to the ground at the front edge of the clouds. It seemed to be about 10 miles away and at a lower altitude. Finding our destination airfield somewhere ahead suddenly seemed much more urgent. Greg was up high and ahead of me and seemed to be going too far north. Marion was down on the deck following road signs as usual. If the Fosdick RLA didn't show up soon we would have to land in a field and sit out the storm. Then I saw a green strip below us with someone waving something bright orange. I made a broad sweeping turn to signal the others did a low flyby to check out the runway. There was Jim Steidinger and Chuck Stevenson. They thought we were going to fly right by them which we almost did.

After landing we learned that Chuck had driven down from Wisconsin leaving his Eindecker behind because of the weather. The Easy Risers had beat a hasty retreat just 30 minutes before we arrived, Not long after the ultralights were tied down securely between some sheds the wind and rain arrived. Then as if to reaffirm its superiority over us it followed up with some hail. Sober faces peered out from the shelter of the machine shed. Though we were never in any real danger, had we been 30 minutes later it could have been serious. The gust front was strong enough to have made landing difficult. I realized then that my optimism and enthusiasm had encouraged others to take unnecessary risks. The period of rain was short and we soon dried out. Jim and Chuck drove us into the nearby town for some food and fuel. While there we browsed through the shiny chrome and good-looking women at a custom car show in the city park. When asked how many hours of work he had put into his dream car, one builder said he stopped counting after 2000 man-hours.

Back at the airstrip the storm clouds had moved on and the sky was beginning to clear. Though I was content to stay on the ground until late afternoon, a headwind was building and the others felt we should begin the return flight. After take-off it became obvious that thermal turbulence was also beginning to develop. I slowed down to avoid wind gust loads and watched the landmarks slow to a crawl. You get to know a little town or grain elevator very well when you can watch it for 20 minutes in a straight line flight. There was a definite difference between the groundspeed of my Sky Pup and of the Phantoms the other pilots were flying. Soon they were only faint specks far ahead. There were plenty of landmarks so navigation was no problem.

By the time we landed at Paxton, our next fuel stop, there was a scattered layer of puffy cumulus stretching to the horizon. The air was definitely getting rowdy but everyone landed safely. The wind was stronger now and taxi turns with my taildragger were becoming difficult. I was certainly glad to be back on the ground and felt like staying there for awhile. We rested, visited, had a cool drink, and topped off our fuel tanks. After a while Gary Buck says, "Let's go. It's not going to get any better and we have just flown in these conditions, so we know we can do it." No one moved. His previous training and experience in sailplanes may have helped him adapt to turbulence. Or possibly he has no nerve endings left. He took off, flew the pattern and made a low pass to give us encouragement. I reluctantly followed the others into that roller-coaster sky. I was convinced that they were getting even with me for leading them

towards the thunderstorm. This part of the trip wasn't that much fun. The sky was full of puffy growing cumulus clouds that usually say to you ; "Do not fly your ultralight now. Strong thermal turbulence." Flying slowly a headwind and bobbing like a cork in the ocean, the landmarks seemed to stand still. Holding an airspeed just above the stall eliminated any worry about structural overloads in the gusts. The Sky Pup just mushed through the roughest bumps. Plenty of altitude throughout the flight gave the necessary safety margin. I flew into a large updraft and watched in fascination as the houses and farms below rapidly grew smaller and smaller. The thermal finally kicked me out with a bump and I continued on enjoying the view in spite of the bumpy ride.

After a long long time our home field appeared and when I descended to enter the pattern, I was surprised to see how much the trees below were bending in the wind. It was at least 15 mph because I had taken almost one hour to go 25 miles. Marion Evans, who had landed earlier, said he saw me approaching from the north and then checked a few minutes later and I seemed to be in the same place. What's more, this was going to be a direct: crosswind landing in a 2-axis ultralight. I was lucky. With a strong crab angle I approached the strip and managed to land between the gusts, skidding on one wheel to a stop with no damage whatsoever. It was too windy to taxi my Sky Pup crosswind back to the hanger. I had to shutdown, climb out and push it down the runway by hand. Later, I kept looking up into the sky and asking, how could we have flown in these conditions? I can't believe it's even possible". Surely no intelligent person would fly an ultralight in this much wind.

I think we were lucky and I hope I learned my lesson. One lesson was that I must avoid impressing my optimistic view of the weather picture on my fellow pilots. Just because some-one will follow you doesn't mean that your assessment of the forecast is correct. Also a strong case of get-home-itis caused us to fly in conditions we normally avoid . I probably flew much slower than necessary in the turbulence and thus increased the length of time I was exposed to the rough air.

In spite of all the rough spots, it was a challenging and rewarding day. For me, it fits into a special category of four or five flights I have made this year. After landing I've said to myself, "That one flight alone was worth the two years it took to build the airplane. "That's what real flying is all about. Adventure .

Now comes the real question of this story . What did you do on the last Sunday in September? Or whenever? Was it an exciting adventure? Did it make you feel invigorated and really alive? Think about it.

Written by Dan J. Grunloh

President EAA chapter UL-30

SKY PUP NEWS



Newsletter No.

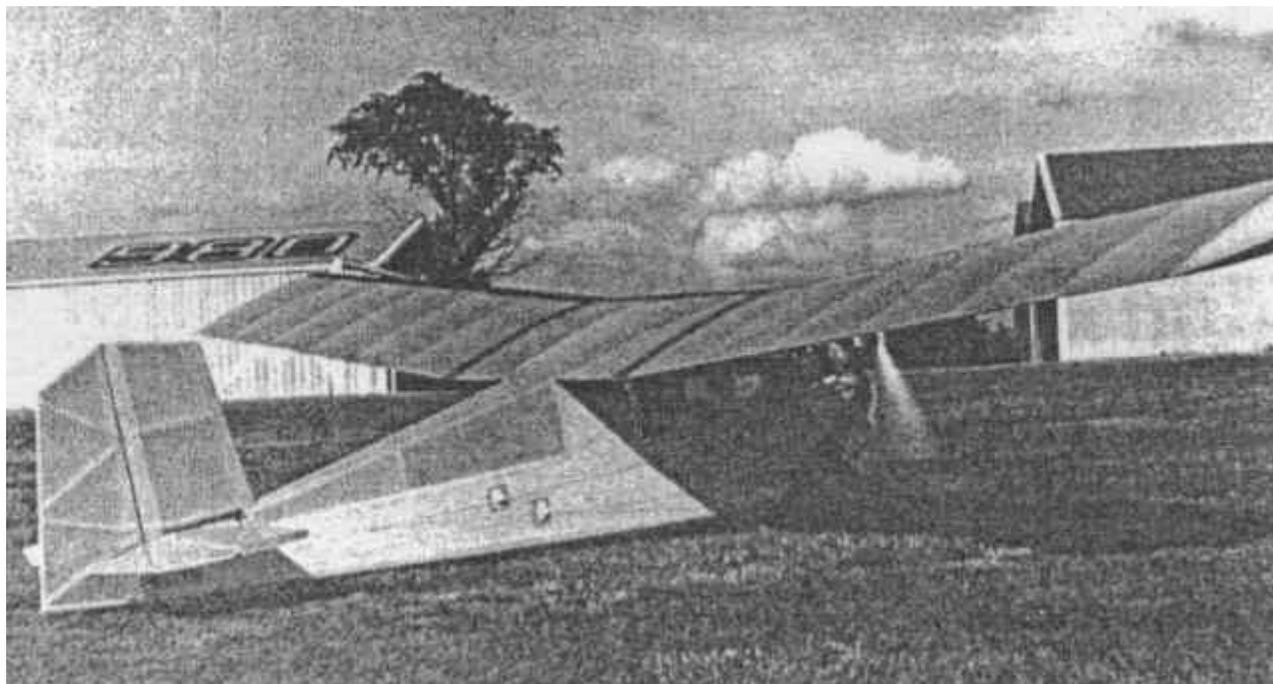
14 January, 1987

A Golden Pup from Iowa
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SKY PUP NEWS is a quarterly newsletter for builders of the Sport Flight "Sky Pup". The purpose of the newsletter is to provide for the open exchange of information and to encourage builders to share their experiences of building and flying the Sky Pup. Beginning with this issue, the newsletter will be written by Sky Pup builders and enthusiasts. Unless specifically stated, all ideas, suggestions and building tips are strictly the opinion of the contributor and have not been approved by Sport Flight Engineering Inc. No warranty is made as to the airworthiness or suitability of modifications or building tips. When in doubt, you should follow the plans as close as possible and contact Sport Flight Engineering if you have questions. SKY PUP NEWS is compiled and distributed by Dan Grunloh... Rt 2, Box 82, Potomac, Illinois, 61865. Subscriptions are \$7.00 for the calendar year (\$10.00 overseas). If you want to talk about the Sky Pup, or about airplanes and homebuilding in general, please feel free to call me at (217) 569-2121 late evenings. Please keep sending your letters and photos.

Welcome to another year with SKY PUP NEWS. If you subscribed in 1986 and missed an issue please let me know. Subscriptions are based on the calendar year so even if you joined us late in the year, you should have received all four issues. Your renewal, however, will not be considered past due until 12 months after your last payment was received. Subscribers will be notified individually before their name is dropped from the mailing list. This issue of SKY PUP NEWS contains a number of firsts for the Sky Pup design. These include the first time two Sky Pups flew together, the first Pup to win a contest at a fly-in, and the first Pup to be used for ice fishing.

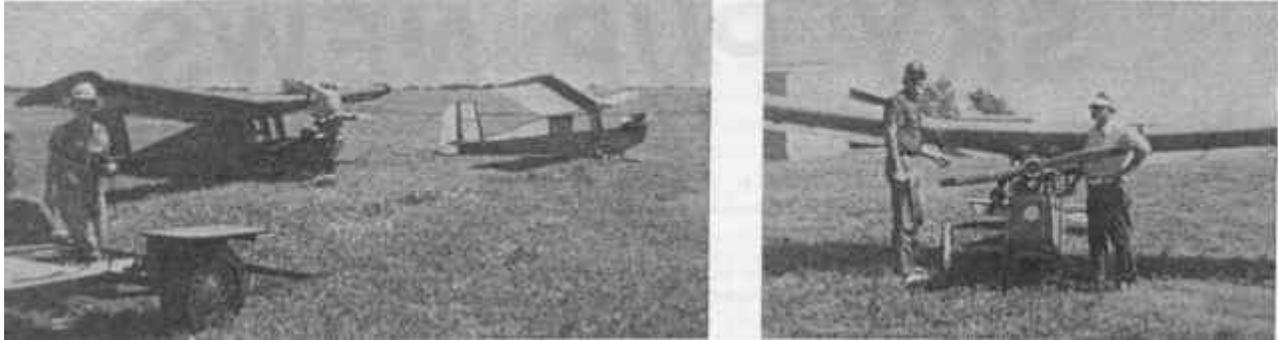
A GOLDEN PUP FROM IOWA



Paul Rasmussen of Des Moines, Iowa built this Rotax powered Pup which is yellow gold with black leading edges and black wheels. He has made about 20 flights to date totaling 10 hr. airtime. Paul has a student pilot certificate with 16 hrs in a Cessna 172 including an engine failure on his first solo X-C flight. Who said "real" airplanes are safer? The initial test Flying was done by Bob Beaver from

Indianapolis. Bob is a friend of Steve Wood and had also flown the prototype. Empty weight is 210 lbs and Paul weighs only 155 lbs so performance with the Rotax engine is just unbelievable. He only uses 3/4 throttle for take off! The airframe was built from a pre-cut wood kit from Wicks Aircraft Supply. (some of us who scratch-built our Pup have a tendency to use too much fir. Wicks supplies spruce wherever permitted which helps save weight. Pine can also be used.) The Pup took 15 months to build in the basement of a rented duplex. He had to remove a sheetrock wall to get the bird out of the nest. The wall was quickly replaced and the landlord never knew. Paul says the outboard leading edge was damage when a friend who was taxiing the Pup ran off the end of the runway and struck a telephone pole. From the force of the impact he thought the wing would surely be totally destroyed. The injury was repaired with foam and plywood and the leading edge has a splice but now the wing is just as strong as ever. Paul transports his Pup on the back of a pick-up truck which he say works just great. During the flying season it's kept in a hangar. This winter he plans to install custom aluminum fuel tank, instrument panel and cowling, and a hand-deployed chute. Here' a tip from Paul for those of us who are using the Rotax engine. Foam tubular pipe insulation was attached to the rudder bar which prevents the feet from going to sleep on long flights due to vibration

FIRST TRUE LITTER OF PUPS IS IN KANSAS

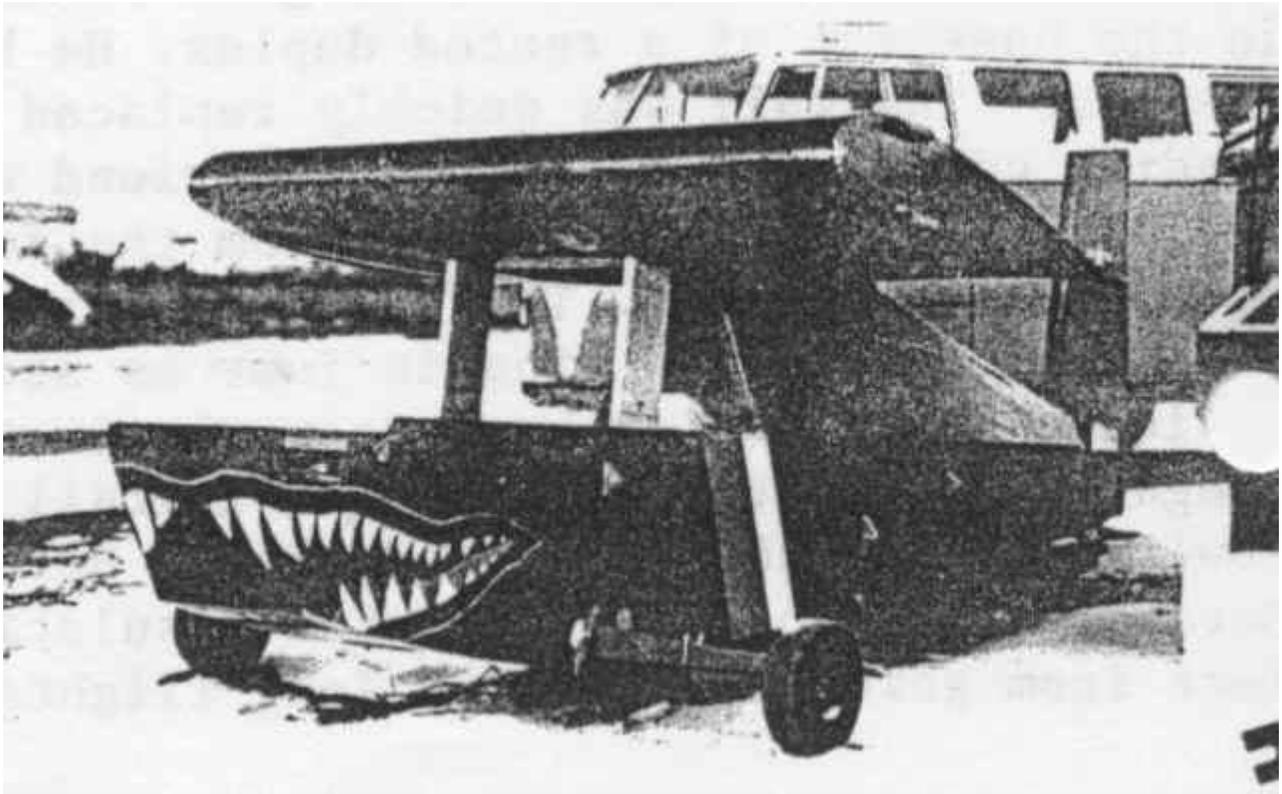


A total of five Sky Pups are completed or under construction in the Wichita, Kansas area. The location seems quite appropriate as this is where the prototype was conceived, built and first flown. Shown here is the first known photo of two Sky Pups together. The Pup on the left was built by Bus Broadbooks of Goddard KS. The color is bright red and the engine is a Rotax 277. Unique features include flat wingtip end plates and wing gap covers which are long strips of fabric glued to each surface and joined with a zipper. Bus has installed a Scott steerable tailwheel and a pitot type airspeed indicator. A plastic fuel tank is recessed into the forward deck and supported by a webbing harness. An ingenious feature is a storage compartment in the headrest behind the seatback bulkhead. A small door was cut into the triangular headrest side panel (not the diagonal panel). Bus says it works great for small items including baby food jars of 2-stroke oil. (On the subject of storage compartments; another builder cut a door in the headrest under a cushion which was attached with Velcro; I have found the centersection D-cell very handy for small items; and finally, a builder cut a door low in the fuselage side pane to gain access to the area behind the lower seatback. You should be cautious about cutting into panels which may be important for strength)

Next in the litter is the light blue and yellow SN 1215 on the right which was built by Mike Huddleson from Wichita. Mike, a high school woodwork teacher, saw the prototype airframe in early '83 and began construction later that year. When taxi testing was begun in June '85 a crack developed in the centersection due to an inappropriate splice in the spar cap. After repairs were completed, the historic first flight took place Sept. 15, 1985 in Douglas, KS. the traditional shirt tail cutting followed the happy occasion. Since that time, many flights have been taken including a trip to the fly-in August 2nd, 1986 to Gossel KS where Mike and Bus flew together. Mike says beginner's luck brought him first place in the bomb drop contest. His Cuyuna powered Pup cruises at 47 mph at 3/4 throttle and burns 1-3/4 gph of fuel. It required light back pressure on the stick at all speeds

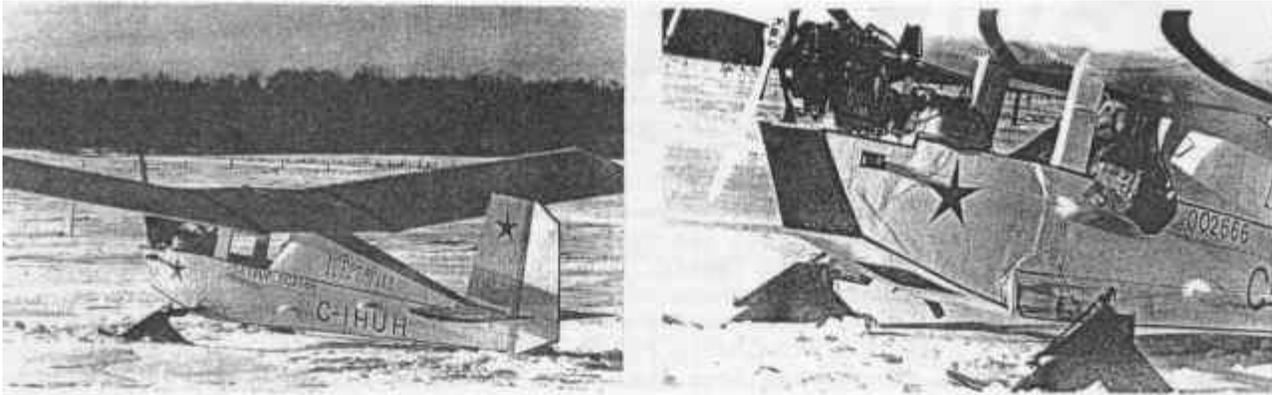
The third Pup completed and flying was built by Paul Whaley from Eldorado KS. I have few details and no photo but this Pup is reportedly finished in J3 Cub colors and is powered by a Kawasaki 340 engine. Though possibly heavier than the Rotax, Bus also plans to try this engine on his Pup to eliminate the vibration inherent with the Rotax. Pup #4 built by Mike Sinclair of Eldorado KS is nearly completed and will have Rotax power. Pup #5 is under construction by Lew Heibert from Hesston KS. Hopefully some day in the future all five Pup will get together for a formation flight. What an incredible sight that would be!

SASKATCHEWAN PUP NEARING COMPLETION



This Pup is being built by Brent Adams of Saskatoon Sask. The fuselage is dark blue with red trim. In addition to the ferocious looking jaws, a bright red tongue is painted under the front of the fuselage. Fabric covering of the wings and engine installation are all that remain. Brent says instead of drilling holes in lab stoppers for the engine mount, #6 bung stoppers from home brewers supply already have a perfect sized hole in them

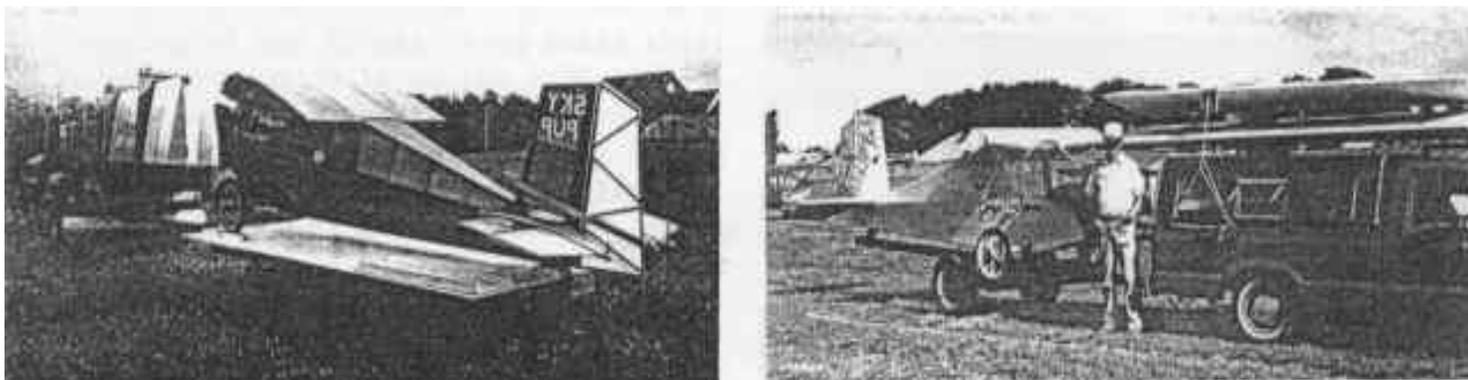
FRESH FISH VIA SKY PUP AIR FREIGHT



Paul Pontois reports he made a visit to Jean-Claude Hivon in La Perade Quebec on Sunday, January 4th. The weather was sunny, calm and only 5 degrees F. When he arrived a ski equipped Mitchell B-10 was turning big circles overhead and the Pup was getting ready to take off. Sky Pup SN 2666 was featured in the previous newsletter. Jean-Claude has mounted skis on his Pup and frequently flies to the frozen St. Lawrence river 5 miles away where ice-fishing is very popular. Like many local residents, they have a fishing cabin set up on the frozen river

The Pup is very convenient for bringing the day's catch back to the farm for supper. Probably the first time a Sky Pup has been used for ice-fishing. Paul spent the day with the Hivons and reports that the Pup handled take-offs and landings beautifully. These folks are definitely a flying family as they have a Sky Pup, two Mitchell wings, and another Pup soon to begin construction all by brothers and cousins. Paul says that when he left, the Sky Pup and Mitchell were still turning around overhead in the orange sky of evening twilight

IDEAS FOR TRAILERING THE SKY PUP



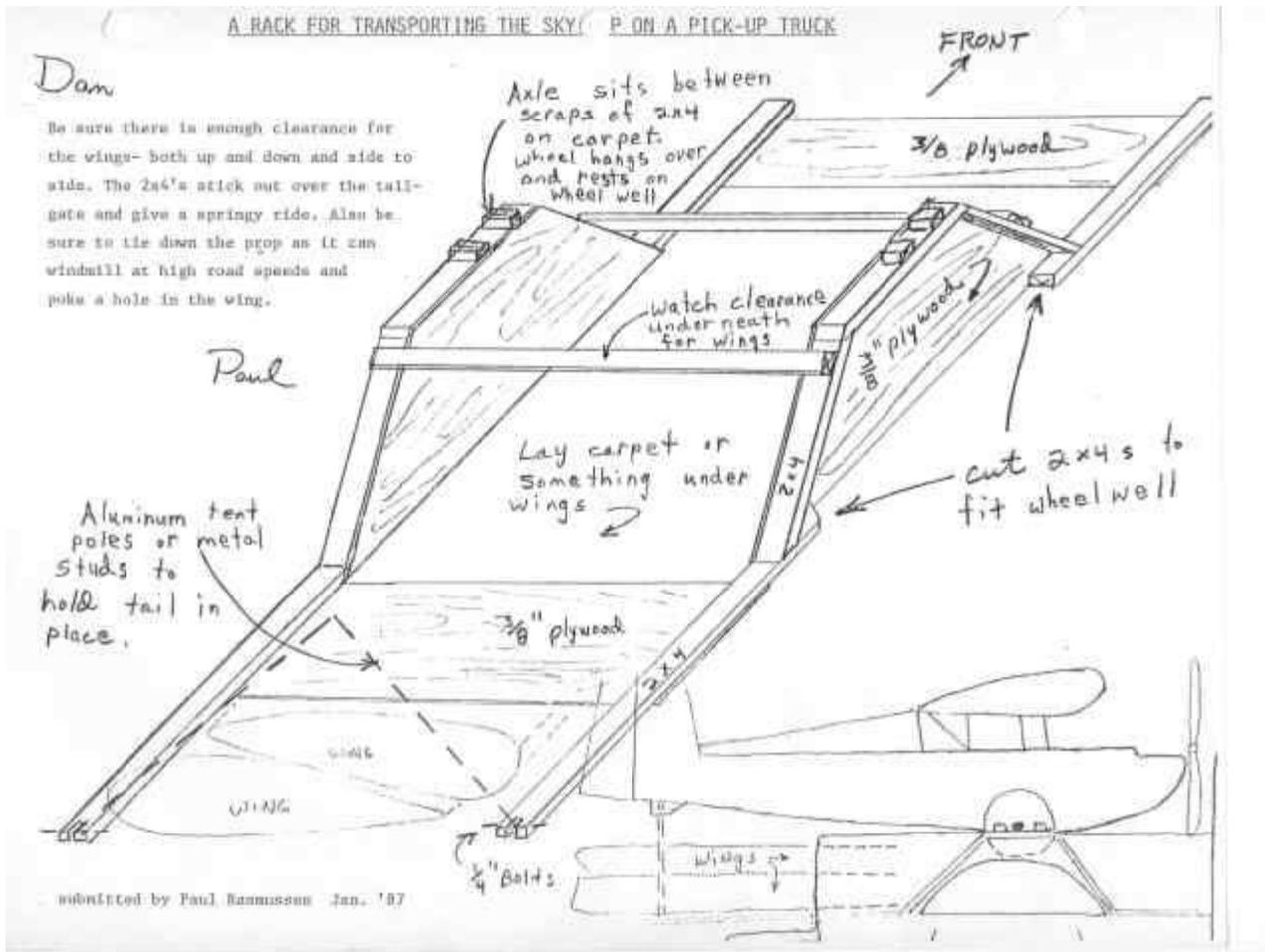
These pictures are presented to encourage you to build a trailer for your own bird. With trailer, you will be able to attend distant airshows and may be more willing to attempt long cross-country flights. Many ultralight pilots are reluctant to leave the home field if they have no way to retrieve the aircraft should it be grounded due to mechanical problems or unexpected bad weather. The photo on the left is from Roy Thomas of Belfast, Maine. Note that thin wood strips are clamped on the tail surfaces to keep them from banging against the stops. A wood and foam cradle secures the wings on the back of the truck. The photo on the right shows the rig used by Gerry Coppock of Escanaba, MI to bring his Pup to the Oshkosh '85 convention

The simple trailer was built up from an old car axle and the wings are bolted on top of the truck. A welded steel arm projects above the cab of the truck and has brackets and holes to match the wing spar attach fittings. At Oshkosh '86 he had a fully enclosed trailer which held the wings above the fuselage and also used the attach fittings as the mounting point. This method seems logical as the fittings are the strongest part of the wing. It might be advisable to use aluminum pins instead of steel to prevent wearing the holes in the fittings on bumpy roads. I have considered a trailer with the wings mounted on the sides but it may have to be almost 8 feet wide! Let's get some trailers built out there so we can have more Sky Pups Flying at Oshkosh this year!

BUILDING TIPS AND MISCELLANEOUS

1. If you have trouble finding Blue Dow foam in your area, Corning pink foam (which is called "Foamular") is reportedly an equivalent substitute.
2. Closed cell foam sleeping pads sold in camping supply stores are excellent for seat padding especially where headroom is a limiting factor. Usually less than one inch thick, one or two layers of this dense foam will provide plenty of cushion.
3. When covering the turtleback with fabric, you will discover that a small piece of foam needs to be fitted around the front fin spar between the aft ends of the stringers to provide a surface for bonding the fabric. It is visible in photos in the construction manual but is not shown in the drawings or mentioned in the text.
4. Builders planning to use the Rotax engine should get a copy of the Rotax installation drawings which are available from Sport Flight. The breadboard dimensions are different and the engine offset is opposite from the Cuyuna if a gear-drive is used.
5. It is important that the four engine breadboard mounting bolts be kept tight. The short steel tube spacer should be clamped firmly between the washers as shown in the plans. Any looseness will add considerable vibration. I always check during preflight to be sure the upper washer cannot be turned with the fingers.
6. In the next issue, we will have an update from Roy Thomas of Belfast, Maine whose Pup has logged 25 hrs of airtime to date. SN 2469 shown below was featured in the April '86 issue.
7. I am pleased to announce that my own Pup SN 2028 won a very nice trophy for "Best Ultralight" at an airshow in Danville, IL on Sept. 14th, 1986

Note: The following sketch was included as an addendum to volume 14 of the Sky Pup News.



submitted by Paul Bannussen Jan. '87

SKY PUP NEWS



Newsletter No. 15

April, 1987

Konig Powered Pup Flying
More Sky Pups Completed and Ready to Fly
Update from Leroy Thomas
Illinois Sky Pup Reunited with Owner
Miscellaneous
Accident Reports
Hinge Cross-section
Rudder Bar Pedal Modification

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Dear Subscriber: Sorry this issue is going out over a month late. Letters and photos have been slow arriving as fewer Pups are taking to the air in late winter and early spring than at any other time. My own tendency to delay work on the newsletter until it is already overdue is also to blame. A majority of subscribers have given no indication of the status of their project. Let' hear from more of you!

KONIG POWERED PUP FLYING





Newton Borden of South Weymouth, Mass. has completed and flown his Pup SN2625 which is powered by a Konig 3-cylinder radial engine. The project was first reported in the Oct. '85 newsletter (No. 9). An experienced pilot, Newton is 63 years old and flew for a local operator everything from crop-dusting to student instruction. He also has some building experience as he previously built a Mitchell wing. The Konig engine swings a direct drive 42 inch ground adjustable prop at 4200 RPM to produce 24 HP. The smooth running lightweight engine has electric start and he has mounted the motorcycle type battery under the engine cowling. He has about 5 hrs on the engine and says the prop really "bites into the air". He may have to move the muffler as it's rather noisy in it's present location. INAV Ltd. of Oshkosh, WI may be the current source for the slightly expensive engine. It has been used in the "Moni" motorglider. SN2625 was covered with zero porosity rip stop Dacron with two coats of clear polyurethane. It has a blue fuselage and orange wings. Empty weight was 212 lbs and the CG came out to 7 inches. A 3.2 gal fuel tank serves as the headrest and an additional tank on the forward deck brings the total to near 5 gal. A steerable tailwheel is mounted on an aluminum leaf spring. This Pup has a very detailed and complete instrument panel and the inside of the cockpit was lined with thin plywood. A wire-spoked wheel was bent on an early hop so he has changed to moped motorcycle wheels, bearings, and brakes which added an additional 12 lbs. A single brake lever is mounted on the stick. There is no provision for differential braking

Newton says his first flight was unplanned as he accidentally became airborne during a fast taxi test. The small diameter prop produced more thrust than was expected. At the time he had no helmet, inadequate fuel, and no seat belt installed in the Pup. It's easy to understand why you should never fast taxi an aircraft that is not completely ready to fly! Turnbuckles must be safety-wired even for engine break-in as they will unwind very quickly due to vibration. Newton plans to be at Oshkosh this year but may have to leave the Pup at home until he can obtain a adequate trailer and tow vehicle

MORE SKY PUPS COMPLETED AND READY TO FLY

Harry Grape of Seattle, Wash. sent photos of his Pup SN2797 prior to fabric cover. The Pup is now completed and may be flying by this time. The engine is a Rotax with Hegar belt drive and 54x24 prop. Harry is a cabinet maker by trade and says that some parts of the project were difficult for him. His photos show a tailwheel aft of the normal skid and a custom fiberglass fuel tank in the centersection D-cell. Fabric covering was a problem as he had previously worked with Stits and had covered a Tailwind and a Mach 07 with no problems. For the polyurethane finish he used "Varathane Ultraplasic Super 102". It is water cleanup, has UV absorbers but is expensive.

Brent Adams of Saskatoon, Sask. reports the first flight of his Pup will be delayed a few weeks due to an unusual incident. His wings have been airborne though the pilot and fuselage did not leave the ground! While transporting the wings to the airport, a gust of wind broke the ropes and blew the wings off the back of his truck. They both reached 30 ft of altitude and easily cleared a passing truck. Damage was limited to the leading edge and crushing of some nose ribs. One leading edge fitting was torn off. The aft wing fabric was not damaged and only the wingtips will have to be recovered

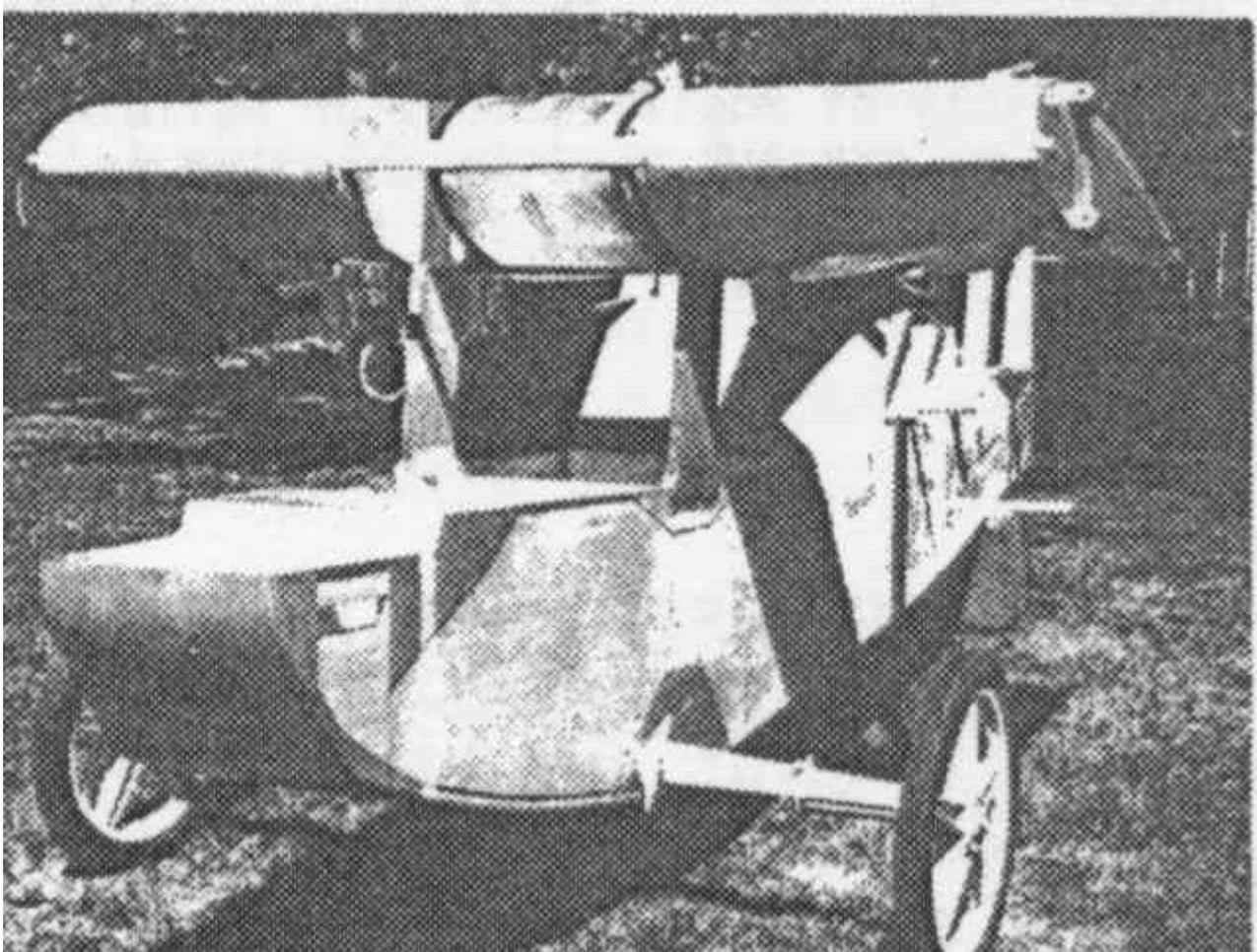
Greg Pardee of Owosso, Mich. writes to say that his Pup, SN2294, is completed and ready to fly. Construction was begun in January '86 with a Wicks materials kit which he recommends highly. The engine is a Rotax with 54x34 prop. He has a problem with oil spray coming from the vent tube of the gear drive. The exhaust system is flex tubing attached to a 3 lb muffle from a small 4-stroke engine. The fabric cover is Stits 1.6 oz Dacron and the finish is 3 coats of yellow polyurethane sprayed on. Only 2 gal were needed for the entire airframe. Empty weight is 208 lbs. The only modification was the lower longeron at the gear axle was double thickened with 1/4x3/4 fir

Francis Sheffield of Lake Placid, NY wrote to say he completed his Pup last year but only has made some low altitude hops so far. The engine is a Zenoah 20HP with belt reduction. custom engine mount was built which raises the engine enough for good ground clearance of the prop. This engine was used extensively on early "Eagle" and "Vector" ultralights and others and should be available on the used market

Paul Rasmussen of Des Moines, Iowa (issue No. 14) reports he has his Pup back into the Air this year with some modifications. He installed a plywood engine cowling and a ballistic chute which together added an additional 20 to 25 lbs. He reported that the added weight had noticeable effect on the flying and landing characteristics. He also felt that the parachute canister mounted above the centersection added a nose-up trim as he had to hold more forward stick in cruise than previously

Other Sky Pup builders known to be ready to fly or already flying include Larry Meyer from Camrose, Alberta, Donald Diggs from Monon, Ind., and Brian Helsapple from Seiad Valley, CA

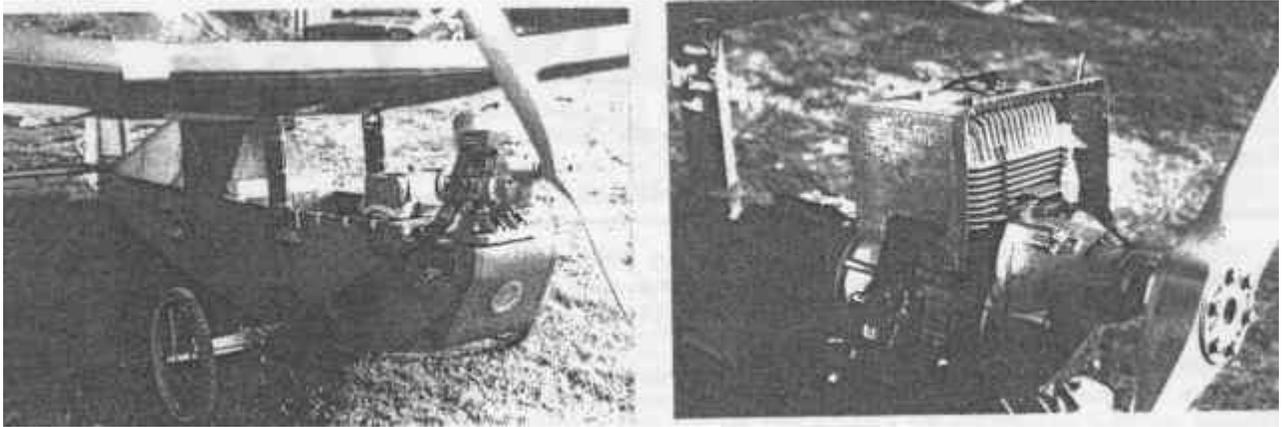
UPDATE FROM LEROY THOMAS



This red, white, and blue Sky Pup from Belfast, Maine was first reported in the April '86 newsletter (No. 11). Leroy says he had a very enjoyable summer with SN2469 until cold weather set in. There was no damage except for a few broken spokes in one of the wire wheels. The initial test flying last year was done by a local licensed pilot as Leroy had no experience or training and says that he is rather heavy. The test pilot weighed 160 lbs and gladly signed a liability waiver (two pages) which was written up by a lawyer. Leroy offered to share a copy of the waiver if anyone is interested. At first the Pup was trailered to the Belfast airport for the initial flights but later the pilot would fly it back and forth from his hayfield to the airport only 8 miles away. Leroy said he would follow in his pickup truck like a mother hen with a CB radio and a can of gas. The Pup has over 25 hrs logged so far and says he enjoys it very much. He has been very satisfied with the 2 gal metal gas can strapped down on the forward deck on a piece of foam padding and a plastic tube sight gauge. The cylinder head temp of the Rotax goes over 400 when climbing (so does mine) so he constructed a cowling around the head to improve cooling. It did not help as much as he expected. He uses Castrol 2-cycle oil at a ratio of 40:1. The

specs call for a 50:1 mix and the oil should be of low carbon content. The extra oil when burned, produces additional heat and this could be a factor in cooling problems. Recently it has been announced that the free-air twin cylinder Rotax engines need a cowling for adequate cooling of the back cylinder. I wonder if it would help also on the single cylinder 277. Also on this subject I have noticed a photo of the new TEAM Hi-Max at Lakeland, FL this spring showed a cowling installed on the cylinder head of their free-air Rotax 277. We need to investigate this subject further

ILLINOIS SKY PUP REUNITED WITH OWNER



Sky Pup SN1834 shown here was built by Allan Mays of Normal, ILL and is powered by Cuyuna 215 with a 2.25:1 belt drive. The colors are blue and gold with black wheels. Over year ago, I saw this photo which had been received by Sport Flight. I was unable to locate the owner and builder. As it turned out, Allan had moved to Arizona for a time leaving his bird in storage in Illinois. He returned to Illinois and has resumed flying his Pup which has 15 hour logged to date. He has made several cross-country flights and his longest flight so far was 1:15 min. Each flight has entailed fitting and removing the wings as it is presently stored in his garage. He has his own 100x1000 ft runway and has recently converted an old machine shed to a hangar so he hopes to get more flying in this year

MISCELLANEOUS

If you plan to attend the Oshkosh convention this year, look for Sky Pup builders to be camped at "Ollie's Birds Eye View" campground just outside the ultralight entrance which is gate #7A (will definitely be there with SN2028). Camping is all around the house and barn which is about 50 ft from the fence around the ultralight area. The rates are very reasonable and space is almost always available. No reservation needed

It is normal for the wing attach bolts to be a very snug fit in the wing fittings. They will loosen up a little with time. I have found that insertion of the bolts is much easier if a thin film of oil such as a silicone lubricant is applied to the bolts

After about 9 months of flying and 40 hrs logged on SN2028, I have discovered several maintenance items which may be of interest:

- * Plywood on the wing attach uprights showed signs showed signs of weathering an mildew. There is a tendency to apply insufficient varnish on vertical surfaces in a attempt to avoid unsightly runs and drips. Erosion from prop blast might be a factor in this location. I noticed Gerry Coppock also had this problem with his Pup

- * The throttle control inner cable had a buildup of rust and corrosion apparently due to rain during occasional outdoor storage. It had been lubricated only once during initial assembly. It had never given any problem but would have eventually stuck throttle "on"

- * Inspection of the aft ends of the control cables showed rust and corrosion of the cadmium plating on the bolts under the stainless steel cable bushings. The bushings were partially stuck on the bolts such that they would not rotate freely. Periodic inspection and lubrication at these points would be advisable. Also, I noticed the bushings tend to slide to one end of the bolts and stay there. I added spacers cut from thick-walled plastic tubing to keep the bushings centered on the bolts.

ACCIDENT REPORTS

Several subscribers have asked that they be informed of any accidents. Their concern is that there might be problems with the airframe or any recurrent problems of pilot error. I can confidently report there have been no problems with Sky Pups which have been properly constructed and flown. I have heard of three accidents which involved pilot error.

Leroy Thomas reported that a builder from Farmington, Maine wrecked his Pup in 1986 while on an early flight. The licensed pilot with 50 hrs. experience was doing short hops from a 3500 ft. runway, At 30 ft. of altitude he noticed he was running out of runway and made a left turn and struck trees near the end of the runway. Both wings were sheared off near the tiedown straps and the cockpit area was badly cracked. The Pup settled down from the treetops and the pilot walked out of the woods unhurt before anyone arrived. Apparently he does not plan to rebuild his Pup as he is now constructing a Pietenpol. The cause of the accident was failure to add power and begin climbing promptly when it became evident there was not enough runway remaining for a landing.

A 61 year old pilot from Clinton Arkansas reported that he suffered a broken foot and other minor injuries and severely damaged his Cuyuna powered Pup in October '86 while on it's first flight. The accident was attributed to pilot error. However, another builder had previously contacted Sport Flight expressing concern about extensive changes and modifications and substitution of materials on this Pup. Poor workmanship was also suspected. According to the pilot, he made a takeoff, climbed to 100 ft. or more, and made two left turns. He then throttled back and the Pup nosed down and impacted the ground from about 100 ft. of altitude. The left wing hit the ground first and was sheared off. The landing gear and bottom of the fuselage was severely damaged. The fuselage was intact aft of the seat area. The prior experience or training of the pilot and the CG of the aircraft were not reported. Presumably power was not added to attempt to slow the descent. The pilot felt the accident was caused by reducing power too much after he leveled off and by erroneous airspeed information. It is my experience that the Sky Pup is quite suitable for beginners with little experience and that an airspeed indicator is not an absolutely mandatory item.

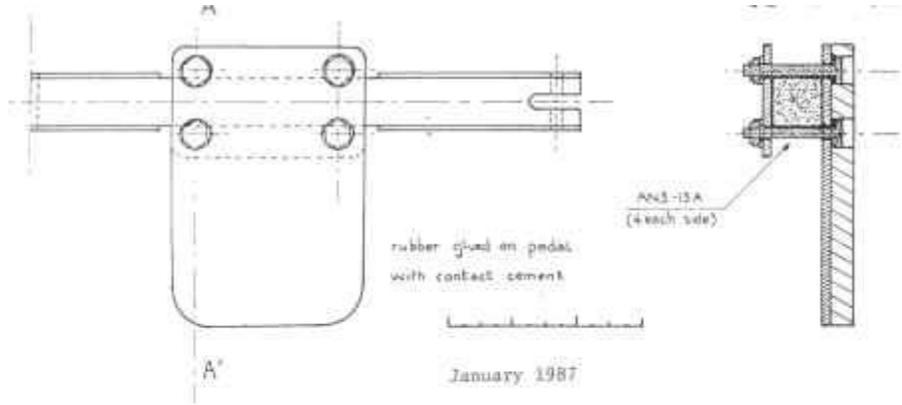
Though the actual cause of the accident may never be known for certain, I feel the most common error for a beginner would be failure to maintain the proper pitch attitude for the specific condition of flight. Normal climb is about the same as the 3-point position on the ground. Cruise is upper longeron approximately level. Normal glide is distinctly nose-down. If you spend a lot of time sitting in the Pup on the ground with the tail down, you may try to keep that attitude while in normal flight. (that is exactly what happened to me). If your bird comes out nose-heavy or your airspeed indicator reads high, you will be tempted to fly nose-high to avoid going too fast. If you then reduce power to land and do not let the nose come down, the Pup will enter a steep mush. The best indication of proper airspeed is a pull back on the stick should raise the nose and produce a slight ballooning upward. If the nose comes up but the sinking feeling increases, your airspeed is too low! Also my advice is to climb to at least 400 ft. of altitude before initiating turns on your first flight and leave some power on for your first few landings.

A third accident I have heard about was apparently a fatality, possibly in 1985, in Canada. A pilot struck power lines on the landing approach from his first flight. Investigators attributed the accident to pilot error. During the investigation they contacted Sport Flight to determine if the aircraft had adequate rudder control travel to have avoided the obstacle. Apparently it did. A reminder to other builders about control surface travel and proper hinge shaping was published in the July '85 newsletter (No. 8). The principle details are shown here for anyone who may have missed it.

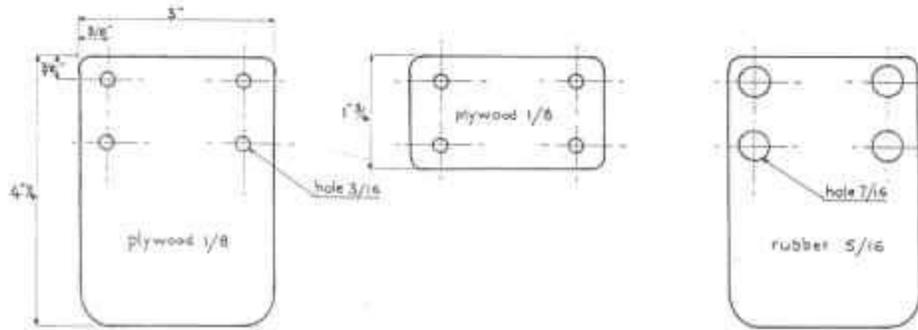
Compiling Editor's's note: The NTSB has one report on the "Storey Sky Pup" of a fatal Sky Pup crash in Florida due to the separation of the wing attachment bracket. This was almost certainly due to faulty building technique. The editor is also aware of a fatal Sky Pup crash in Ohio where witness describe the wings collapsing. The pilot's family burned the plane before it could be examined to determine what caused the crash. BTW this plane had previously made an unplanned water landing in the Ohio River due to an engine out.

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Section AA

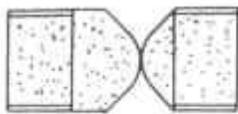
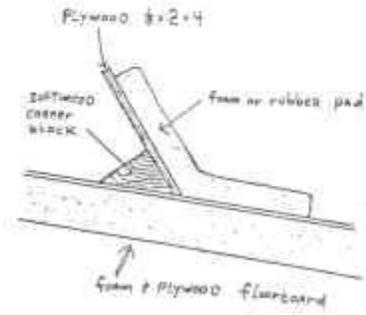


January 1987



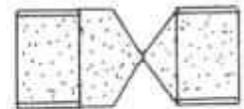
Paul Pontols sent the drawings above which detail the rudder bar foot pads he added to his Pup. He says his feet were slipping and giving unwanted rudder input. Scrap pieces of rubber soles were bonded to the plywood with contact cement to provide cushion.

The sketch at lower right is a side view of heelrests added to my Pup. My long legs and big feet were sliding too far up into the forward fuselage. Two pieces of plywood about 2x4 in. were bonded to the floorboard with corner blocking. The exact position was set by taking a shoe off and holding it up into the best position in the fuselage. Foam padding and/or rubber sheet can be bonded in place to provide cushion if desired.



INCORRECT

TYPICAL HINGE CROSS-SECTIONS



CORRECT

SKY PUP NEWS



Newsletter No. 16

August, 1987

**New York State Pup
Report from Oshkosh '87
Saskatchewan Pup Flying
News from Around the Litter
More News from Around the Litter
Crosswind Landing Tips**

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Dear Subscriber: It's been a busy summer with lots of flying. I had a great time at Oshkosh! This issue is late as usual but most of the news was collected while at the big convention. Be assured you will receive four issues per year even if the schedule is somewhat erratic. I will definitely need more letters and photos from you the pilot and builder before I can start on the next issue. You can always call me and report any interesting ideas, flying stories or construction tips you might have. I can do the writing. The number of subscribers has been steadily increasing so I know you're out there.....

NEW YORK STATE PUP



The Sky Pup shown above has a spotted dog painted on the side of the fuselage and was built by Tom Woods and Ron Jones from the Norwich, NY area. The Pup has been flying for three years. The engine is a twin cylinder opposed OMC 437cc which produces 25 HP. The engine was adapted from an Evinrude snowmobile and is fitted with a homebuilt belt drive. The fuselage is blue and the wings and horizontal tail surfaces are yellow. The Pup was originally flown with a smaller OMC engine of about 15 HP but proved to be underpowered. The total cost to build the Pup was only \$1400. In addition to a fuel tank in the centersection, a wind vane type airspeed, and a steerable tailwheel, this Pup has several interesting and unique modifications. There is no rudder bar! Instead the rudder cables are connected to a jointed stick and are routed inside the fuselage. Also the attachment of the wheels to the landing gear was changed and aluminum fairings are added which streamline the axle and landing gear. Their Pup has a curved plywood cover over the instrument panel on the forward deck. They transport the "spotted dog" in an enclosed trailer with the wings mounted on top. Tom Woods, who lives in Oneonta, NY was at Oshkosh this year but the Sky Pup had to stay home. He reports that there is another Pup in Maryland, NY which is owned by Bert Howland. That Pup is SN1145 which was built by Don Palmer of Schenevus, NY.

REPORT FROM OSHKOSH '87



The photo on the left shows my Pup SN2028 at the big show with no other puppies to keep it company. Gerry Coppock had planned to bring his for the third year in a row but family responsibilities had to come first. It was my pleasure and honor to represent and exhibit the Sky Pup and to meet all the enthusiastic builders and pilots who were there. On any one flight there were 10 times as many spectators as would see it back home over a whole year. The best part was sitting around Gerry's campsite in the evenings for a "bull session" with as many as 5 or 6 builders who are already actively flying. We are a unique group and I couldn't help notice that Sky Pup builders everywhere are just plain folks who share a sense of determination, independence, and a "can do" attitude. Some of us are more eccentric than others. On builder already flying didn't want to give his name or address or have his Pup reported in the newsletter. He said he is a loner.

The group photo on the right was one of several taken during the week. From left to right is: Norman Bang, Dan Grunloh, Gerry Coppock, and Brent Adams. Other builders at Oshkosh this year included: Phillip Bond, Keith Stacy, Francis Scheffield, Newton Borden, Donald Diggs, Tom Wood, Gene Kerns, Tom Hogan, Dana Rauch, Jim Beattie, and Bob Schaeffer. Of the 15 builders I remember, 9 are already flying. My apologies to any one I may have forgotten but it was a very hectic week. According to my logbook I made 11 flights over a 5 day period. The first takeoff was the 99th for my Pup. It was a very proud moment for me. Early in the morning before that flight, a few grains of sand were quietly and ceremoniously sprinkled onto the runway. Similar grains fell to the ground before the first flight at my home field. The small via was filled from the base of the monument on Kill Devil Hill at Kitty Hawk. It's not that I am superstitious, it's more of a tribute to the brothers who started it all. Wouldn't they have been amazed if they could have obtained a set of Sky Pup plans, a raw materials kit, and a good 2-stroke engine back in those days?

Few changes were made to SN2028 since it was reported in newsletter no. 12. A twin strobe light system was installed to allow flying 30 min. after sunset. The kit from Illusion Strobe Co. of Aptos, CA was fairly easy to assemble and works well. One flash head is on the centersection trailing edge, the other is under the axle on a soft aluminum bracket which will bend in case of ground contact. One other addition is a one gal. removable fuel tank which clamps onto the wing attach upright. Originally from an Easy Riser, the tank brings the total capacity to 3.5 gal. for those extra long flights.

Here's some tips if you ever plan to fly at Oshkosh. First have plenty of time in your Pup so you are competent and comfortable with it. When the pattern is to the south, you must make low right hand turn just before landing. If you are accustomed to a left hand pattern, a little practice in advance would be helpful. During the busy weekend periods there might be 30 or more aircraft in the pattern with flying speeds from 25 to 75 mph so you must stay alert. My only problems were with potential conflicts while taxiing. At one point, I could almost see the look of surprise on his face. In contrast the early Monday morning period was almost empty. Had it all to myself. I will always remember the sights and sensations of my first takeoff at Oshkosh. I have been attending the convention since 1981 but had never seen it from the air.

Aerial photos of the site are not the same as seeing it for yourself from the cockpit of your own little airplane. That flight represents the achievement of a goal set 6 years ago. The experience was well worth the effort.

SASKATCHEWAN PUP FLYING



Sky Pup SN2302 built by Brent Adams of Saskatoon, Saskatchewan made it's first flight o June 4th, 1987. See newsletters no. 14 & 15. The wing damage from a trairling accident was repaired fairly quickly and the first flight was delayed only a few weeks. Construction was started in 1984 and Brent says the Pup was his first airplane project. The color is bright blu with red and white trim. Empty weight was 210 lbs with a fan-cooled Rotax 277. The prop is 60x28 Arrowprop with steel leading edge which survived a nose-over with no damage. the prop was removed from his "Beaver" ultralight when the Pup was ready to fly. He says the Pupflies much better and has a more solid "feel" than the Beaver (no doubt this is due to the abundance of nuts and bolts and other hardware connections on the Beaver as compared to the Sky Pup). The CG on his bird came out to 3.5 inches and it flies slightly nose heavy. mount for a Hall airspeed was built into the wing at about the tiedown position. A similar mount for a camera was also added prior to fabric cover. Here's a tip from Brent which is a refinement of the elevator control: if the elevators are adjusted to give about twice as much up elevator as down (as they should be), then at full forward stick the cable to the lower end of the elevator horn may develop some slack. Apparently the effect is due to the uneven geometry o the control movements and has not been a problem on other Pups which have showed this condition. The easy fix is to move the lower elevator cable and bushing up on the elevator horn (towards the hinge) by drilling a new hole. Find the best position by clamping the bushing to the horn temporarily. Brent says this adjustment evens out the cable tension throughout the range of control movements perfectly. He did make it to Oshkosh this year but without SN2302. Hopefully we will see this flashy toothsome Pup at some future convention.

NEWS FROM AROUND THE LITTER

Phillip Bond of Hastings, Mich. is the current owner of the first plans-built Pup to be completed. SN1092 built by Ray Macke was reported in newsletter no. 1. Since acquiring the Pup, he replaced the prop and has had recurring problems with mismatched props and carburetor tuning. The engine is a fan-cooled Rotax 277 with belt reduction. A forced landing in a wheat field when the engine bogged down resulted in a broken gear, another prop ruined, and slight damage to the forward fuselage. Phillip is a certificated pilot and mechanic and has repaired the damage but is considering selling the Pup. If anyone might be interested, write t him at: 4409 Bayne Rd., Hastings, MI 49058.

David Beres formerly of Walla Walla, Wash. writes to say a change of job has forced him to move to Oregon. His Cuyuna powered Pup (SN1941) has accumulated 430 hours of enjoyably flying over four years. See newsletters no. 5 & 12. He is having trouble finding hangar space in the Salem area which is affordable. The high cost and taxes etc. seem to have a depressing effect on all of sport aviation. If anyone knows of ultralight activity or other grass root aviation folks in Oregon, please write to him. Dave says he has thought about possibly selling his Pup. The price would be \$1200 to a good owner. His new address is: Dave Beres, 3837 Portland Rd., Salem, OR 97303

MORE NEWS FROM AROUND THE LITTER

Gene Kerns from Portland, Oregon was one of several Sky Pup builders who I met for the firs time at Oshkosh this year. His Pup is unusual in that the engine is a Honda Odyssey mounted inverted out in front of the fuselage which was shortened somewhat for this purpose. He has shorter legs than most of us. Visibility over the nose is excellent. An engine failure resulted in a tree landing 60 ft above ground but only the fabric covering was damaged. Hopefully we will have more details and a photo in a future issue.

Rick Autry of Autryville, NC (see newsletter no. 6) sold his Pup some time ago and had been thinking of building a low wing version of the Pup. That idea proved impractical and now he wishes he could have his original Pup back. Unfortunately the new owner had wrecked an abandoned SN2176 so he has salvaged some metal and other parts and plans to start again. He is thinking of building a one piece wing which will have 31 ft long spar caps!

Pete Bloss of EAA chapter 564 in Allegan, MI graciously sent me a video tape of their club-built Sky Pup flying with a Lloyd engine and with a Rotax 277 they installed later. See newsletter no. 7 & 8. A unique feature on their Pup is a small nosewheel installed to prevent prop damage in case of a nose-over. Also Newton Borden shot some video of my Pup at Oshkosh s eventually we might build up a collection.

Keith Stacy of Buffalo, IA sent a mockup of the control hinge detail on his Pup SN1892. A ¼ inch diameter wood dowel has been inlayed into the hinge foam at each mating edge. Sandpaper was wrapped around the dowel to make the inlay. The dowel was then taped in place and the hinge was hotwired to the correct shape. This method could save lots of time spent shaping and sanding with very little added weight. At Oshkosh, Keith had photos of hi Pup which showed the fabric covering nearly completed. The colors are blue and white.

CROSSWIND LANDING TIPS

By Dan Grunloh

Having flown Sky Pup SN 2028 for over 60 hours in various wind conditions, I want to pass on some observations. My Pup has a tailskid and I operate mostly from unpaved grass landing strips. Also I have installed smooth tires on the wheels in the hope that they might slide sideways a little on landing if needed. Your Pup may handle differently so the following suggestions should be taken only as personal observations on my part. I had minimal prior experience in 3-axis controlled aircraft and this may have been an advantage when flying the 2-axis Sky Pup. The casual observer might think the Pup has no crosswind potential at all. I think you will be surprised that with proper technique, it can handle more crosswind than some so called 3-axis ultralights.

Briefly, for crosswind landings make a crabbing approach with plenty of airspeed and gently straighten it out just before touchdown. Wheel landings are best and you should keep the tail up and the aircraft rolling straight ahead until it slows down.

The important thing you must have is plenty of airspeed. A faster approach reduces the amount of crab angle needed and gives quicker control responses which may be needed for turbulence near the ground. A faster landing also reduces the amount of drift the landing gear might be exposed to. In a strong 45 degree crosswind the groundspeed will be reduced considerably anyway. Do not “kick out” the crab suddenly or the upwind wing will lift and result in a one-wheel landing. It’s easier than it sounds because there is almost always a noticeable wind gradient very close to the ground. The wind gradient does much of the work for you. Gradually reduce the crab angle as you descend through the gradient in whatever amount is needed to maintain a straight ground track. It all happens fairly quickly but with practice it becomes a smooth natural transition. For me this occurs at about 6 to 10 ft. above ground during the roundout portion of the landing. The actual flare should be very minimal as this is supposed to be a wheel landing. I always leave some power on and if the wings aren’t level or the aircraft isn’t aligned with it’s ground track I have two choices. I can add enough power to fly level and try to straighten it out or I can climb back to pattern altitude and try again.

Now for the most important tip in this whole article. Often during or after touchdown the upwind wing will start to lift and the Pup will start to yaw into the wind while still rolling fast. This usually indicates that you are landing too slow, flaring too much, or letting the tail down too soon. At this point there is a moment of confusion because your learned response is to use the rudder to lower the wing. That action will yaw the Pup even further from it’s direction of travel and place excessive side loads on the gear. Instead, use the rudder to keep the Pup going straight and lower the wing by getting the stick forward and keeping the tail up. This reduces the angle of attack and destroys the extra lift produced by the upwind wing. There isn’t much time to think about it when it happens and the wrong response will make the situation more unpleasant in a hurry. In strong crosswinds the Pup will tend to curve into the wind as you slow down. When possible you can try to land at an angle to the runway to reduce the drift correction needed. On narrow runways I find this difficult so I usually make a straight in approach. Direct 90-degree crosswinds are the hardest. My personal limit is about 10 mph for a direct crosswind and 15 mph for a 45-degree crosswind. On narrow paved runways my limits are lower. Wide runways with no obstacles allow you to land in almost any direction.

For crosswind takeoffs use the same techniques as for landing. Keep the tail high and delay liftoff until both wings are ready to fly. If you takeoff too soon the Pup may sink back to the ground in a drift and damage the gear. If the upwind wing starts to lift in spite of forward stick then let it. Use the rudder to keep it rolling straight ahead and wait a few more seconds until the other wing is ready to fly. As you lift off allow it to crab into the wind and climb straight ahead over the runway. With the ample power provided by the Rotax, my Pup can easily handle more crosswind on takeoff than on landing.

Don’t get the idea that these techniques work perfectly all the time or even most of the time. Many ultralights would not survive the occasional hop, skip, and jump takeoffs and landings I have made in crosswind conditions. Most of the credit goes to the rugged and extremely stable landing gear of the Pup. Its wide gear track, the low overall CG, and reluctance to groundloop, or drag a wingtip, result in very forgiving and tolerant landing characteristics. A traditional ultralight with small diameter wheels on a tricycle gear and a relatively high center of mass seems tricky in comparison to the Sky Pup.

Taxiing the Pup in a strong crosswind is another matter entirely. Because of the generous aft fuselage side area the tendency to “weathervane” into the wind is strong. I have made good landings and takeoffs in crosswind conditions in which I could not safely taxi. Turns at the end of a narrow runway can become impossible in a strong crosswind if the grass is deep or the ground is rough. Sometimes you just have to swallow your pride, climb out, and push it by hand. After all, it’s the flying that really counts.

A steerable tailwheel would probably handle crosswind conditions better. I like the skid because it is rugged, simple, trouble-free, and may help reduce the landing rollout. A tailwheel is needed if your CG is well aft (7 inches or more) as it becomes difficult to lift the tail enough with forward stick for taxi turns. Also realize that as the CG moves aft, the groundlooping tendency will increase. If you do install a steerable tailwheel, please make provisions so that side loads on the tailwheel will not be transferred to the rudder horn or the hinge fabric. A builder at Oshkosh said he is using a swivel tailwheel from a skateboard which he says works fine. Conventional wisdom is that a free swivel tailwheel would be the least stable configuration but it may depend upon the individual pilot, aircraft and operating conditions.

In closing, I do not wish to seem to encourage anyone to attempt difficult crosswind landings. There are times when it can take 3 or 4 landing attempts to get back on the ground when turbulent conditions are a problem. Sometimes you get lucky and the landing attempt occurs at the same time as a lull in the wind. You may have to land in a nearby hayfield or go to an alternate airport if the wind changes or increases during the flight. I do admit to planning cross-country flights based on the wind direction and the runway available at my potential destination. Doesn’t everybody? In actual practice I routinely fly with several high performance ultralights which have far greater crosswind potential due to their full span ailerons. The average ultralight pilot however wisely chooses not to use that potential because of the skill required and for fear of damage to their fragile \$6000 to \$8000 flying machine. For many recreational pilots the trade-off for this largely unused potential is the added concern for stalling and spinning while in slow flight.

Here’s one last tip about crosswind landings. Beware of cold winter days and flat clean terrain when there is little or no wind gradient to diminish the crosswind component. It can be quite a surprise as even light crosswinds are challenging.

I would appreciate very much hearing about your experience.

Good luck, and Have Fun.

(Sky Pup News No. 16)



SKY PUP NEWS



Newsletter No. 17

October, 1987

Sky Pup Rendezvous in Quebec
The Don Palmer Story
Bomber Pilot Flying Again
Air Update from Cecil Boswort
More News from Around the Litter
Miscellaneous
Stick Modification
Tips on Engine Mounts and Vibration

SKY PUP NEWS is a quarterly newsletter for builders of the Sport Flight "Sky Pup". the purpose of the newsletter is to provide for the open exchange of information and to encourag builders to share their experiences of building and flying the Sky Pup. Beginning with thi issue, the newsletter will be written by Sky Pup builders and enthusiasts. Unless specifically stated, all ideas, suggestions and building tips are strictly the opinion of the contributor and have not been approved by Sport Flight Engineering Inc. No warranty is made as to the airworthiness or suitability of modifications or building tips. When in doubt, you should follow the plans as close as possible and contact Sport Flight Engineering if you have questions. SKY PUP NEWS is compiled and distributed by Dan Grunloh...Rt 2, Box 82, Potomac, Illinois, 61865. Subscriptions are \$7.00 for the calendar year (\$10.00 overseas). If you want to talk about the Sky Pup, or about airplanes and homebuilding in general, please feel free to call m at (217) 569-2121 late evenings. Please keep sending your letters and photos.

SKY PUP RENDEZVOUS IN QUEBEC





This is the story of three Sky Pup builders: Paul Pontois (SN2236 newsletter no. 13), Regi Castonguay (SN1307 newsletter no. 5), and Jean-Claude Hivon (SN2666 newsletter no. 13), who decided to meet and fly together on Sunday, September 16, 1987. Regis, who was the first to fly a Sky Pup in Canada, lives in Rinouski which is 300 miles from the Louisville area where Paul lives. He decided to trailer his Pup to Jean-Claude's farm in La Perade, which is only 70 mile from Louisville. From there he and Jean-Claude would fly to Louisville and visit Paul. On Saturday, Regis towed his Pup to La Perade which gave the two families the opportunity to visit and make acquaintances. After mounting the wings on Regis's Pup, the two friends flew around Jean-Claude's farm landing strip. Unfortunately, there was a strong crosswind and Jean-Claude damaged his landing gear. Only one Pup would make the trip to Louisville! On Sunday morning, Regis took off followed by Jean-Claude and his brother in a 2-seat Beaver ultralight, and by the family following by car. There was a 15 mph headwind so the trip took almost 2 hours. Paul says it was nice to see Regis again because it was the experience of seeing Regis' first flight 3 years ago that motivated him to build his own Pup. (Incidentally, I just received letter from another Canadian builder, Andre St-Pierre, who decided to build a Sky Pup after seeing Paul fly.) After a family picnic (13 persons), and in spite of the wind gusting up to 20 mph, Regis and Paul flew together around the small city. The first known photo of 2 Pup flying together is reproduced on the back page (address side) of this newsletter. The photo above shows Regis comparing his Kawasaki to Paul's Rotax. The return trip to La Perade took only one hour as they now had a strong tailwind. Paul says the Sky Pup is very popular in Quebec. In addition to these 3 Pups, there are 4 more under construction or nearing completion.

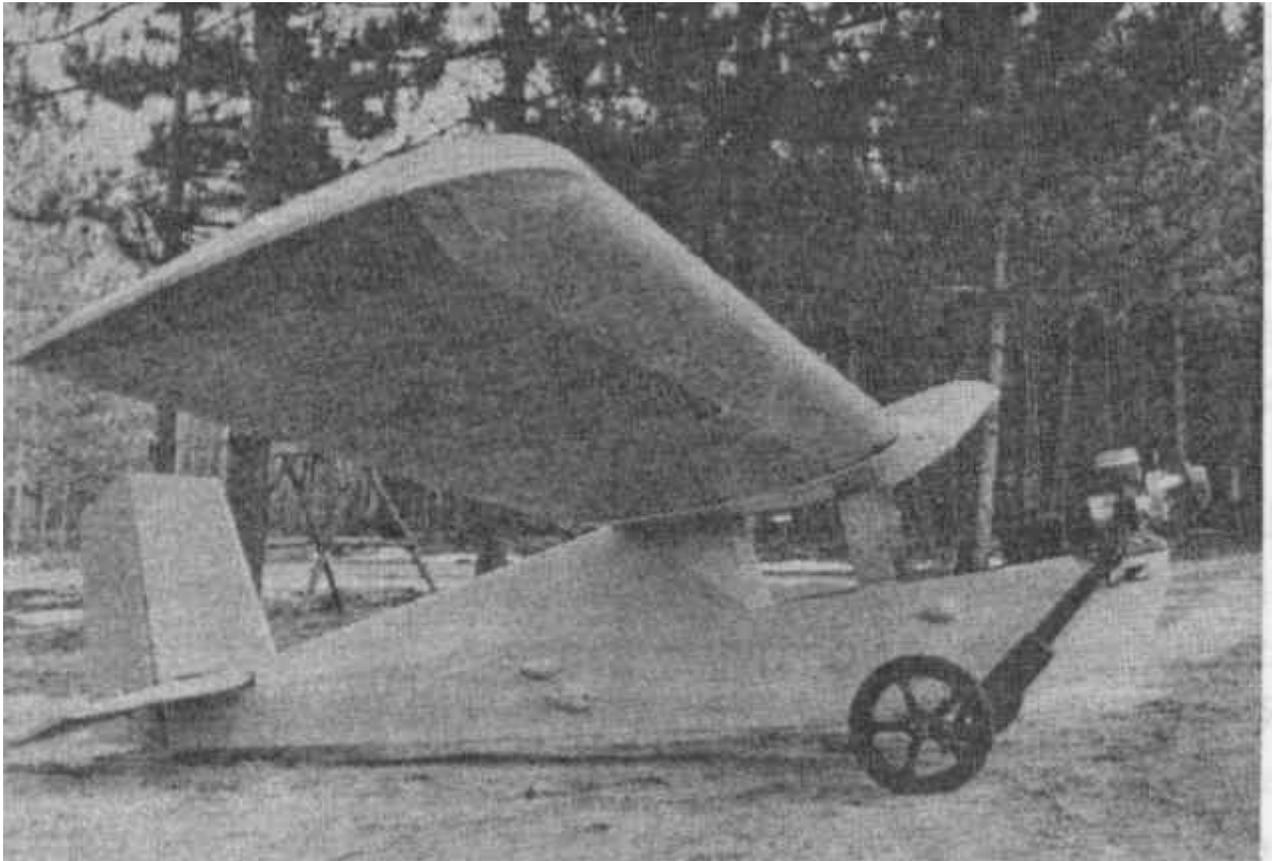
THE DON PALMER STORY

The previous newsletter reported that Sky Pup SN1145 owned by Burt Howland was flying in Maryland, NY. No details were available, but the builder was known to be Don Palmer of Schenevus, NY. I recently received a letter and photos from Don which provide additional details. SN1145 is yellow and white with a red nose and is Cuyuna powered. Mr. Howland, the current owner, was a former Navy test pilot and engineer. He also owned a Grumman Bearcat and a Cessna UC-78 twin. Since acquiring the Pup, he has built two original ultralight designs; a low wing and a biplane. The real story, however is about Don Palmer. Besides the Sky Pup, he has built three homebuilts and rebuilt four regular aircraft. After selling Sky Pup #1 to his good friend Mr. Howland, he started on another Sky Pup. Before it was actually completed, it was sold in kit form. He lost track of the buyer and has never heard if the Pup was actually completed and flown. Don says this last winter the old bug got to him again and yes, Pup #3 was started. He says he doesn't work anymore and is always building parts, etc for someone. Don wants to sell the partially completed airframe and materials kit for Pup #3. The tail unit is ready to cover with hardware in place. The engine mount and all steel and aluminum part are complete. Fir spar caps, fuselage wood, bearing blocks, and hardwood parts have all been cut. He has full size templates for the fuselage sides and wing ribs. The complete package with some plywood gussets, a bolt of fabric, and the plans and construction manual is for sale for \$495.00. If you are interested, write to: Don Palmer, RD #1 Box 206, Schenevus, NY 12155.

Don sent a number of interesting building tips and ideas for modifications:

1. Mix aluminum powder in your polyurethane and paint all exposed foam for ultraviolet protection. When all foam has two coats, you can apply your covering with standard aircraft cement, which saves time.
2. Use Ceconite 7600 covering since it will not sag in cool, wet weather.
3. He used solid "popcorn" foam to shape the forward wingtip compartment because he had trouble with the fabric covering on the oval tip. He suggested eliminating the wingtip bows and using a flat wingtip faced with .8 plywood.
4. Install two 5-quart plastic fuel cans from K-mart on each side of the fuselage behind the main spar with an on-off valve on the instrument panel.

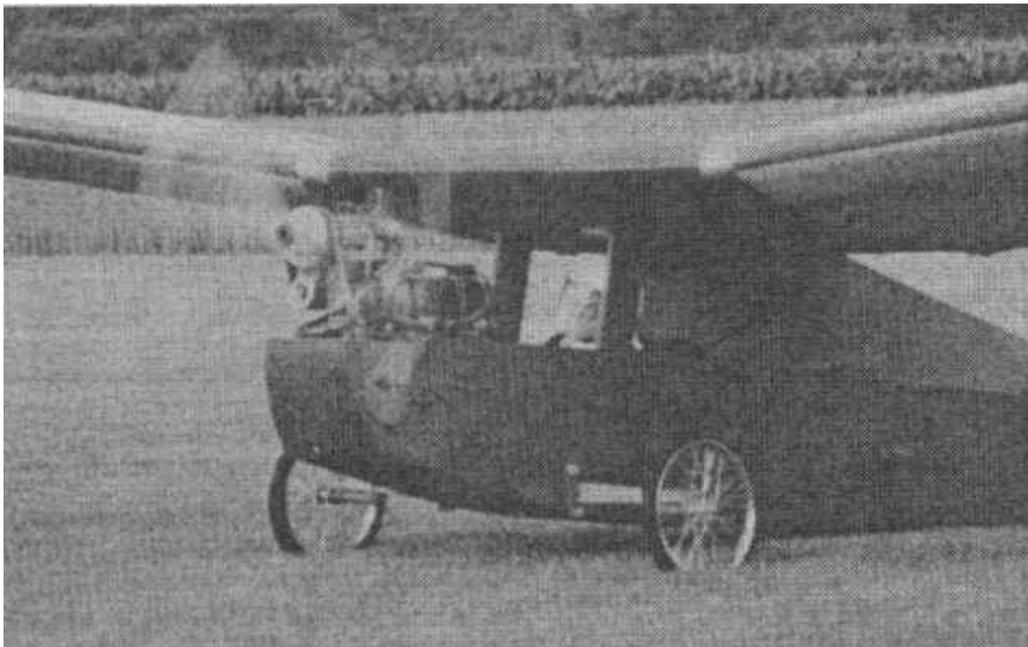
BOMBER PILOT FLYING AGAIN



This Pup was built by Raymond Maynard of Traverse City, Michigan. The colors are blue and orange with black wheels. The engine is a Rotax 277 with a Culver 60x28 propeller. The empty weight is 225 lbs. Douglas Fir was used throughout the airframe and the finish is acrylic latex paint instead of varnish. Ray was a bomber pilot in WW-II. He flew 30 combat missions in a B-24 with the 8th Air Force. He says he will be 64 years old in November and that it feels great to be flying again after 42 years. The Pup flew just fine with no surprises or disappointments.

(Edwin's note: I spoke with Raymond's wife today, July 18, 2003, and he and two of his sons are going for a ride in a B-24 on Sunday July 18. The B-24 will be in the Traverse City, MI area for a week. Raymond sold his Pup and lost track of it.)

Update from Cecil Bosworth



The photo at left is from Cecil Bosworth of Charlotte, Michigan. See newsletter no. 11 (April '86). He has been flying his blue and yellow Lloyd powered Pup for three years. Though he has some early problems, he has worked them out and now the Pup flies hands-off. Cecil is an old time pilot, mechanic, CFI, and former manager of the Fitch Beach Airport, Charlotte, Michigan. He is one of the many Sky Pup builders who has been grounded from flying regular aircraft due to the medical requirement. Cecil says he was at Oshkosh this year, but too early to see my Pup or talk with the other builders.

MORE NEWS FROM AROUND THE LITTER

Greg Pardee of Owosso, Michigan (newsletter no. 15) phoned to say he has completed and flown his Pup which now has 6 hours on it. He installed a cowling on the cylinder head of the Rotax 277 for better cooling. The prop turns 6100 RPM with a homemade exhaust system which weighs only 3 lbs. The Pup flies nose-heavy with a CG of 7 inches and the stab adjusted. He installed a rudder trim tab and is currently flying with a tailskid as shown in the plans. Greg says the Pup feels very solid compared to his Quicksilver MX.

A.R. Clements from Sechelt, BC Canada, reports that his Sky Pup is completed and nearly ready to fly. He says the Rotax engine cost more than the complete airframe. The prop is 58x24 and the reduction ratio is 2.58 so he may need more pitch. (The standard prop for this combination is 60x28). His Pup was painted to have yellow-orange wings and tail, and a light green fuselage and rudder. Total building time was 500 hours. He also built a fully enclosed trailer on a Honda car rear axle. Mr. Clements reports he is having difficulty obtaining permission to fly at his local airport. Though the airport is uncontrolled, the management requires that all aircraft be equipped with a radio. He also says the required ultralight license in Canada costs \$600 with instruction. The engine has been broken in and he hopes to have the red tape cleared away so he can be flying soon.

Konig powered Pup for sale. Newton Borden writes that he is thinking of selling his Pup SN 2625 (see newsletter no. 9 & 15). He has about 15 hours on the Pup and enjoys it very much. Newton let a friend who owns a Long-EZ fly the Pup and his friend said it was the most fun flying he had ever had. He wants to sell it because he would like to start another project (Fisher 404) but doesn't have room for both of them. The engine runs fine and burns about 1.5 gal. per hour. Cruise is 55 MPH and he has a 3 hour range with a 20 minute reserve. The Konig engine has very little vibration and features electric start. (The Konig and KFM engines require electric start because hand-propping or a recoil starter will not spin the engine fast enough to fire the plugs). Newton says that one day he felt some pretty good updrafts and his rate-of climb indicator was showing 700 FMP so he shut down the engine and did some soaring. This Pup is especially suited for power-off flying because you can restart the engine at the push of button. The asking price for SN 2625 is \$3500. That may seem a little steep, but the Konig engine is quite expensive and the Pup has a very complete instrument panel. Photos of the Pup show excellent workmanship. If you are interested write to: Newton Borden, 11 Rainbow Lane, South Weymouth, MA 02190. (phone 617-335-2399).

MISCELLANEOUS

Neil Huizenga of Grandville, Michigan is now the proud owner of Sky Pup SN 1092. This bird was the first plans-built Pup to be completed. The original builder was Ray Macke and the previous owner was Phillip Bond (see newsletter no. 16). Neil says he has always wanted something like this since he was a kid and built model airplanes. He soloed in a Cessna 150 about 13 years ago and accumulated 25 hours of flying time. He also completed A&P aircraft mechanic training in the early 80's. Neil says he has taxied and hopped the Pup for probably more than 2 hours but has not yet been over 15 feet above ground. Unfortunately, he got into hurry when turning around at the end of the runway in deep grass and dug the prop into the ground. The engine was at idle so the tips of the prop were only slightly damaged.

Several builders have reported difficulty with the fabric covering on the wheels. Apparently, the wheel contracts slightly when the tire is inflated resulting in wrinkles and slack in the fabric. If the fabric is shrunk and varnished after the tire is inflated, much better results are achieved. However, if you have a flat tire or otherwise deflate the tire, the rim expands slightly and may then pop or tear the fabric loose. Plastic wheels may be worse but the effect has also been reported with metal-spoked wheels.

While at Oshkosh this year, I mentioned to one of the other builders that the lower wing fabric bay which has the cutout for the tiedown strap seems to bulge upward slightly while in flight. had assumed it was due to slack in the fabric. He reported that it can easily be cured by sealing off the hole better. The effect is actually due to a partial vacuum inside the wing bay caused by the airstream rushing by the hole. Sure enough, when I closed over the cutout temporarily with tape, the upward bulge disappeared. I can't remember who it was, but "Thanks for the tip".

SOME TIPS ON ENGINE MOUNTS AND VIBRATION

Here's some information about engine mounts obtained from Ron Schettler at the Rotax forum at Oshkosh '87. Anyone considering designing their own aircraft or making changes to the Sky Pup engine mount should consider the following facts. An engine mount which is too soft or too loose may absorb vibration well but may also absorb power which should be going to the prop. Most of the power produced by the engine is delivered during a very short time in the engine cycle. If the engine is free to move the opposite direction of the prop during that short pulse, a considerable amount of power can be lost. Mr. Schettler cited a specific example where the static thrust of a well-known ultralight was increased from 180 lbs. to 220 lbs. just by moving the engine mounts farther apart. Nothing else was changed. The entire problem is very complicated and includes the "softness", rebound time, spacing of the mounts and engine RPM. It's largely a matter of trial and error to find the best combination. The best approach is to stick with a mount which has been proven to work well. After attending the forum, it was interesting to inspect the engine mounts of the various ultralights at the convention and to note their takeoff and climb performance. The correlation was amazing. Certain ultralights which are known for

their sluggish performance have very nice soft mounts which absorb vibration very well. Their owners often end up adding larger engines to get the needed power. It seems that everything in aviation and aircraft design involves a compromise.

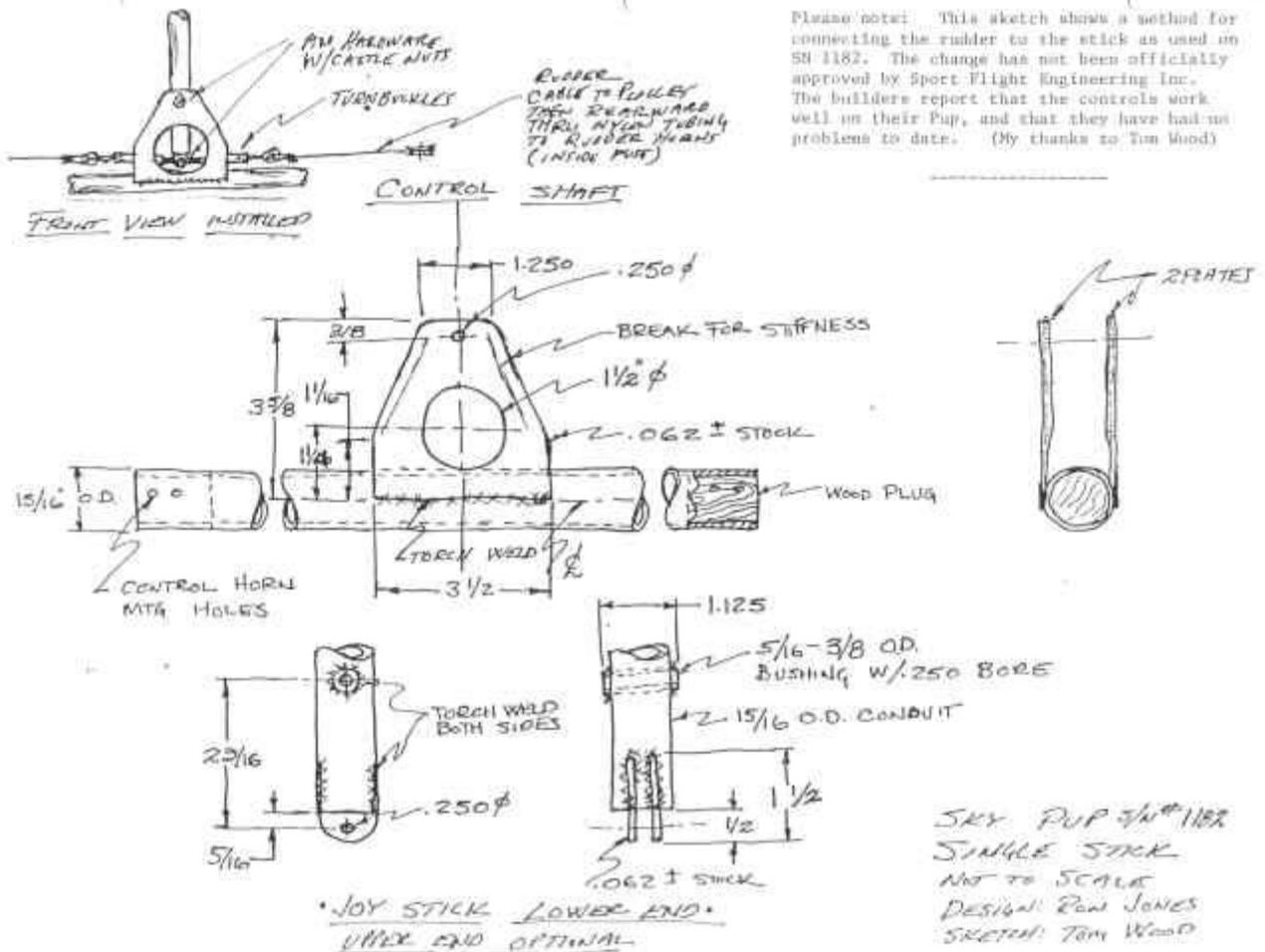
In an attempt to reduce vibration on my Rotax powered Pup, I made a small change. In place of the black rubber stoppers, I used white pure gum stoppers which are softer and more resilient. They seem to help and I haven't noticed a reduction in power. So far, I have about 50 hours on the first set. If anyone is interested, I can supply them at the wholesale price of .45 each or \$5.00 per dozen.

One final note. I recently mounted a different propeller on my Pup which is much lighter than the original Rotax prop. The Jeco prop from a Rotax 277 powered Eipper GT has a thinner hub and less blade area but the same diameter and pitch. The reduction in the mass of the wood which must be accelerated with each power pulse seems to have tamed the vibration a little more.

Just recently, I was quite relieved to have my first forced landing in my Sky Pup. The Rotax had been running perfectly for almost two years and 80 hours of flying without a single burp. The problem turned out to be worn carburetor float guides which caused them to stick and flood the carburetor and engine. Raw fuel was spraying in my face from the carburetor vent tubes and the engine would not run above 4000 RPM... not quite enough to maintain altitude. A precautionary landing in an open field was the best choice as I was still several miles from the airport, and it was almost dark. Examination of the floats showed that the aluminum inserts in the float guide holes were worn thin. The brass guide pins mounted in the float bowl were also noticeably worn. Though it was not obvious that the floats might stick, they apparently could wobble enough to become jammed. I presume the ultimate cause of the wear is engine vibration. (A complete carburetor float bowl kit is available from Rotax distributors.) Before replacing the parts, I tried to get the problem to repeat itself while on the ground. I was unsuccessful even after propping the tail up to cruise attitude. Hopefully, this experience will help motivate me to always have that emergency landing spot in sight.

(newsletter no. 17)

STICK MODIFICATION



Please note: This sketch shows a method for connecting the rudder to the stick as used on SN 1182. The change has not been officially approved by Sport Flight Engineering Inc. The builders report that the controls work well on their Pup, and that they have had no problems to date. (My thanks to Tom Wood)

SKY PUP NEWS



Newsletter No. 18

January, 1988

California Sky Pup Ready!
Wright-Patterson Pup for Sons
Canadian Pup Flying in British Columbia
Another Sky Pup from the Michigan Litter
Some Tips On Color Selection
Miscellaneous
Brakes on "La Tulipe"
Highly Modified Pup with Ailerons

SKY PUP NEWS is a quarterly newsletter for builders of the Sport Flight "Sky Pup". the purpose of the newsletter is to provide for the open exchange of information and to encourage builders to share their experiences of building and flying the Sky Pup. Beginning with this issue, the newsletter will be written by Sky Pup builders and enthusiasts. Unless specifically stated, all ideas, suggestions and building tips are strictly the opinion of the contributor and have not been approved by Sport Flight Engineering Inc. No warranty is made as to the airworthiness or suitability of modifications or building tips. When in doubt, you should follow the plans as close as possible and contact Sport Flight Engineering if you have questions. SKY PUP NEWS is compiled and distributed by Dan Grunloh... Rt 2, Box 82, Potomac, Illinois, 61865. Subscriptions are \$7.00 for the calendar year (\$10.00 overseas). If you want to talk about the Sky Pup, or about airplanes and homebuilding in general, please feel free to call me at (217) 569-2121 late evenings. Please keep sending your letters and photos.

CALIFORNIA SKY PUP READY!

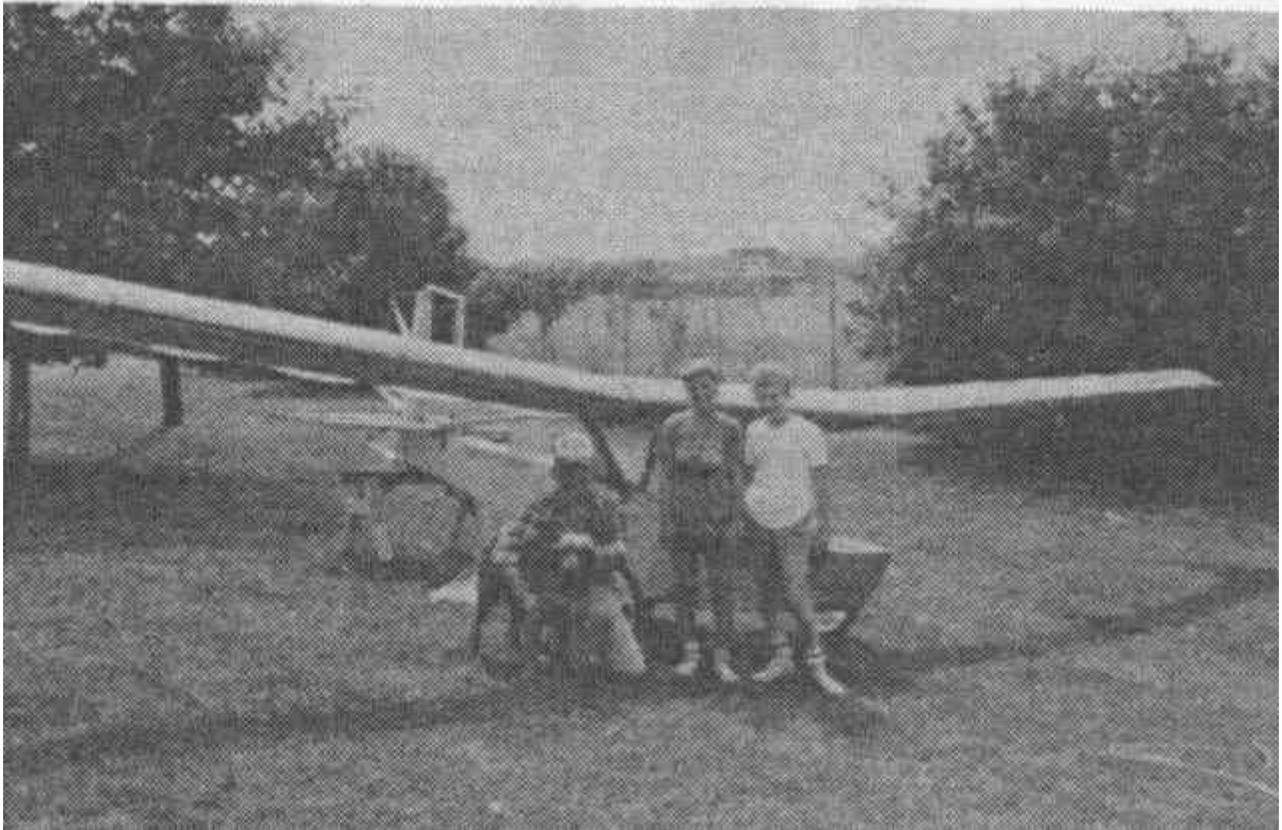


Shown above is the yellow Sky Pup built by Brian Helsaple from Seiad Valley, CA. The engine is a highly modified 1969 Rotax 377 opposed twin cylinder. The bulky air cooling shroud and flywheel were drastically remodeled with a hacksaw and file. Cylinder heads were no longer available so two Yamaha heads were modified to fit. Also, no parts were available for the pull starter so he fabricated

his own which involved lots more modifications. The result is beautiful horizontal opposed twin-cylinder (2-stroke), with custom made tuned exhaust. The fuselage was widened 10 inches due to his original intention of taking his nephews and nieces for a ride. He now recognizes that idea is illegal and unwise and won't be considered for the Pup anymore. Since no 3/4 inch foam was available, one inch was used throughout. Add to that the fat wheels and tires, and the empty weight comes out to 234 lbs. Total construction time for the airframe was about 240 hrs but much additional time was spent modifying the engine.

Brian taxied the Pup for two days and felt confident until he chopped the power and the Pup headed for the oat field (he was concerned about setting it on fire). A week later, fire did break out in the surrounding forest. It was 60 days of smoke and many t-shirts later that the winter rains came. Another drawback of his runway involves the bald eagle. He lives in a beautiful scenic area which has a sanctuary closed to all human activity from January to July. The nearby nest site is the only one in western California. He can take-off but must carefully avoid the area as do the loggers and miners. Brian says the Pup is ready to fly and he has considered trailering the Pup down 65 miles of difficult roads to a seldom used commercial airstrip in Montague. He wants to fly it real bad!

WRIGHT-PATTERSON PUP FOR SONS



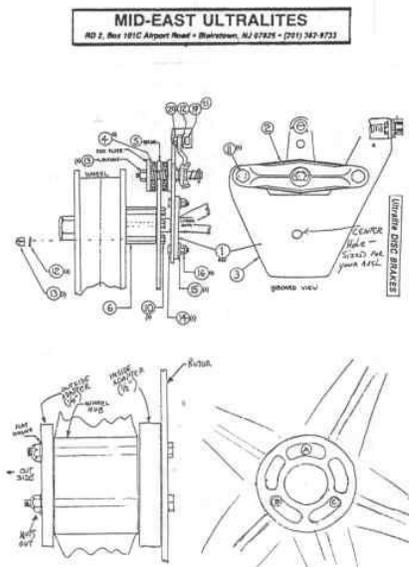
The photo above shows Sky Pup SN3071 being built by Capt. Stan Duncan USAF (Dayton, OH) and his two sons Dane (14) and Shad (13). The dog's name is Nicki. The only items are to cover the wings, the control system, and the fuel tank. They are presently looking for used powerpack. Stan says he chose the Pup because of its low cost, and because it's a good safe design. With a large family, and two sons who want to fly, a low cost design was the driving consideration. He began with the idea the Dane and Shad would do much of the work (with his help). However, he got so involved, it became his project. He says he is looking for a place to get dual ultralight instructions for the two boys. Their project is being built in a very small garage which has no power, heat, or light. Hence, they have shut down for the winter until the days get longer, and the weather warms up. Stan is a private pilot with many hours in taildraggers, and has restored a 1946 Cessna 120 which was sold a year ago. His second love is antique automobiles, and he is currently restoring a 1942 Chevy Roadmaster pickup. Capt. Duncan is currently stationed at Wright-Patterson AFB where he works as a development engineer in the Flight Equipment Branch of the Aeronautical Systems Division. Translated, that means he works on things like the landing gear, fuel system, brakes, and airborne environmental controls. Sky Pups are a lot simpler.

CANADIAN PUP FLYING IN BRITISH COLUMBIA



A.R. Clements from Sechelt B.C. sent this photo of his green and yellow Rotax powered Pup which made its first flight in September 1987. Early details were reported in issue no. 17. the project was started in November '86 and completed in June '87. He has 7 hrs. logged to date. He hadn't flown for 2-1/2 years and that was only a 6 hour instruction course. For the first flights, he trailed the bird to an ultralight field in farm country (no trees) and found the camaraderie and enthusiasm much greater than at the regular airplane clubs. He was amazed how delightfully the Pup lands; perfectly every time. It's easy to fly and will take off in four seconds, but he doesn't know the climb rate because the Pup has no instruments. Mr. Clements is 60 years old and has wanted to fly all his life. For now he is content to fly in circles at low power. According to rumor, there is another Sky Pup nearing completion somewhere in his area. In closing, he asks the question: could cold and heat affect the laminations in the airframe? (My own Pup was stored during construction, and after completion at temps from -20 to 100 degrees F with no problem. Reportedly, wood and foam have similar rates of thermal expansion. The real enemy is moisture! Wood to wood bonds could definitely be affected, depending on the type of wood, and the grain orientation. One builder has reported that his hardwood tailskid delaminated.)

DISC BRAKES ON "LA TULIPE"

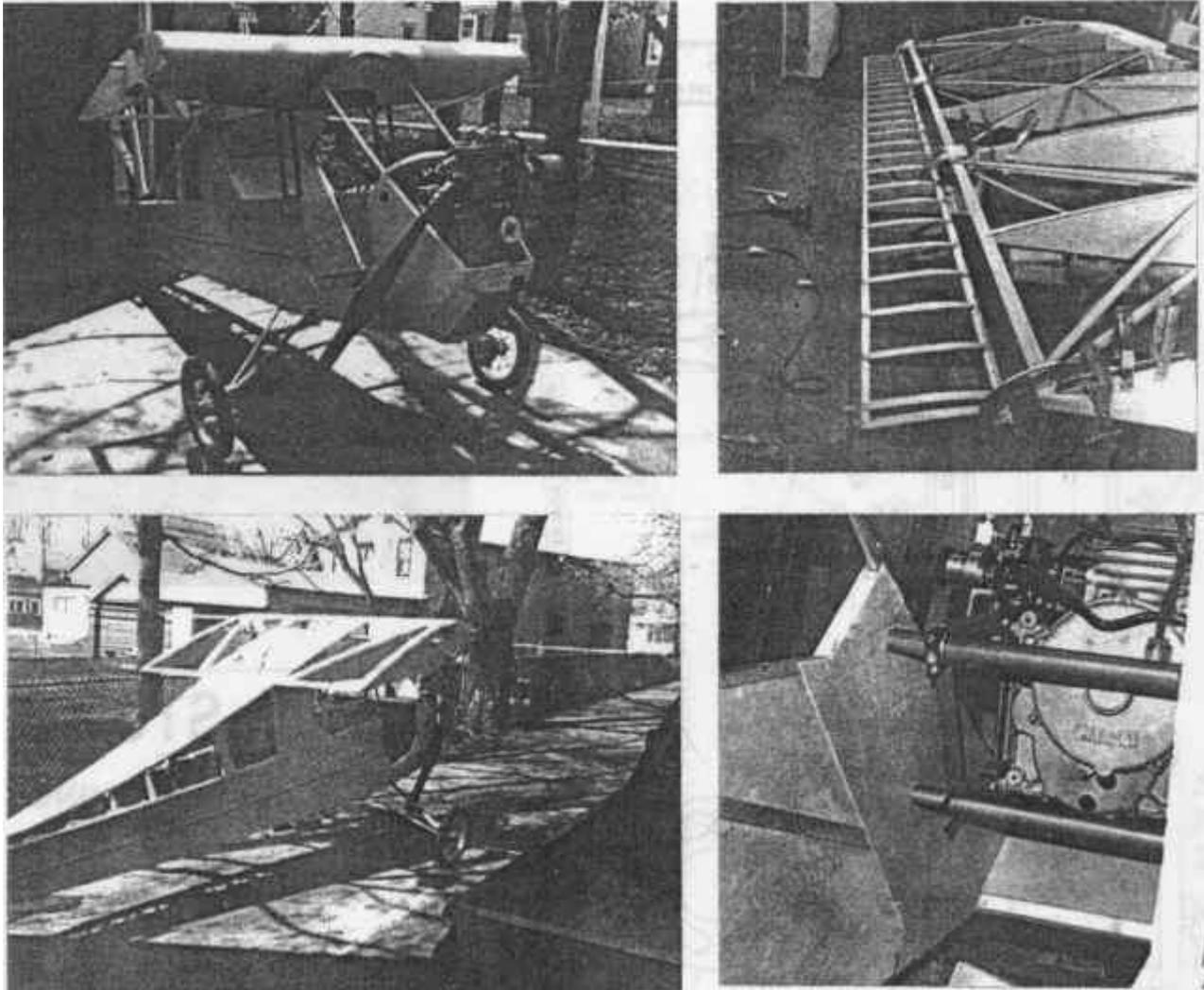


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 (717) 421-8900
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Paul Pontois sent details of the disc brake installation on his Pup SN 2236 (see newsletters no. 12 & 13). The kit disc costs about \$200 and adds about 6 lbs. The installation requires a change to a solid stub axle and wheel bearings which will add a couple more lbs. The brake system can be fitted to almost any wheel. On the plastic 20 inch wheels, the rotor is attached to the wheel with bolts through the holes around the center hub. Paul mounted two brake levers on the left side near the throttle. The original levers were too heavy so he substituted bicycle brake levers. (See photo below.) The levers can be pulled individually for directional control or together to reduce the landing rollout. He says the location of the levers is very convenient and that after some time you learn to do it without thinking. The installation instructions were very complete and I'm sure Paul would be glad to answer any questions you might have.

Paul, who has been a frequent contributor to Sky Pup News, says he has moved from Quebec to Calgary, Alberta. His employer is starting a new factory so he moved his entire household, including the Pup, clear across the continent. Apparently the moving van took a loss on the Sky Pup because they quoted their price on the basis of weight. Paul has a 10 acre landing strip near his new house but will have to build a hangar. Paul's new address is: RR #1 Box #4 Okotoks, Alberta, TOL-1TO.

HIGHLY MODIFIED PUP WITH AILERONS



Robert Bryan of Saratoga, N.Y. sent construction photos of SN 1936 which he recently bought from the original builder, Gary Loucks of Bath, N.Y. The aircraft is completed and has been flown 70 hours over two years by the original builder. Gary has since completed, and is flying, a Hummel Bird with a Global engine. This Pup has many major modifications. Full span ailerons were added along with diagonal wing bracing and all the related hardware. The fuel tank is in the wing and the control stick is mounted overhead. Because the dihedral was not reduced, the effect of the ailerons is said to be minimal. The engine is a water-cooled Hiro 2-stroke with built in gear drive and the radiator is mounted in the nose. The engine mount and forward fuselage (with side door) is completely different.

These photos are not presented to encourage you to consider changes to the design! The Sky Pup is unique among ultralights in that it is very well designed with respect to its goals which are simple, low cost construction, combined with excellent performance and a rugged low maintenance airframe. Every detail was chosen after very careful consideration. Any changes will likely compromise some of the design goals. Instead, SN1936 serves to demonstrate the versatility of the wood and foam construction method. If someone wanted to spend the time and money on the appropriate engineering analysis, various configurations could obviously be built with wood and foam.

ANOTHER SKY PUP FROM THE MICHIGAN LITTER



Sky Pup SN2294 built by Greg Pardee from Owosso, MI is the 5th Pup from Michigan to be reported in this newsletter (see newsletters no. 15 and 17 for preliminary details). This bright yellow Rotax powered Pup made its first flight on June 15, 1987, at the Owosso Community Airport. A group of friends and relatives were present and the first flight was recorded with video camera. Greg says that building and flying the Sky Pup was a very rewarding experience. The Pup took about 300 hours to build, and cost about \$2200. The covering is 1.6 oz. Dacron painted with yellow polyurethane (sprayed on). A 2.5 gal. gas tank is mounted overhead, rear of the main spar, and enclosed in a fuel proof box in case of a leak. The wheels are modified 16 inch wheelbarrow tires with aluminum covers painted to match the rest of the plane. With a 54x34 prop he doesn't have a clearance problem. The fuselage at the landing gear was reinforced with 1/4 inch Fir. He has installed a simple shroud on the cylinder head which brings the temps down to the 340-350 range at cruise (which is 4900 RPM). This winter he plans to add a small windshield. If you add Ray Macke's Pup, now owned by Phillip Bond from Hastings, MI (newsletter no. 16), there are now at least six Sky Pups flying in Michigan which could get together for a formation flight. Michigan is still the "Land of the Sky Pup" with Kansas running a close second.

SOME TIPS ON COLOR SELECTION

I would like to offer some advice about color selection for the Sky Pup, and all aircraft in general. The importance of color, for visibility to other aircraft, became very obvious while I was flying at Oshkosh in 1987. There was a light blue biplane in the pattern which would sometimes disappear, even though I was looking straight at it. It desperately needed some stripes or trim to make it more visible. Light colors are generally better, but for best results the aircraft should be of two contrasting colors. Dark colors may tend to heat up the airframe when the plane is parked outside in summer. If your aircraft will be a solid color, please consider adding some contrasting stripes which should be wide enough to be seen from considerable distance. Polyurethane enamel is best if you are using the clear varnish on pre-colored fabric, as on the prototype. If visibility is a problem, a strobe light will help a lot in hazy or low light conditions.

W. Keith Stacy from Buffalo, Iowa sent this photo of his Pup (SN1892). The fuselage and leading edges are blue, and the wings and tail are white with red trim. This paint scheme should give excellent visibility, especially for aircraft approaching from behind. The engine is Kawasaki 340 and he is still lacking the fuel system, instruments, and minor details. He hopes to have it at Oshkosh this year, if he can get the necessary time flown off (7 hrs) and obtain kind of transportation. More details later.

MISCELLANEOUS

Mark Walker and Jim Carpenter from Tampa, FL report that their Sky Pup project is nearing completion. As of January, they have started fabric covering and hope to have it flying in time for the Sun-n-Fun fly-in at Lakeland, FL, in April.

Wanted: any and all Sky Pup components, finished or not, cash or trade. Write to John Komlosy, 4132 Vincente St., Fremont CA 94536. He has an engine and most of the hardware and landing gear but wants to buy airframe components to help save time and money.

Fabric cutouts for the tiedown straps can be closed with an inspection cover like those used elsewhere on the airframe, according to Newton Borden. He covered over the straps and glued on plastic rings to fit the inspection covers. The hole is then cut out for the strap. Fabric doublers should still be used. Keep the clips on the covers running fore and aft to keep the airstream from lifting them.

OSHKOSH '88 is July 29th to August 5th. This year, the entire ultralight area will be moved southward to accompany the new runway extension. There is some talk we may be using the end of the new runway. I will have early details of the new layout and advice about the best camping spots in the next issue (April '88).

IN MEMORIAM: It is with sadness I must announce that Leroy Thomas of Belfast, Maine passed away December 17, 1987. He was 71 years old. His Pup (SN2469) was featured in newsletter no. 11 and 15, and is pictured on the address side of this newsletter (see below). His wife wrote that Roy loved his Pup, and enjoyed it very much.



SKY PUP NEWS



Newsletter No. 19

April, 1988

Ski-Pup Still Going Strong

Tips From Newsletter Editor's Pup

More News

Miscellaneous

Newton Bordon's Wing Gap Cover Fastener

Letter from the Editor

Maintenance Issues

Brian's First Taxi Test

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SKI-PUP STILL GOING STRONG

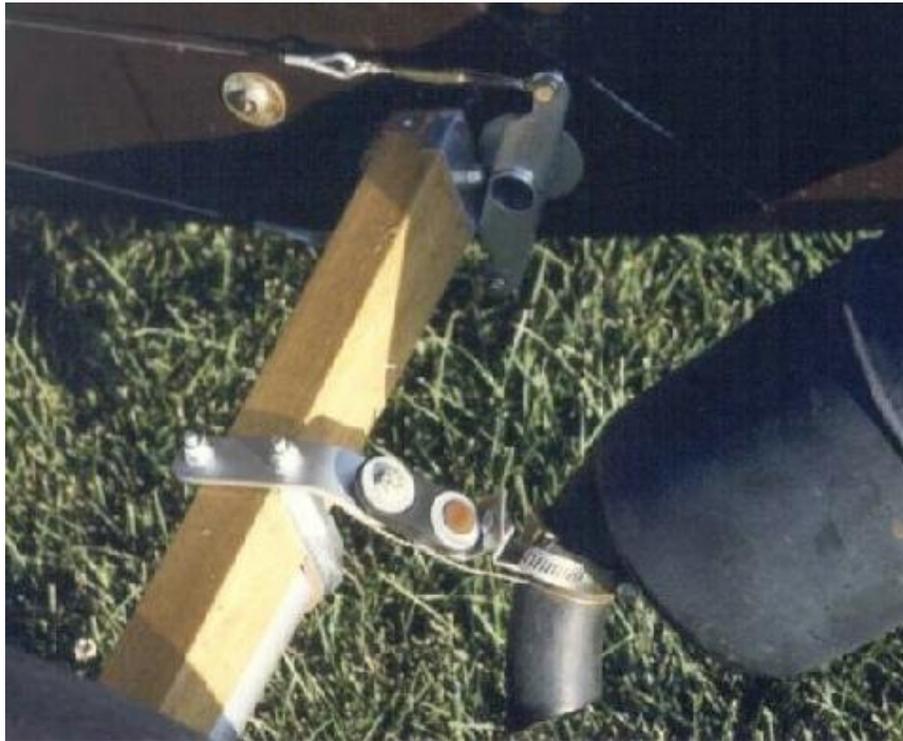




These photos show the ski equipped Sky Pup built by Jean Claude Hivon from La Perade Quebec. SN2666 has been reported in newsletters no. 13 & 14. The skis are 4 ft. long and 7 inches wide and work very well even in a crosswind as they will slide sideways if needed. With the skis, he can land almost anywhere there is snow, even behind his house. The skis work great but a little more horsepower is needed when the snow exceeds two feet in thickness! The Pup reportedly flies extremely well in very cold weather. He is often flying in weather as cold as -5 degree F. and says he flew almost 20 hours in December and January. It would be impossible without the windshield he has added and without the hole in the floorboard closed over. With these two additions he can fly without a visor on his helmet. The windshield is simple and weighs very little. The frame of the windshield is made from 3/4 pine and only the two bars of the front are laminated to give the round shape. He says he has found a new engine which is one inch lower, one inch shorter, and weighs 4 lbs. less even with the electric starter and battery (his previous engine must have definitely been too heavy). To make the pulleys for a reduction drive, he melted down an old lawn mower engine in an iron pot. The melted aluminum was poured into a 2-1/2 inch can for the small pulley and a 6 inch can for the large pulley. He only had to finish them on a lathe and they worked just fine. He bought the engine for \$60.00 at a flea market. How many of us can show that much ingenuity. If you wish to contact Jean Claude about his windshield or skis, see his address in the enclosed mailing list. You should realize however, his first language is French!

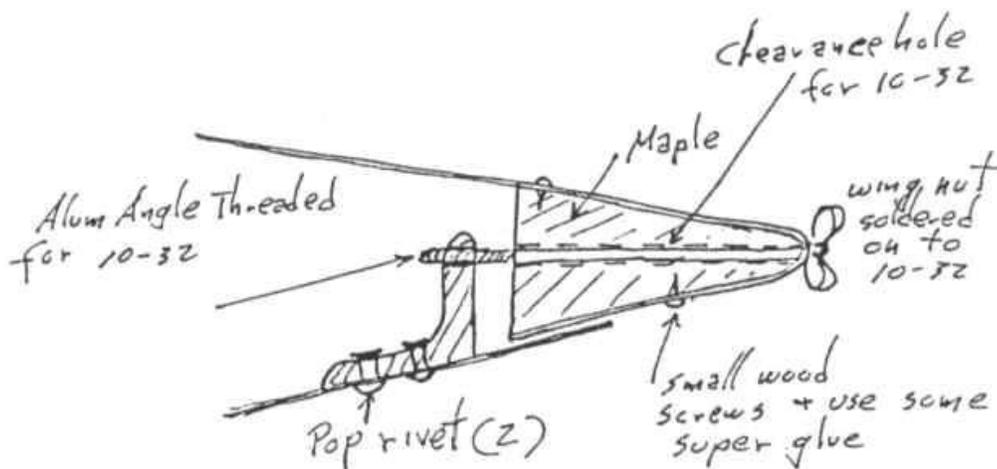
TIPS FROM NEWSLETTER EDITOR'S PUP





I would like to pass on a couple of tips from my own Sky Pup SN2028. The photo on the left shows the arrangement for using the recoil starter on the Rotax 277 while seated in the Pup. An extra steel wing attach bracket (which was mis-drilled) is mounted to the top of the cylinder head with the appropriate size metric bolt. A swivel pulley is then attached with a threaded chain link. The recoil housing on the Rotax can be removed and rotated to any desired position. I also added a short loop of rope so I could easily reach the handle without leaning too far forward. I must confess I have still not attempted an in-air restart. The arrangement works well but I still usually use both hands to pull on the starter. My Pup does not trim hands-off so I will have to pull the rope with one hand which is a little more difficult. I'm not sure how this would work if I were to add a windshield. The photo on the right shows a method for supporting the aft end of the Rotax muffler. A universal muffler hangar from an auto parts store was adapted by mounting it on an extended landing gear bracket. The rubber strip on the muffler hangar allows for movement of the landing gear and for engine vibration. The bracket is attached to the tailpipe with a stainless steel hose clamp. the muffler should also be safety wired to the landing gear in case the rubber breaks. Incidentally, when mounting the Rotax exhaust on my Pup, I cut a pie-shaped slice out of the header tube and had it welded back together. This angled the exhaust further outward to give better clearance from the engine mount and side of the fuselage.

Newton Borden sent this tip for fastening the ends of aluminum wing gap covers. His were made from gutter aluminum. A short piece of heavy angle was riveted to the bottom end and a hardwood block was fitted to the bend around the trailing edge. A bolt and wingnut pulls the cover tight and he says it doesn't loosen up in flight. The edges of the gap covers were fitted with rubber channel from Wag-Aero (catalog# H796-000).



Congratulations to Gerry Coppock whose Sky Pup, "Gerry's Dog House", was pictured in the June 1988 issue of Air & Space Smithsonian magazine. A color photo of his Pup at Oshkosh is included in the calendar of events with a caption that says, "Imaginations and designs run wild at Oshkosh". Of course, we all know they picked the best design at the whole show.

MORE NEWS

Oshkosh '88 is July 29th to August 5th. This year, there should be at least two Pups present (mine and Gerry Coppock's). Two more Pups are possible. This year will be the 5th anniversary of the introduction of the Sky Pup to Oshkosh. It would be nice to have a generous litter of Pup on display. Even if your Pup is not yet flying, why not consider bringing it along. There is no additional fee to display aircraft. Static displays are welcome too! Sky Pup designer Steve Wood, who has been unable to attend in recent years, has stated that he will definitely try to be there this year. Also in the news, there will be some changes in the layout of the ultralight area this year. The runway and tiedown area will move more southward, but the commercial ultralight exhibit area will still be near Gate 7A at the south end of the convention grounds. To find Sky Puppies camping at Oshkosh, look for "Ollie's Birds Eye View" campground which is a house, barns, silo, etc. near the ultralight entrance (far south of the control tower, east side of Knapp street).

Andre St-Pierre from Pointe de Lac, Quebec, sent a letter updating progress on his Sky Pup SN3099. He started in October 1987, and has completed the tail and wing panels as of April 1988. He decided on building the Pup after seeing examples in his area (Paul Pontois and Jean Claude Hivon). Andre is 46 years old, always wants to fly since he was a teenager, and works in the engineering department of Hydro-Quebec. He had trouble finding 3/4 inch foam but located a source of some new types of Dow Styrofoam which are used for highway insulation in cold climates. He graciously sent samples of foam and technical data from Dow to me, and to Sport Flight. One type in particular, HI-100, show especially good structural strength.

W. Keith Stacy from Buffalo, Iowa reported in a recent phone call that his Pup is completed and will fly any day now (see previous newsletter). The Kawasaki 340 engine has a reduction drive mounted downward and the 54 inch prop gave only marginal ground clearance. In fact, the tip was broken off during ground handling. He now has a 48 inch prop giving a max RPM of 6100. Keith says he has plenty of experience in conventional aircraft but no taildragger time.

Kenneth Thompson from Kennesaw, Georgia, called to say he has begun the fabric covering on his Pup. He noticed the latex cement stay tacky for several days so he is experimenting with an aliphatic glue which dries much faster. His fabric is "Coverite" model airplane fabric (actually 1.5 oz. dacron) which is 48 inches wide and cost less than \$2.00 per yard. The finish will be exterior latex paint.

Paul Rasmussen of Des Moines, Iowa, writes he has made a few changes on his bird (see newsletter no. 14). His ballistic parachute is no mounted on the seatback bulkhead so it fires upward through the fabric. It's original location above the centersection resulted in turbulence which caused the tail to vibrate. He also devised a shock absorbing instrument panel that works. Paul also says he was visited by two other builders, Roy Snider and Clyde French.

Sport Flight Engineering has announced they have discontinued sales of Sky Pup plans and related items. Their letter states, "The Sky Pup has been a successful design and we are pleased that so many builders have enjoyed it. However, schedule obligations in our design consultation business prevent us from continuing to market plans and providing builder support indefinitely. We will continue to answer questions for builders who already have plans as long as a reasonable level of Sky Pup activity exists." This shouldn't be a problem for future builders as over 2000 sets of plans were sold over the 5 year period. There are plenty of unused plan sets in circulation and most builder questions were covered in the first 9 newsletters which were published by Sport Flight. I plan to continue the newsletter as long as possible to help Sky Pup owners stay in contact and pass on any new ideas or maintenance problems associated with age or extended use.

MISCELLANEOUS

Burt Taylor, writes that he has bought a Chotia 460 engine from a Weedhopper to use on his Sky Pup. If you can offer any ideas how to mount it, his address is: 210 Doris St., Springfield, OR 97472.

Thanks to A.R. Clements and Brent Adams who sent me copies of articles from the Canadian Ultralight News which showed photos of my Pup at Oshkosh '87.

Sid Coleman is looking for information on the "Ultra 275" opposed twin cylinder engine for his Pup. Write to 1015 E. Navajo #3, Farmington, NM 87401.

Plans and Wicks Kit for sale... Donald Zimmerman, Rt. 3 Box 563, Mt. Juliet, TN 37122 wants to sell it all for health reasons.

Frank Crother of La Crescenta CA, says he is planning to build a 1/4th scale RC model of the Sky Pup.

Floyd Washburn, P.O.B. #9, Campe Verde, AZ 86322 wants to buy a set of plans.



SKY PUP NEWS



Newsletter No. 20

Summer, 1988

**Oshkosh '88 Convention
Heart of Illinois Fun-Fly '88
Another Illinois Sky Pup Found
Iowa Sky Pup Ready For Fabric
Miscellaneous
Ideas and Tips from Ken Thompson
Covering and Glues
Isolated Instrument Panel**

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OSHKOSH '88 CONVENTION

Oshkosh '88 was a big first for the Sky Pup. Two Pups were on display. Gerry Coppock's "Dog House" was there for the third time and I had my Pup SN2028 up there for the second time. Really have to thank Gerry because he arrived a day early and claimed the best spot in the tiedown area for us. We had the only shade available and some shelter from the winds. This year was the hottest on record and also one of the windiest. The ultralight runway was shorter and the approach was even tighter, if that's possible. All operations were to the south only, as some flight periods were distinctly downwind. Though formation flying was prohibited in the pattern, Gerry and I "accidentally" flew side by side during one of the flights. It was a real thrill to look over to my right and see another Sky Pup off my wingtip. A friend of mine had taken photos of the two Pups together in the air but I haven't yet been able to get a copy of the print.

There were over 20 Sky Pup builders and owners who stopped by to see our Pups sometime during the week. Thanks guys. Incidentally, the photo on the right shows Gerry's Pup tie down in front of the ultralight headquarters in a place of honor. Actually, the ultralight chairman stated that some of the regular EAA homebuilt members were saying that there were very few "real" ultralights down on our end so Gerry's was chosen as an example for display.

Late in the week, after Gerry had left, a severe thunderstorm passed directly through the area. Winds were over 50 mph, rain came down in sheets, flagpoles were permanently bent, and my tent poles snapped like toothpicks. After it cleared, I hurried over to check on my Pup and was delighted to find it still intact. Witnesses said that my Pup and other ultralights were literally flying off the ground on the ends of the ropes. I didn't have them tight enough. A very detailed inspection showed no damage whatsoever. It's one tough bird.

HEART OF ILLINOIS FUN-FLY '88





In August of this year a local ultralight club, The Heart-of-Illinois Ultralight Club, sponsored it' 5th annual Fun-Fly near Pekin, IL. This was an ultralight only fly-in with a full complement of contests and about 18 ultralights attending. Club member Allan Mays of Bloomington, IL was there with his Sky Pup SN1834 (see newsletter no. 15). For the first time I made it there with m Pup SN2028 so the Sky Pups had a good showing. The photo on the right shows Allan's Pup which is dark navy blue and yellow and is Cuyuna powered. On the left is Allan getting read for the parachute drop, and the big guy on the right is Sky Pup builder Keith Stacy from Buffalo, Iowa. As it turned out Keith made the first flight of his Pup only 10 days after this photo was taken. The parachute drop is a bit easier than the bomb drop because you don' have to lead the target, just make sure to allow for wind drift. Unfortunately, I didn't do very well in the contests because many of the pilots had been practicing a lot. I trailered my Pup to the site because it was about a 100 mile trip for me, and I could not locate a convenient fuel stop. The prize for the pilot to fly-in from the longest distance went to the owner of a Kolb Flyer who arrived from St. Louis, MO which is at least 250 miles. If you get a chance to attend a fly-in like this, don't miss it.

FIRST FLIGHT!! Keith Stacey of Buffalo, Iowa, called in an excited state to say that he had made the first flight of his Pup (SN1892) on August 30, 1988. See also newsletters no. 18 & 19. He had already completed taxi testing and had hopped the Pup up to 20 ft. On his second lift off he found himself drifting off the runway and decided to continue climbing and fly the pattern. Keith said he had enough butterflies about that first flight he could have flown without the engine! Once airborne he said he was not nervous at all (too busy). As far as he could recall, pitch trim came out OK with a C.G. of 9 inches. I asked Keith of his impression of the cockpit after his first flight as I have always found it rather comfortable and cozy. Keith says, "The cockpit hugs you". He has experimented with a Hall ASI mounted on the wing upright and connected to a remote pitot on the end of the axle with a plastic tube. The remote setup worked fine when tested on his pickup truck but may be reading too low on the Sky Pup. Possibly the input is affected by the propwash, or the static port is in a high pressure area.

First plans built Pup is flying again. Neil Huizenga of Grandville, Mich. who is the new owner of SN1092 reports he has this historic bird back into the air again. The original builder was Ray Macke. See newsletters no. 1, 16, and 17. Recurring problems with the engine tuning and mismatched props which plagued previous owners was traced to poor engine compression. New set of rings in the Rotax 277 cured the problems. Neil says the Pup flies just fine now.

IDEAS AND TIPS FROM KEN THOMPSON

Ken Thompson of Kennesaw, Georgia is a Sky Pup builder and an aeronautical engineer with 30 years experience in the aircraft business mostly at Northrup and Lockheed. He is currently supervisor of the Flight Control Group at Lockheed-Georgia. Ken has investigated some of the questions and decisions facing the Sky Pup builder of today (five years after the plans were introduced). His findings should be of interest to anyone currently building a Sky Pup. My thanks to Ken for his well written letter and a fabric sample he sent. The Koverall fabric is tougher than the sheath lining and should be easier to handle. Here's a summary of his letter.

COVERING MATERIALS

Sheath lining.... I covered my rudder with Butterfly sheath lining and decided against using it. I've heard the sheath lining will shrink 2-3% but mine didn't seem to shrink at all. The addition of paint made it sag even worse. I also grew to dislike water based contact cement during this exercise.

Coverite.... Coverite is a model airplane covering material - an iron on, heat shrinkable cloth with adhesive backing, Coverite weighs 3.5 oz per yard and costs about \$28 for 5 yards, 46 inches wide.

Koverall.... This lateral I've zeroed in on for my Pup is made by Sig a model airplane manufacturer. Koverall is a heat shrinkable (about 10%) Ceconite and weighs about 1.8 oz per yard. Koverall (unlike most model airplane cloth) does not have a heat activated glue backing. Koverall is available from Tower Hobbies in Chicago for about \$10 for 5 yards, 48 inches wide.

GLUES TO ATTACH COVERING

Water based contact cement...., I've given up on using water based contact cement as I haven't found any which will dry out. They all remain sticky forever. I've tried Elmer's Safe-T, System 77 by Monsanto, and Dave Brown's Southern Sorghum. (designed for sheeting foam wings with balsa) water based aliphatics..I tried a variety of these so called "white" glues with some success. The big problem with them is drying time - 20 minutes to an hour and you have to hold the material in place and taut until the glue dries. I included Tower Hobbies Quick Sand, Elmer's Glue-All, and Titebond.

Standard aircraft fabric cement-., I decided on using one of the standard aircraft type glues for attaching the cloth, Stits Poly-Tak. These types all dry quickly. can be reactivated with heat, and ensure a strong bond. They also eat styrofoam like it was going out of style. Therefore, at least two liberal coats of polyurethane are required on all the foam.

ENGINE SELECTION

Cuyuna 215.... I thought this would be the logical choice. It seems to have adequate power at a lower cost than the alternatives. However, some Cuyuna 215's produce more like 12 or 14 hp instead of the rated 20 hp and I could not find a redrive for it.

Kawasaki 340.... This engine, according to J-Bird in Wisconsin, has more power, less weight, is smoother than the Rotax 277, and costs less. By the time you add carb, exhaust, pull starter, etc. it weighs about the same as a Rotax 277 and costs \$300 less. I could not find an up-redrive for it.

KFM 107ER This electric start engine seems to have the right hp at the right weight but it is expensive - about \$1900 in the latest Wicks catalog. It

would also be difficult to mount in a Sky Pup and I've heard comment to the effect the KFM is temperamental and may not put out it's rated hp.

Rotax 277.... I plan on using a Rotax 277 fan cooled with an upright 2.58 gearbox or a cigar upright 2.50 belt drive. The reason I've decided on a fan cooled engine is that several Pup builders have mentioned overheating problems with the free air Rotax and upright gearbox combination. Wayne (son of TEAM (Minimax, Himax etc.) ran into the same overheating problem with this engine gearbox combination. Wayne suspects that since the hub of the prop is almost directly in front of the cooling fins, very little air flows over the cooling fins. After making layouts of the various engine installations, I conclude that an upright Cuyuna 215 or Rotax 277 is the best way to go (just like Steve Wood designed it).

Tail Wheel.... I decided I'd like a steerable tailwheel so I wrote to Ray Macke and Jesse Buckle to see how they did it. I also checked with TEAM and liked the Minimax design best of all. The aluminum leaf and steerable wheel assembly costs \$33 and bolts right into the Sky Pup.

Canopy and instrument panel.... I liked Ray Macke's hinged-to-one side canopy and worked up a similar design which I may or may not have done by first flight time. I also liked his idea for an instrument panel and I'll probably try something similar. See enclosed sketches.

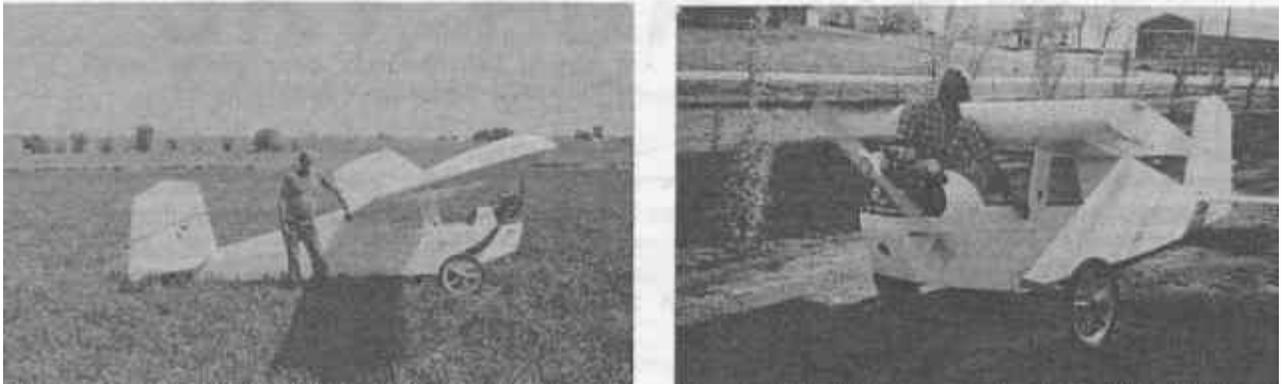
Controls.... I'd like to install a two lever throttle quadrant (throttle and choke) on the left side of the cockpit. I would also like to revise the stick to 2-axis, rudder and elevator, and run the rudder cables inside the fuselage.

I learned to fly in an Eipper MX II and I've flown a Maxair Hummer setup this way. I find this arrangement to be the easiest control system for me. I have to work harder in a conventional 3-axis machine. However I am not a high time pilot by a long shot

Ken writes that his Sky Pup is partially completed and he hopes to have it flying by the end of the year. He would like to do the initial test flying himself but might change his mind on that. He has a U.S. Ultralight Foundation Pilot license (5 hours dual instruction) but only has about 20 hours of total flying time.

(newsletter no. 20)

ANOTHER ILLINOIS SKY PUP FOUND



Last year at Oshkosh, I met a builder from Illinois who said he had completed a Sky Pup and liked it very much. However, I didn't get his name. This spring, Al Mays reported seeing a Pup parked near a barn somewhere in his area but he could not locate the owner. Fortunately, the builder, Ray Johnson, returned to Oshkosh again this year and provided these photos of his Pup which appears to have been built very much "per plans". The color is all white and the vertical fin has a sketch of "Snoopy" leaning back and wearing sunglasses (very much in the spirit of Gerry Coppock's Pup). He has a neat curved cowling over the fuel tank and instrument panel. Though I'm not certain of the engine, it appears to be a free air single cylinder with belt drive (possibly a Zenoah 242?).

IOWA SKY PUP READY FOR FABRIC



Clyde French from Grinnel, Iowa sent these photos of his Pup SN2148. At this point the airframe is essentially completed and is ready for varnish and fabric. The colors will be a blue and yellow sort of WW-I trainer pattern. Clyde was at Oshkosh this year and wrote that he finally got to see the two Pups flying as he was leaving on Wednesday morning. He was heading south on the highway as Gerry and I flew overhead in the ultralight pattern. Clyde writes that he is now struggling with the fabric covering and finds the latex "milk" rather difficult to work with. Here's my advice: use good quality foam brushes to apply a uniform layer of the latex fabric cement. Slow steady strokes in one direction are best. Do not brush over wet areas and yes, it does stay slightly tacky for a long time after soaking into the fabric. It doesn't seem to affect the strength. Just give it a few days to dry and varnish right over it.

MISCELLANEOUS

A classified ad seen in "Western Flyer".....SKY PUP, with trailer. Removable wings, 277 Rotax fan cooled, gear drive 54x27 prop. Zero time. Will deliver. \$3000. (206) 927-6821 or (206) 833-8001. A phone call revealed this Pup is owned by newsletter subscriber Jesse Denzler of Auburn, WA. He says the color is yellow and white, looks very nice, and has good craftsmanship. He and his partner had prior experience building experimental aircraft. His partner is currently flying a KR-2. The Pup has a tailwheel, has been taxi tested, and is ready to fly. Reasons for selling; insurance problems, no time to mess with it, and no place to fly. His airport prohibits ultralights!

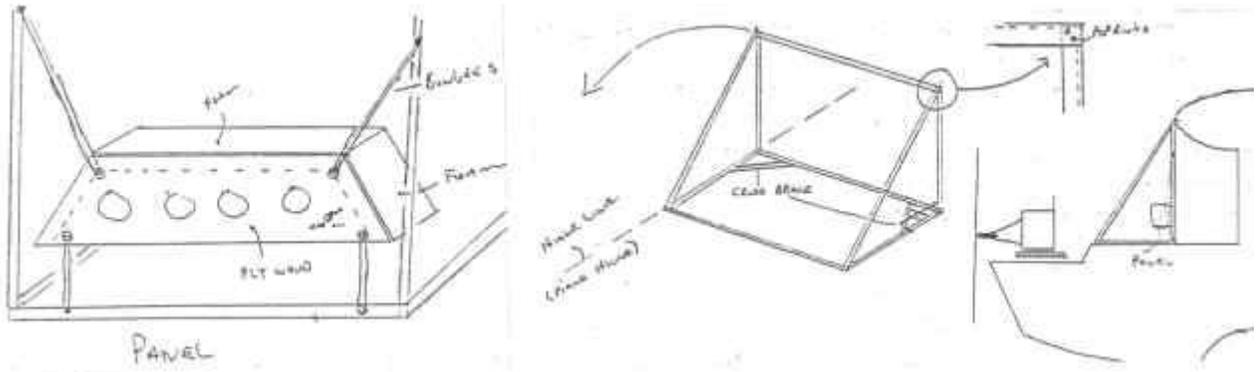
HERE'S SOME MORE CLASSIFIED ADS SEEN RECENTLY:

- * Rotax 277 - low time with gearbox, 60x28 prop, muffler, \$600. (206) 392-9744
- * Rotax 277 - gear reduction, complete prop/tank exc. \$595. (404) 629-1572
- * Anyone need a flyable Sky Pup? No engine. Cheap. (613) 224-3649 Ottawa, Canada

MORE MISCELLANEOUS

My thanks to Paul Pontois who sent a copy of an article on the Sky Pup he wrote for his local ultralight club newsletter. It was well written and should motivate me to write an article I have promised on the Sky Pup for the EAA magazine. Also...just as this newsletter

was going out to the printers, I received word that Donald Diggs of Monon, IN, has completed and flown his Pup (see issue no. 13). I will have full details and photos on the very nice Pup in the next issue.



Original Newsletters edited by Dan Grunloh, electronic edition compiled by Edwin Lelieveld and Roger Ford.

SKY PUP NEWS



Newsletter No. 21

Fall 1988

Simple Happiness Flying in Quebec
Indiana Sky Pup Flying
Orphan Sky Pup Kit Completed
Construction Tips from Simple Happiness
First Flight of Le P'tit Bonheur
Update from Al Clement
Loose Wing Bolts?
Miscellaneous

SKY PUP NEWS is a quarterly newsletter for builders of the Sport Flight "Sky Pup". the purpose of the newsletter is to provide for the open exchange of information and to encourage builders to share their experiences of building and flying the Sky Pup. Beginning with this issue, the newsletter will be written by Sky Pup builders and enthusiasts. Unless specifically stated, all ideas, suggestions and building tips are strictly the opinion of the contributor and have not been approved by Sport Flight Engineering Inc. No warranty is made as to the airworthiness or suitability of modifications or building tips. When in doubt, you should follow the plans as close as possible and contact Sport Flight Engineering if you have questions. SKY PUP NEWS is compiled and distributed by Dan Grunloh... Rt 2, Box 82, Potomac, Illinois, 61865. Subscriptions are \$7.00 for the calendar year (\$10.00 overseas). If you want to talk about the Sky Pup, or about airplanes and homebuilding in general, please feel free to call m at (217) 569-2121 late evenings. Please keep sending your letters and photos.

SIMPLE HAPPINESS FLYING IN QUEBEC



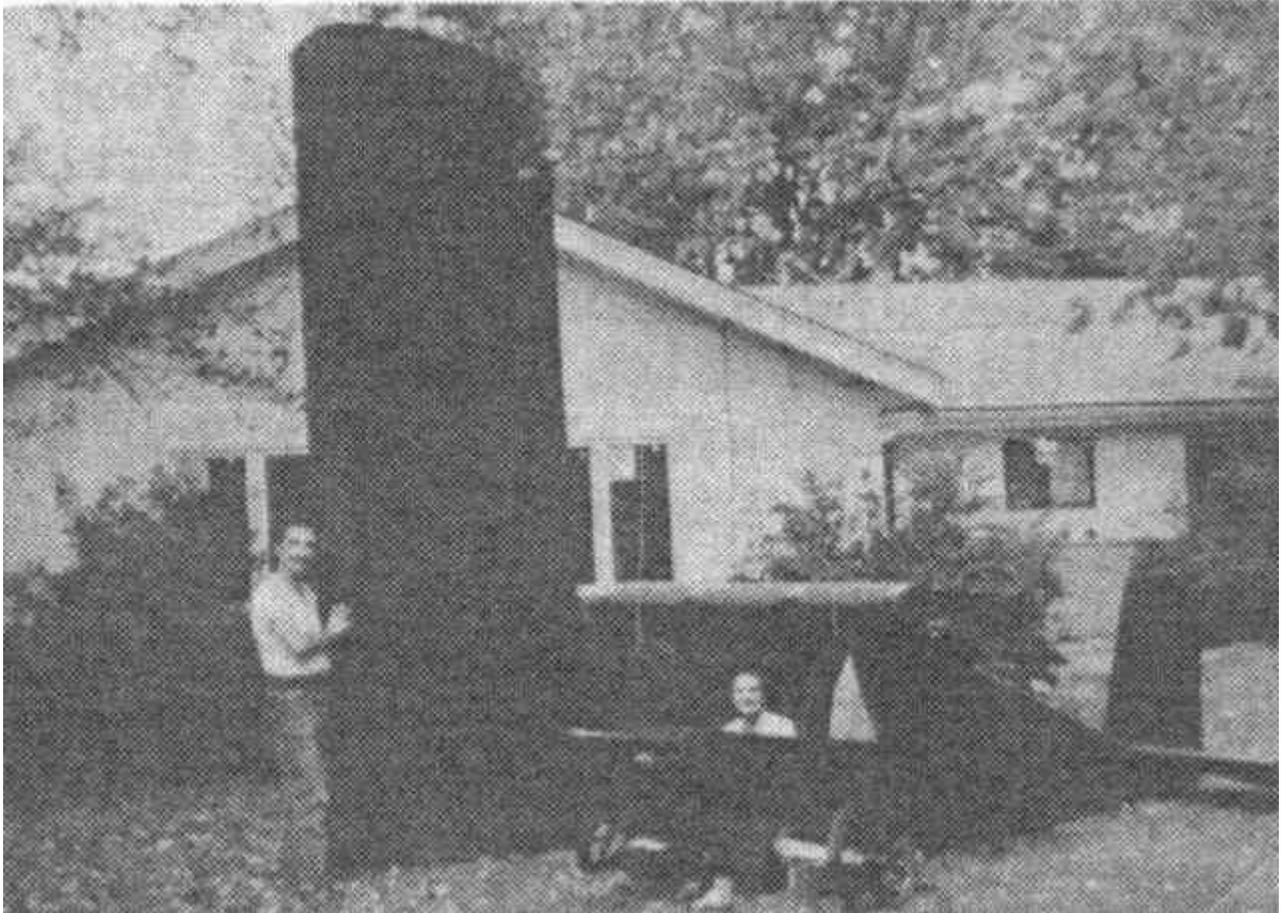
Andre St. Pierre from Pointe du Lac, Quebec, reports he made his first flight of his Pup (SN3099) on October 21, 1988. The entire project took one year to complete. See also newsletter no. 19. He calls his plane "Le P'tit Bonheur" which is the title of a famous Quebec song meaning "Simple Happiness". He likes the name because it's a small plane built with a small budget and resources but which gives so much fun and enjoyment. This Pup is the 6th Sky Pup complete and flying in Quebec. The engine is a Konig 3-cylinder radial of 24HP with a direct drive adjustable prop which turns 4200 RPM max. It works great! The weight came to 240 lbs due to the use of heavier Dow foam, thicker plywood on the D-cell, Douglas fir used throughout the airframe, and extra plywood on the forward fuselage. With a full load of fuel (6 gal) and hi weight of only 145 lbs the total launching weight is 425 lbs. The colors of this Pup are blue and white (the national colors of Quebec) with the Quebec flag on the rudder and roundels on the wing. The Pup has a steerable tailwheel, a tail light on top of the vertical fin, and a set of skis ready for winter flying. A small trim tab was added to the rudder after the first flight to correct left-turning tendency. Andre says he got a lot of good advice from nearby Sky Pup owner Paul Pontois and Jean-Claude Hivon. In fact, he will share a hangar with Paul (two Pups in on doghouse!). Paul Pontois had just returned to Quebec after a year of absence and he told Andre, "You built it exactly the way I would have done it if I had to do it again." Andre says he is a brand new pilot with only 20 hours of flying time (10 hours were in a 3-axis Spectrum Beaver). He found it rather easy to get acquainted to the feel of the Sky Pup. See "First Flight of Le P'Tit Bonheur" for his first flight details.

INDIANA SKY PUP FLYING



Donald Diggs, of Monon, IN reports he made the first flight of his Sky Pup on June 27, 1988. The colors are navy blue with white trim and the engine is a Rotax 277FA (see issue no. 13). The empty weight is 225 lbs and the CG came out to 4.9 inches. Donald's Sky Pup has some refinements which are typical of the quality and extra effort put into this airplane. The landing gear axle clamps are machined in two pieces from 7075 T6 aluminum. The bottom piece is drilled for cap screws and the upper half is threaded to take the bolts which are safetied. The axle tube is shortened 4 inches and is pinned to the landing gear to prevent sliding in or out. 2 gal. fuel tank was made from 3003 (soft) aluminum and is mounted behind the main spar below the shear panel with seat belt webbing. A sight gauge is in clear view of the pilot and the filler neck extends above the wing. The cowling is made of foam and plywood and is attached with aluminum angles and wood screws. The windshield is attached to each half of the split cowl with aluminum brackets and also has a spring loaded latch at the top. The windshield can be easily removed in a few seconds. The muffler clamp on the landing gear is made from 7075 T6 aluminum. The top half is hinged and padded for the muffler and is held shut with a coil spring. He says the trailer works fine as he pulled it about 110 miles round trip for the first flight without any problems. The wing boxes are airfoil shaped and are lined with high density foam.

ORPHAN SKY PUP KIT COMPLETED



Jim Leibich, of Hoffman Estates, IL reports that he is only a couple of weeks away from taxi testing his Pup. Jim says he bought the kit from a builder in Green Bay, WI who previously bought the kit from a builder in Newburgh, IN. It's nice to hear this puppy finally found a good home and will soon come to life and take to the sky. The color is bright red with black wheel and the engine is a Zenoah G25A with belt drive. Initial weight and balance put the CG at 2 inches so some weight will be added to the tail. The orphan Pup was built in his family room and was removed through a 4x12 foot hole in the wall which was his south window (he says he sort of wanted to replace those windows anyway). The photo above was from a preliminary setup. An unusual feature is the wing attach uprights which are square aluminum tubing instead of wood. A tube also runs across the bottom under the seat. A 1/8 inch cable runs thru the tubing to connect to the bridle of a ballistic parachute which is mounted on the seatback bulkhead.

CONSTRUCTION TIPS FOR SIMPLE HAPPINESS

Andre St. Pierre got some good advice from Jean-Claude Hivon on fabric covering. It has been discovered that the plain white dacron sheath lining will shrink almost twice as much as the colored variety. Actual test samples were shrunk and measured. Apparently, the colored types receive heat or chemical treatments to set the dye which reduces the amount of shrinkage available later. "Simple Happiness" was covered with white fabric and then painted (2 coats by brushing) with colored urethane enamel. The first clear coat included aluminum paste to provide sun protection. The fabric was attached with "LePage" latex contact cement. Andre also discovered that a small hair dryer works great to dry the glue quickly and stick the fabric permanently when and where you want it. He covered the entire airplane "solo", with no help, by using this method.

The main fuel tank is a wedge shaped 5 gal. snowmobile tank mounted just behind the backrest of the seat. The tank is sealed inside a heavy gauge plastic bag which has a drain thru the lower panel in case there is a leak. 2 reserve fuel tank of 1-1/4 gal. from a racing kart is mounted under the front forward deck. The total capacity of 6-1/4 gal. gives an estimated 4 hours of flying time with the Konig engine. The center of gravity varies from 7 inches (behind the main gear) when empty, to 10 inches with a full load of fuel.

The hole in-the floor is closed with strips of 3 inch wide elastic bands (used in clothing manufacture). The bands are glued over the hole lengthwise and overlap each other by half the width. This gives a permanent step thru panel. You only have to pass your foot and leg thru the elastic bands. When you pull your foot out the elastic bands close one over the other. Works great!

A removable front canopy was built up from 1/2 inch pine sticks in the method used by Jean-Claude Hivon. Clear plastic sheeting was attached to the frame with double surface sticking tape. The weight of the frame was only 1-1/2 lbs. The canopy really improves the look and the comfort during cold winter flying.

The front fuselage is laminated inside and out with 1.5 mm aircraft plywood on the sides forward of the wing uprights and the floorboard is laminated on both sides with 1.0mm plywood for extra strength. The plywood was clamped to the fuselage sides using a vacuum bagging technique common to composite aircraft. He first built a 4 mil polyethylene bag to fit each side with connections to attach to a vacuum line. Epoxy was spread on the sheets of plywood and they were positioned on the sides and the vacuum bag was installed and sealed. A vacuum pump was attached and pulled down to roughly 12 psi for 8 hours. Both inside and outside were done together so the front of the fuselage was pulled together before the glue set to get the required curve.

A steerable tailwheel was installed using an idea he picked up from the newsletter but he came up with a new idea to drive the wheel. The tailwheel steering is connected to a point on the underside of the rudder about 6-8 inches aft of the rudder spar. A spring is used to absorb shock loads. It's simple and works great.

If you have questions about Le P'tit Bonheur, you can write to Andre directly. Also, he will translate to French for anyone who wishes to contact Jean-Claude Hivon. The address is:

Andre St. Pierre
511 Place Montour RR2
Pointe du Lac, Quebec GOX-IZO

(newsletter no. 21)

FIRST FLIGHT OF LE P'TIT BONHEUR

by Andre St. Pierre

I made the first flight on Friday October 21, 1988. I had taken a day off from my job having in mind to perform the first ground test and taxi test only. Just enough to get acquainted with the plane and make any needed corrections and adjustments. My wife came along to give a hand if needed and to have a look at the plane she had seen built up piece by piece in our basement.

I started taxiing with the Pup, and it took not more than 3 runs down the airstrip to get the feel of it. My Pup was easy to handle on the ground due to its directional tailwheel. I can turn within the width of the airstrip and go where I want with a high degree of precision. This astonished me because of what I had a read about the difficulties of taxiing a taildragger.

The absence of brakes did not bother me and I learned very fast how to slow the Pup by cutting the engine and grasp a wheel (with a glove). I have an electric starter to put the engine back in operation. In last resort, I just direct the plane into the grass at the side of the strip and there it stops. If it keeps going like this, I may not install brakes.

After taxi tests, I had planned to do just fast taxi and maybe small jumps from the ground. There too, it just went right on and I kept doing jumps a little higher and longer. After 5 or 6 runway lengths of these tests, I was ready. As I was thinking and hesitating, my wife supported me, and we made the decision to put "Le P'tit Bonheur" in the air for good. And that was it! I was at the beginning of the runway and I pushed the Konig to full power, accelerated, and suddenly.... Woops! I was climbing and climbing.

I made the first circuit at 500 ft. trying to pull sideways on the stick like H---! (I got used to it fast) and came back down to land like a flower just in front of my wife-... What a feeling....for both of us!

I have about 5 hours of flying time and the more it goes, the more I appreciate my Sky Pup, and I am looking for years of nice flying and fun. I am very grateful to Steve Wood who designed such a nice plane for people like me.

UPDATE FROM AL CLEMENT

A.R. Clements from Sechelt BC Canada writes that he is having a great time with his Sky Pup and has logged 91 hours to date (see newsletters 17 & 18). All but 7 hours were logged since April 26, 1988 so you can see what he has been doing lately. The Pup shows no signs of wear and he is still flying with the original spark plug. The only problems have been damage to the lower longeron under the axle due to a hard landing and deterioration of the plastic impulse line to the fuel pump (this line should be extra heavy duty heat resistant). Al says that he is retired and that he and his wife camp at the flying field in a motor home and also bicycle, canoe, and hike in the nearby mountains. He avoids flying in the middle of warm sunny day as it is too bumpy and he likes to do real low flying. There are about 18 other ultralights base at his field and the other pilots sometimes snicker and call his Pup the "Fred Flintstone Plane". He feels the Sky Pup puts all the other flyers with their \$18,000 Beaver amphibians to shame. While they spend their time on the ground

polishing and repairing, he is doing circles and figure eights overhead and zooming over the treetops. Al says he can do circuits just using rudder and throttle. He puts rubber bands over the stick to hold it back slightly and also use this method for aerial photos. He feels the Sky Pup would look better with a tricycle gear and stronger floor so you could step onto it but he would retain the 2-axis control. It works just fine!

LOOSE WING BOLTS?

It has come to my attention that some Sky Pup owners have detected free play at the wingtip which is traced to slack in the wing joint. It is usually not detected unless you have someone hold one wingtip steady while you lift upward on the other. I checked my own Pup and discovered about one inch at each wingtip or two inches if the play in both wings are included. A phone call to Sport Flight cleared up some concerns about this problem.

Some free play is to be expected at the wingtip even on a new Sky Pup which is correctly built. Calculations will show that even a few thousandths of an inch of free play at each upper and lower wing fitting will add up to an inch or more when translated out to the wingtip. Also, although the wings are quite rigid, the spars will deflect 1/4 inch or more when the weight of the Pup is supported at the wingtip. It is of course important to avoid drilling the holes in the fittings oversize when constructing the fitting. It's best to drill the holes slightly undersize and then ream them out to 3/8 with a hand reamer. Tightening the nuts on the wing bolt excessively will not remove the free play and should best be avoided. Also, a washer should be used under the head of the bolt.

In most cases the cause of the free play will be traced to wear on the bolts due to repeated removal and insertion without lubrication. The bolts on my Pup were very tight and hard to insert when new, but the wings have been removed and replaced 16 times in 3 years and the bolts are now much looser and visibly worn. Wing bolts should be lubricated with light grease and avoid twisting motion when inserting which can increase the wear.

If you have 1 to 2 inches of free play at the wingtip it is no cause for concern. If there is considerably more you might try a new set of wing bolts especially if yours are visibly or measurably worn. If the free play is really excessive (in the range of 4-5 inches), the impact loads on the fittings when flying in strong turbulence are the main concern. Worn bolts will eventually cause the holes in the fittings to become egg-shaped. If the holes in the fitting become worn oversize, the fittings must be replaced (not as difficult as it sounds). The next largest bolt size (7/16) would probably leave too little margin on the fitting and the cost to have special wing pins made only slightly oversize would be very great and would require precision machine shop work.

MISCELLANEOUS

A number of new Sky Pup projects have been started this year. I recently received update from Archie Robertson of Indianapolis, IN, from Alexander Campbell from Port Huron, MI, and from Rex Rhode from Monticello, WI. Rex sent photos of the completed tail and nearly completed fuselage.

Dean Lowe of Waco, Texas recently purchased a completed Rotax powered Sky Pup. It was built by an A&P mechanic as a school project but was never flown. Dean plans to fly it for time and then sell it. If interested, his address is: Rt. 5, Box 869, Waco, TX 76705 (will have photos next time).

Paul Pontois has moved back to Quebec after a year of absence (see issue 18). He is back at his old address: 1890 Range-des-Chutes, Ste-Ursule, Quebec J0K 3M0

The next issue will have updates from Newton Borden (issue 17) who is still flying his Pup and says he is glad he didn't sell it. Also, news and photos from Neil Huizenga (issue 17 & 20) who has been flying the first plans-built Sky Pup.

Dear Sky Pup enthusiasts...I want to thank everyone who sent photos and letters about your Sky Pup. There would be no newsletter without your help. Sadly, there is not enough time to answer each letter individually. I try to respond to those which have a specific question or problem. I do read and save everything. If you have a question that I forgot to answer, or if you would like me to return photos, please call or write. The photos I keep go into a special Sky Pup album which will become part of the Sky Pup history. THANKS AGAIN....Dan

HAPPY FLYING EVERYBODY

André St-Pierre



SKY PUP NEWS



Newsletter No. 22

Winter 1988/89

Wisconsin Sky Pup Flying
More Pups Completed in 1988
More Tips on Loose Wing Fittings
Tips on Hotwiring Foam Ribs
Letter from Newton Borden
Update from Greg Pardee
First Plans Built Sky Pup
Rotax 277 Keeps Running After Engine Shutoff
Bubbles/Blisters Under Fuselage Fabric
Miscellaneous

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WISCONSIN SKY PUP FLYING



Todd Douma of Hortonville, Wisconsin reports that after 4-1/2 years of construction he has completed and flown his Sky Pup SN1916. During that time he also built a new house and moved from Appleton to Hortonville. This Pup is blue with white trim and the wheels are black. The sunburst pattern on the tail should help visibility. The engine is a 340 Kawasaki with Rotax gearbox using a custom mount of his own design. The weight came out to 229 lbs and the CG was well within range. The total cost to build was only \$1500 and he gives thanks to Steve Wood for designing it that way. The finish was 2 coats clear varnish, 6 coats of clear with silver, and Pratt and Lambert Jet-glo as the final color. Todd says some unsightly bubbles and blisters formed on the fuselage during the heat of the summer of 1988 (see later in this issue for a discussion of bubbles in fabric cover). The first taxi tests were on May 30, 1988. He

had few carburetor and exhaust problems but had them worked out by the 20th of June and went to do some more ground runs. Here's the story of his first flight; "It was a perfect day, quiet and warm. I was using my dad's hayfield where I keep my Pup. the field was pretty rough so instead of risking damage from taxi runs, I decided it might be safer in the air. Full power into the wind lifted the Pup sooner than expected and I found myself climbing quickly. At several hundred feet I throttled back and the engine all but died! Carburetor problems again. I managed to keep the engine running but only at 3/4 to full throttle. With some fancy throttle control and a prayer, we managed one circuit and came in for an interesting landing. The excitement only heightened the feeling I am sure only those of you who have built and flown their own airplane can comprehend. The awesome feeling an satisfaction!!! Since then my Pup and I have acquired about 25 hours of fantastic and fun flying including some engine off gliding. I put it away for the winter and plan to do an inspection on the engine and gearbox seeing as how much of the installation is one-of-a kind".....Possibly, we will get a chance to see this Pup at a future Oshkosh convention a Todd would not have to travel as far as many of us.

MORE PUPS COMPLETED IN 1988



The photos above are from William Parker of Eastman, GA who writes that his Rotax powered Pup SN2881 is now completed and has had some taxi work. The covering is Stits polyfiber and the color is yellow and silver, but the paint scheme is not yet completed. A fiberglass fuel tank is built into the centersection. He says he first broke a prop while taxiing in a dirt field but got replacement. On the next attempt, the Pup started to lift, but in his excitement he drifted to one side and hit a firebreak plowed by the forest rangers. WHAM! The wheel busted, the axle broke, and another prop was in a thousand pieces. He has since replaced the wheel and axle, and mounted a 3-blade Ultraprop. Ready to go again as soon as runway construction is completed. He modified the landing gear by bolting a steel bar under each end of the wheel axle. These metal straps are bent down to vertical at each end of the axle to mount the wheel. The result is much more prop clearance.

Tom Hogan of Oak Ridge, Tenn sent the photo at left of his nearly complete Pup mounted on its trailer. The Pup was covered with Dacron 103 and painted with Blue River Filler coat #7601 followed by Benjamin and Moore latex enamel. The colors are Linen White and Royal Blue. The cockpit is mauve. The engine is a used Rotax 277 which had only 21 hours on an Aerotique Parasol. The engine cost \$450. Still needed are the controls, fuel tank, fairings, seatpad, and some warmer weather so he can fly it.



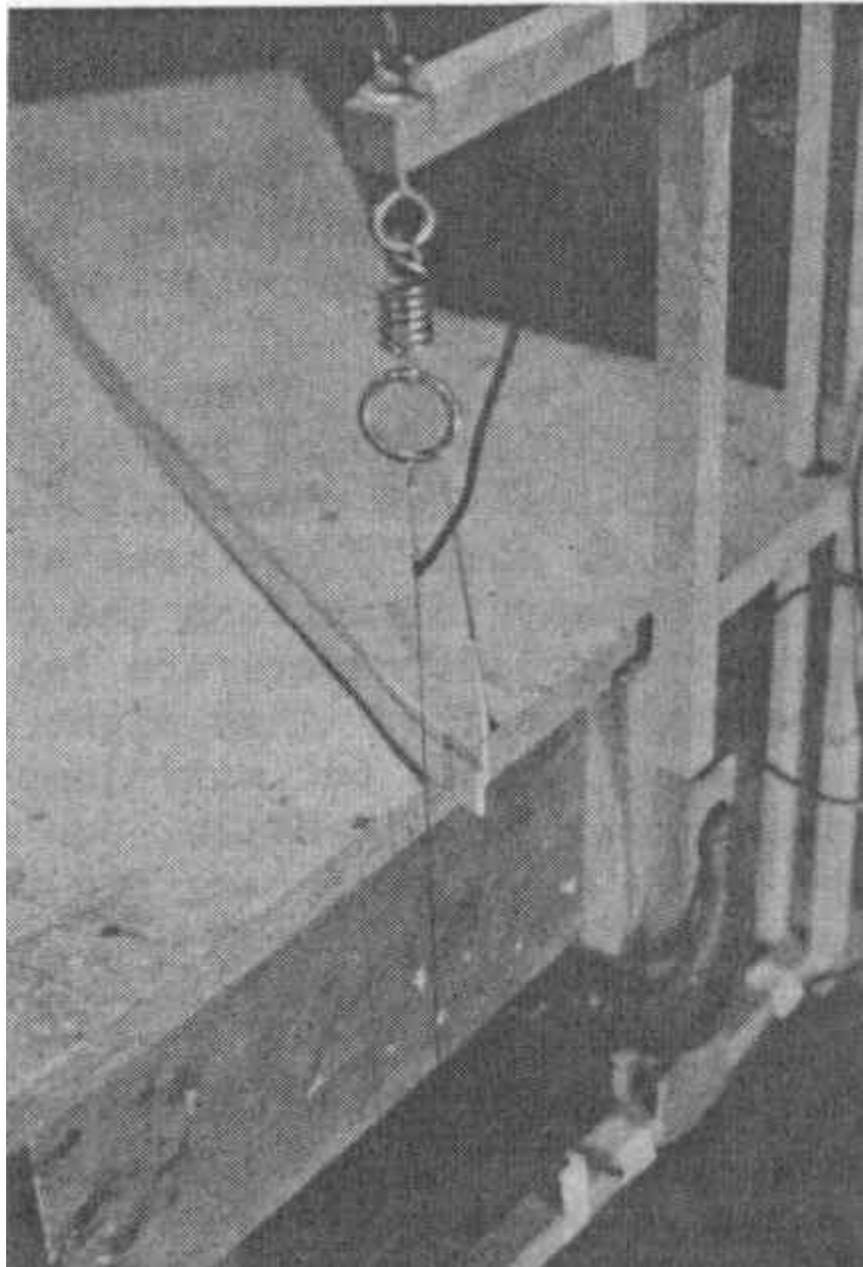
MORE TIPS ON LOOSE WING FITTINGS (SEE ALSO NEWSLETTER 21)

(Editor's Note: this modification is not approved by the designer of the Sky Pup. Do not attempt this modification without doing the engineering to check the effects of this procedure!)

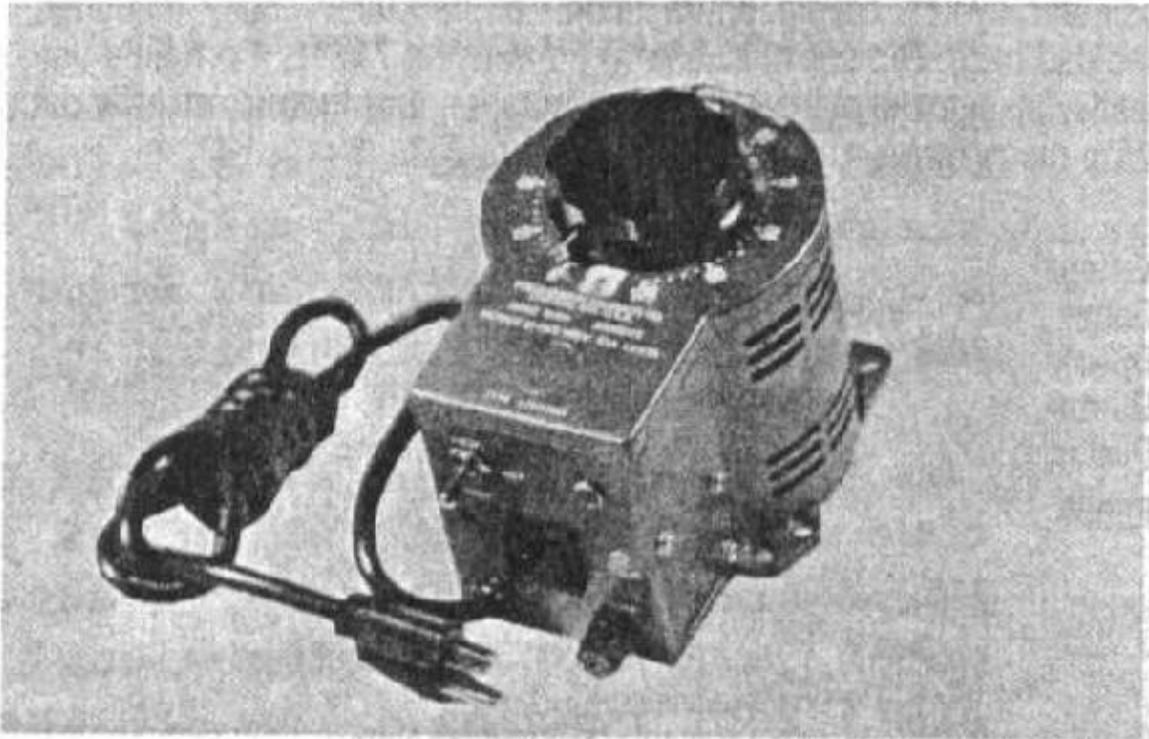
Dave Beres of Keizer, OR sent this excellent tip for anyone who has excess play in the wing joint which can not be cured with new 3/8 bolts. Note that 10 MM metric bolts are .393 inches in diameter as compared to .375 for the 3/8 bolt. Reamers are available at any good tool supply house. You have to go to industrial bolts which come in grade 5 (comparable to aircraft grade), or in grade 8 which is considerably stronger. Dave says it is his personal opinion that "aircraft grade is absolute bologna! It's a bolt made by a manufacturer who went through all the paperwork. He doesn't have a superior bolt, just superior paperwork." Anyway, a 10 MM bolt and reamer would cost a lot less than custom machined wing pins and would be much easier than replacing the fittings. Note that only .018 inches would be removed from the fitting. You may have to drill a cotter hole in these bolts. Also, check the thread length which may be different than aircraft bolts.

TIPS ON HOT WIRING THE FOAM RIBS

A number of builders have written that they have had difficulty setting up a satisfactory hot-wire. Though the process is very simple, you will have to experiment to find the right combination of power source and cutting wire. The photo below shows a simple wood frame I used for the hot-wiring. Any type of frame will work but it should be strong and should include a spring or some device to keep the wire tight when it gets hot and stretches. A loose hot-wire will bow when pulled thru the cut and result in errors.



In the top photo, my hot-wire is clamped perpendicular to the work bench. The template is stuck to the foam piece with carpet tape. The small bumps at the trailing edge are an old model airplane building tip. They mark the exact location for cutting off the tip later, and provide a little extra thickness to be sanded off after the trailing edge is bonded in place resulting in a better fit.



Variable Transformers

(Staco) Enclosed bench-type transformers include ventilated case, dual output switch, epoxy-coated coil, standard three-prong plug, 6' line cord, matching receptacle, fuse and pilot lamp. CSA certified.

Builders have reported trouble with the hot-wire burning off or the transformer or power source burning up. The ideal power source is a "variable transformers like that shown below. They are available from Wicks but are too expensive. Try to borrow one. A battery charger or train transformer should work. The secret is you must match the thickness and the length of the wire with the capacity of your power source. If the wire is too heavy or too short, there will not be enough resistance, and the transformer will overload.

For my setup, I used .025 safety wire, a voltage setting of about 10 to 12 volts, and about 15 inches of wire was heated. When it came time to hotwire the underside of the centersection diagonal and nose ribs I found I had to build another frame long enough to span the distance but the length of heated wire stayed the same.

Some builders may be trying to run the wire too hot. Excess heat will cause the foam to melt away from the wire at the surface of the cut. The edge of the cut will not be square. A slow patient cut which results in the typical "angel hair" will give the best results. With too much heat the wire will burn out more often as will the connection between the power source and the cutting wire. With too little heat there is a greater tendency to bow the wire while trying to pull it through.

If all this seems too much, some builders have reported cutting the ribs with a bandsaw, and with an electric carving knife? Only the rib and spar foam needs to be hot-wired. The rest of the foam in the airplane is cut with a knife. You could probably cut the ribs oversize with a knife and then sand them down to shape. The hot-wire is the fastest way and is a lot of fun once you get it working.

LETTER FROM NEWTON BORDEN OF SO. WEYMOUTH, MASS.

Dear Dan,

I have enjoyed flying my Pup all summer and am glad I didn't sell it. Other than a deteriorating fuel line, I have had no problems. I mounted a VCR camera on the right side on a plywood and aluminum mount in the slipstream. I have only used it twice but noticed both times I had difficulty climbing! The climb rate decreased from 600 FPM to less than 200 FPM. I knew it couldn't be the added weight (only 5 lbs.) so I think it's the interrupted airflow down the right side of the fuselage and over the tail. I have decided to mount the camera inside the centersection and put a plexiglass window in the leading edge. The pictures shot thru the prop arc came out good and give non-fliers an idea of what flying a Sky Pup is like. Best of all are the crossword landings and the expressions of experienced pilots when they see the almost 45 degree angle crab on final approach. It's hard to convince them a plane will fly without ailerons. I trailered the Pup home in November as it was getting cold and windy and I'm strictly a fair weather pilot. I'm drawing up a set of

amphibious floats for the Pup. If I can keep the weight within reason, I'll try them this summer. We have many more lakes, ponds, and ocean around here than flying fiends (or any fields). I'm putting a reduction drive on the Konig to give some more thrust for water takeoffs.

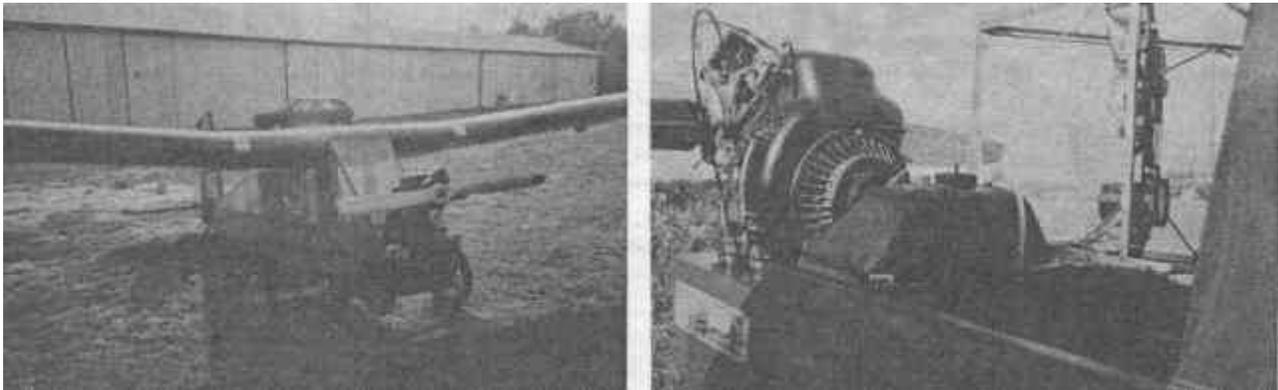
Here's a little advice you may want to pass on to future Pup fliers: The owner of the field I fly at threw off all the ultralights, except myself and two other old timers. He said, "You three are the only ones who fly by the book", and went on to cite the many infractions the others were guilty of. What it boils down to is that regular aircraft owners are jealous of the freedom from regulations that ultralights enjoy. They might overlook an infraction of a regular aircraft, such as a short final, but will jump all over an ultralight. If you fly out of a busy field, keep a low profile, don't fly at peak hours, give way to all other aircraft, and above all, don't brag how cheap it is to fly! Save it for Oshkosh.

UPDATE FROM GREG PARDEE

Greg Pardee of Owosso, Mich. sends a report on his Pup SN 2294 (newsletter #18 Greg says he really enjoys flying the Pup except for the vibration on long flights. He has accumulated only about 10 hours on the Pup due to his 2 year old son who keeps him plenty busy. Greg is also in the process of building a Mini-Max from a kit. This spring he plans to make a few changes to the Pup including installation of rudder pedals and running the cables inside the fuselage. Also, while the Pup was parked at the airport last summer, the steel gas tank developed a leak which was detected during preflight. The fuel leak had eaten out a two foot piece of the fuselage bottom. It was detected only by running the fingers along the bottom. Repair was simple. The bad foam was cut out, a new piece fitted and bonded into place, then cover and paint. The other project was to replace the steel tank with a 3 gal. plastic outboard motor tank. Greg had his first deadstick landing last August. Here is his account of the incident:

"On the first flight after the repairs were completed, I couldn't get the RPM's to come down below 2800 which was Just enough to keep me aloft. After a couple of trips around the pattern, I decided to hit the kill switch but to no avail. The motor just kept thumping along! On the next circuit, I tried the choke but it still kept running. The RPM was lower this time so I simply hit the kill switch again andpresto. Silence! I glided in for a perfect landing on the grass runway. Upon inspection of the carb, I found the needle in the slide body was bent slightly causing it to wedge when I went to idle. I just straightened it out and it was fixed."

FIRST PLANS BUILT SKY PUP



Neil Huizenga of Grandville, MI sent these photos of his Pup SN1092. This bird was built by Ray Macke back in 1983 when the plans were first introduced. For the complete history see issues no. 20, 17, 16, and no. 1. The colors are orange and blue and the engine is a fan-cooled Rotax 277. A hinged canopy and instrument panel swings to one side to allow entry. Neil says he thought he had cured a persistent engine tuning problem. However, after only two hours of flying the engine bogged down again and caused a forced landing (no damage). He had always assumed the CHT gauge was off as it never read over 200 degrees. He checked the gauge and found that it was correct! Next he will check the timing. If the timing checks out OK, it might indicate that the exhaust, or some carburetor component was mismatched for this application. The intake, the exhaust, and the load (prop) must all be matched to have good performance with a 2-stroke engine. The fact that this engine was mounted before Rotax engines became commonplace on ultralights, combined with it's history of problems suggests a mismatch.

DOES YOUR ROTAX 277 KEEP RUNNING AFTER YOU SHUT OFF THE IGNITION?

Mine does too. Sometimes. The Rotax 277 is a high performance engine with fairly high compression. It also has a longer stroke than any of the Rotax twins. I have found the engine will "diesel" after shutdown if it has been running too rich, or after a long cross-country flight with little high throttle operation. It sounds like carbon buildup in the combustion chamber (have 104 hours). With high compression, and a high engine temperature, a small piece of glowing carbon could continue to fire the mixture. Applying choke will usually kill the engine unless the idle stop is set too high. Sometimes shutting the engine down with choke will help with difficult "hot start" situations. Just as this issue was going to press, I took the engine apart and discovered a moderate amount of carbon and the lower piston ring was stuck tight. A varnish-like deposit was built up in the ring grooves apparently due to the fuel mixture (premium unleaded and AV-2 oil).

DO YOU HAVE BUBBLES OR BLISTERS UNDER THE FABRIC COVERING ON THE FUSELAGE?

Most Sky Pups I have seen have had at least a few. Presumably, it is caused by air that was trapped under the fabric during the finishing process. It helps to be extra careful that the fabric over solid surfaces is thoroughly wetted by the cement before it dries. Excess heat applied with an iron over wood surfaces will develop bubbles due to steam. The real question is what about those bubbles that develop months or years later. You can puncture them with a pin and push them back down and sometimes they stay. Pinholes should be sealed to prevent fuel damage. The problem seems restricted to foam covered surfaces. Lately I have imagined the phenomenon to be associated with rapid change in barometric pressure and the possible effect of occasional flights at higher altitude (4000-5000 AGL).

MISCELLANEOUS

Robert Bryan of Saratoga, NY has sold his highly modified Pup with ailerons (see newsletter #18). The new owner is Paul Cazaw of Dalton, MA.

Wayne Jackson of Morrill, ME has purchased Sky Pup SN 2469 that was built by Leroy Thomas of Belfast, ME (newsletters 11 & 15). Leroy passed away about a year ago.

Cecil Bosworth of 432 Hall St., Charlotte, MI 48813, writes that he must sell his Lloyd powered Pup originally reported in issue no. 11. He says he needs the hangar space. The price is \$1500.

Sky Pup builder Rev. Earl R. Gray, PO Box 26, Kezar Falls, ME 04047, writes that he is having trouble finding a reduction drive to fit the Cuyuna 215 on his Pup. If anyone can offer advice, please drop him a line.

ALSO, I have received updates from a number of builders including: Dana Rauch of Toddville, Iowa, who is working on tail feathers; James Jensen of Boone, Iowa (his EAA# is 838!) and Kenneth Thompson of Kennesaw, GA. Rich Plunkett of Toms River, NJ, sent a cassette tape of John Ballantyne's forum at Oshkosh '88.

With any luck, your newsletter editor will be moving from Potomac to Loda, IL by the end of the year. I have purchased 27 acres of undeveloped land which is mostly wooded. It need electricity, a well, house, barn and fencing for our horses, and a hangar and runway for the Pup. A runway of 1000 ft by 90 ft will be available after clearing some trees and grading. I expect to be very busy the next few years but plan to continue the newsletter (still plenty of interest).

SKY PUP NEWS



Newsletter No. 23

Spring 1989

Texas Sky Pup
The Smallest Sky Pup in the World
More on Hotwiring the Foam Ribs
Oshkosh!
Letter from the Editor
A Typical Sky Pup Holiday
Minor Repairs to "Simple Happiness"
Rotax Maintenance Video
Miscellaneous

SKY PUP NEWS is a quarterly newsletter for builders of the Sport Flight "Sky Pup". The purpose of the newsletter is to provide for the open exchange of information and to encourage builders to share their experiences of building and flying the Sky Pup. Beginning with this issue, the newsletter will be written by Sky Pup builders and enthusiasts. Unless specifically stated, all ideas, suggestions and building tips are strictly the opinion of the contributor and have not been approved by Sport Flight Engineering Inc. No warranty is made as to the airworthiness or suitability of modifications or building tips. When in doubt, you should follow the plans as close as possible and contact Sport Flight Engineering if you have questions. SKY PUP NEWS is compiled and distributed by Dan Grunloh... Rt 2, Box 82, Potomac, Illinois, 61865. Subscriptions are \$7.00 for the calendar year (\$10.00 overseas). If you want to talk about the Sky Pup, or about airplanes and homebuilding in general, please feel free to call me at (217) 569-2121 late evenings. Please keep sending your letters and photos.

TEXAS SKY PUP





The photos above are from Dean Lowe of Waco, Texas. This Rotax powered Pup is yellow with orange trim and appears to be very much "per plans". This is the first Texas Sky Pup to be featured in the newsletter. Dean purchased the Pup completed and ready to fly. He bought the Pup for a very enviable price and the original plan was to fly it for a time, and then sell it. He has changed his mind and says he will keep the Pup. It was built by an A&P mechanic as some sort of school project but was never flown. The problem was with the school, not the Pup (probably some insurance or liability hassle). The Pup flies just fine and he has over 10 hours on it already. The first attempt at fast taxi and low hops resulted in a broken prop and minor damage due to taxiing in too much crosswind. For a time he had considered adding an extra nosewheel or skid to protect the prop (several Sky Pups have appeared with a small wheel under the nose, notably a Michigan Pup built by a club and flown by lots of different pilots). However, with a new prop and full power on takeoff, it flew great on its first flight. It was also Dean's first flight in a taildragger. He says "Aerotec Props" in Dallas, Texas makes an excellent 60x28 prop for the Pup for \$100 and it works great. Their phone number is 214-447-2010. Dean is having a trailer made for his Pup and hopes to have it in time for an air show in Denton, Tx on June 9th. Besides photos of his first flight, he also sent photos of his other "babies". 1930 Austin American automobile and photos of him and his son flying their "B Model" Weedhoppers.

THE SMALLEST SKY PUP IN THE WORLD



This photo was sent in by Sky Pup builder Bob Schafer of Boise Idaho. This peanut scale rubber powered model has a 18 inch wingspan, is 9 inches long, and is finished in the same colors as his full size version, blue and yellow. The model flies great, of course. Bob says his full size Pup is about 60% complete but that work had slowed down recently due to change in marital status. The theory is, he needs a woman around the house so he has a good excuse to go out and work in the garage. He says he will send photos of his full size Pup, and that he plans to attend the Oshkosh convention this year.

MORE ON HOTWIRING THE FOAM RIBS

The previous issue of Sky Pup News (No. 22) has a significant omission from the article on hot wiring the foam ribs. I failed to mention there is a special type of wire called "Nicrome" which is ideally suited for use as the cutting wire. It comes in different sizes and electrical resistances and is presumably available from RC model and homebuilt aircraft suppliers. The extra resistance built into the wire makes it much easier to get the correct heat without burning out the cutting wire and overloading the power source. I forgot about the Nicrome wire as I have used stainless steel safety wire because it was handy and I had been told it would work. My thanks to Terry Rockwell and Newton Borden for the reminder. Incidentally, Terry Rockwell reported that he has sold his Pup SN1863 featured in the July 1984 issue of Sky Pup News. The new owner is in Harrisburg, PA. Terry has since built and is currently flying a Kolb Ultrastar.

OSHKOSH!

The 1989 EAA OSHKOSH CONVENTION is July 28th to August 3rd. Every year since the Sky Pup was introduced in 1983, there has been a Sky Pup on display at Oshkosh. So far, the prototype, Gerry Coppock's Pup, and my own have been seen there. This year, I will not be bringing mine because of my busy schedule and I don't know about Gerry. I do plan to be there at least a few days though. Look for Sky Puppers to be camped at "Ollies Birds Eye View" campground just outside the ultralight entrance. If there is anyone else out there who might be able to bring a Pup, PLEASE DO! We need you there to represent the Sky Pup idea to the world's largest gathering of sport aviation enthusiasts. I'm sure you will have lots of interest from potential builders and from Sky Pup owners who are already flying. You don't even have to fly it. Static displays are always welcome (and less hassle). I only flew a few times last year during the uncrowded early morning periods. If you want to fly, you should have at least 10 hours in the aircraft in its current configuration. You must be an EAA member to display an aircraft. If any questions about Oshkosh, please call me at 217-569-2131 after 10pm.

A LETTER FROM THE EDITOR

July 5, 1989

Dear Sky Pup Enthusiast,

It is time once again for me to apologize for sending this issue (#23) out so late. Several years ago, this would have been the April issue. I since changed the designation to "spring" to better reflect the wide variation in actual printing. This year it's even later than usual due to a lack of material being sent in during the beginning of the year. This is the second issue of 1989 and you should relieve two more issues this year. The next issue, "July" or "summer" would normally go out in August and includes news from the Oshkosh convention. I will definitely need builders and pilots to send photos, ideas, and articles within the next month if the "summer" issue of SKY PUP NEWS is to be sent out before "Fall".

There is still plenty of interest in the Sky Pup and in the newsletter. This year, there were a number of new builders who learned about the Sky Pup from the back cover photo of my Pup SN2028 in the March issue of EAA Experimenters. I received quite a few letters from potential builders who had never heard of the Sky Pup before. If there are any subscribers who would be willing to sell the plan set, there are definitely buyers out there.

In spite of the continued interest, there will probably come a point in time when the newsletters have about covered every possible building tip, modification and idea that is relevant to an aircraft as simple as the Sky Pup. I don't think we have reached that point yet, so I encourage those who have not yet sent in something for the newsletter to get with it and join the litter! Send a photo and some details. Every Sky Pup should be featured in the newsletter at one time or another. Someday, these newsletters will comprise the history of the Sky Pup.

And now a word of explanation for new builders: If you are puzzled why many Sky Pup owners have not sent contributions to the newsletter, it's because you have not owned and flown one for several years. The Sky Pup has to be the easiest to fly, easiest to maintain, most trouble free ultralight ever designed. Routine repairs to the airframe which are common on the "bolt" together ultralights" Just don't occur with the Pup. The rugged landing gear and large diameter tires eliminate damage from off-field landings which is the most common repair item on most ultralights. The end result is that Sky Pup pilots enjoy more trouble-free flying and have more fun! We know you will too! Newsletters.....They're nice to receive in the mail, but not really essential for such a trouble free flying machine. There are about 100 subscribers, but at least 200 more Sky Pups have been completed and flown by persons who never received the newsletter.

This year, I have especially appreciated the low maintenance aspect of my Pup. I have been spending all of my spare time building a new 27 acre farmstead out of nothing. I am currently constructing a 40 x 60 horse barn with the help of my wife and a friend. I will also need a machine shed, hangar for the Pup, fencing, roads, and a mobile home to live in while we build a house. Land must be cleared for the runway. The planning and execution of these projects takes all of my spare time. If I had to spend lots of time working on the Sky Pup, I wouldn't get to fly! The engine got a new piston and rings this winter and I only had to varnish the prop and give the Puppy a bath and I was ready to go. It still flies great! In spite of my busy schedules I can still get in a little flying on weekdays, after work.

In closing this letter, I want to especially thank all of the builders who have sent letters and photos about their Pup. You have made the newsletter possible and you have helped motivate others to see their project through completion....Thanks!

Dan Grunloh

A TYPICAL SKY PUP HOLIDAY

by A. R. Clements

I wake up to a beautiful summer morning at our ultralight strip at Pit Meadows, B.C. Canada. My wife and I live in our 20 ft. motorhome (also homebuilt) during our B.C. summers and this is a lovely camping area. The grass strip is leased from a benevolent farmer who likes to see the 25 or so pilots enjoying their planes. My Sky Pup sits in its enclosed trailer with plastic covers for the wings. The farmland in the valley is surrounded by mountains up to 7000 ft. There is a 15 mile long lake, several smaller lakes, a couple of rivers, a few quiet roads, and lots of dykes dividing the valley.

This terrain, as you can imagine, makes ideal "Sky Pup" flying. By the end of summer, all I would have to do is make a low pass over one of those high speed ski boats, and I had a race on my hands. Sometimes they would leave me behind so I would make a climbing turn back down the river to find something more my speed. Some of the boaters got to recognise my "Green Machine" and they would stop and wait for me to zoom on them which was the signal to start the race. One day I came screaming over a dyke (doing all of 30 probably) and there was one of these racers with a half dozen young people aboard. I banked steeply and went alongside. We raced for a mile down the river at ever increasing speeds before I turned away. They were waving and grinning at this 60 year old Sky Pup pilot. I wave back doing my porpoise act which is raising and lowering the tail rapidly (I wonder if they think the plane is out of control).

I always wave to people walking on the dykes and they wave back. When I was a kid I would shout up to a passing Cub or Champ. Now I can shout back! I know the regs say to stay 500 ft. from the public, but when a farmer waves and I feel he wants to see more, I mow his grass a little. If they have a smooth pasture, I land and let them see the Sky Pup up close. Then away I go again, just like Lindberg in the old days. Sometimes I photograph their homes from the air and they are delighted. It helps to make good P.R. My Pup is the quietest ultralight around and I think the people like that.

There are many birds in this area and I find myself in amongst flocks of geese and ducks and even sparrows and swallows. They don't seem to have any trouble avoiding me. The big and slow flying Great Blue Heron gives me the most concern as he gets into a great panic. Once, while flying alongside the mountain, an adult Bald Eagle came at me as though to cross my path. He saw he wasn't going to make it and did a fast wingover and passed behind the tail of my "Green Machine" (phew!). Another time, while flying along the river, I was chased first by one Osprey and then by another. I was laughing until I saw they were gaining on me and looking very angry. So it was back to full power again.

I generally go up high in the early morning, climbing over and following the steep mountainside until I'm at 3000 ft. or so. With snow-capped mountains, and lakes and rivers below, I can see forever. It's like I am the only person awake in the whole world.

What a delight to have built and to fly a "Sky Pup".

Sincerely,
A.R. Clements
Box 2076
Sechelt, BC Canada VON-3AO

(for background information on the "Green Machine" see issues no. 17, 18, and 21

MINOR REPAIRS TO "SIMPLE HAPPINESS"



Andre St. Pierre from Pointe du Lac Quebec (issue #21) reports he has made some modifications and repairs to his Pup SN 3099. He had originally built a fuel tank into the compartment behind the backrest foam panel. A filler neck through the side panel was AB plastic. He discovered too late the fuel will dissolve ABS plastic. The problem was easy to fix by replacing the tube with a PVC plastic pipe which is not affected by fuel according to his tests. In the process of making these repairs, he discovered cracks in the lower part of the backrest foam panel! The cracks were apparently caused by excess "G" loads applied during hard landing. He repaired the backrest by adding a foam sheet and fiberglass to the affected portion of the lower backrest. Fellow Canadian builder Jean-Claude Hivon (issue #19), has noticed some deformation of the backrest on his Pup when taxiing on rough ground. He added a plywood lamination on the complete underside of the backrest foam panel on his "Ski-Pup" which cured the problem. Unfortunately, he forgot to mention this change to Andre when was advising him on the construction of "Simple Happiness". It is recommended that Sky Pup owners check the condition of this area whenever the fuselage is opened up for some reason or after a particular hard landing. Apply pressure strongly with the hand from the upper side to check for cracks....and take it easy on those landing!

ROTAX MAINTENANCE VIDEO

Paul Rasmussen of Des Moines, Iowa, recently purchased the Rotax Video from L.E.A.F. and sends along the following report: Although there was some good information for new engine owners, overall, the \$50 tape was a disappointment. I think the L.E.A.F. catalog contains more information about timing and tuneup etc. Here are some tips from the video.

- 1.) The Rotax 277 runs rich at full power but leans out in the midrange. I suspect the engine was designed to run at a higher power setting than most Sky Pup pilots need and we therefore spend more time in the lean midrange settings. I plan to change the needle one notch richer and see if it helps the overheating problem.
- 2.) The body of the carb should be parallel with the cylinder head (straight up and down in level flight).
- 3.) The diaphragm fuel pump should be mounted vertical with the small vent hole in the cover on the low end.

Paul says he recognized Neil Huizenga's Pup SN 1092 (see issue #22) as having been feature in the October 1985 issue of "Ultralight Aircraft" magazine. It's a famous Pup! It probably stimulated many new builders to "join the litter". As to the bent carb needle reported by Greg Pardee in the last issue, Paul and I agree, it should be replaced rather than straightened. It will always be slightly crooked, and could cause the throttle to stick at the worst time, such a taxiing. Paul also reports that his Pup, featured in issue #14, is now 3 years old and still going strong. He may not get to fly as much this year as he is expecting an addition to the family.

MISCELLANEOUS

I recently received a phone call from Ed Toner, 52 Newbury Rd., Howell, NJ 07731. He was looking for information about Sky Pups completed and flying. He has built an accurate scale gas-powered free flight model of the Sky Pup. His model is to be featured in a

popular mode aircraft magazine and he wanted to include photos of the real thing. Possibly Newton Borden or one of the other builders on the east coast will soon find their Pup pictured in a national magazine.

Mark Walker and Jim Carpenter of Tampa, FL report that their Sky Pup is nearing completion.

The fuselage and one wing is covered and the KFM engine is mounted. They have to cover the second wing and hook up the controls and instruments. Mark says everything seems to take longer than expected but they are hanging in there and it shouldn't be too long now to completion.

Vince Jackson of Winterset, Iowa, writes that he is new to the Sky Pup scene but has started to help a friend complete a Sky Pup which stalled out during the wing construction. He was working on the tail feathers at the time of his writing. This Pup is one of many that are still under construction and will no doubt be flying in the future.

New Sky Pup builder down under. Mr. W. Laan from Titirangi, New Zealand wrote for information about plans for the Pup. I was able to put him in contact with someone on the old plans buyers list from New Zealand who had not actually begun construction. He now has plans and a full set of newsletters. No one can accurately say how many Pups are being built around the world. Sky Pups will probably keep appearing from workshops for many many years.

SKY PUP NEWS



Newsletter No. 24

December 1989

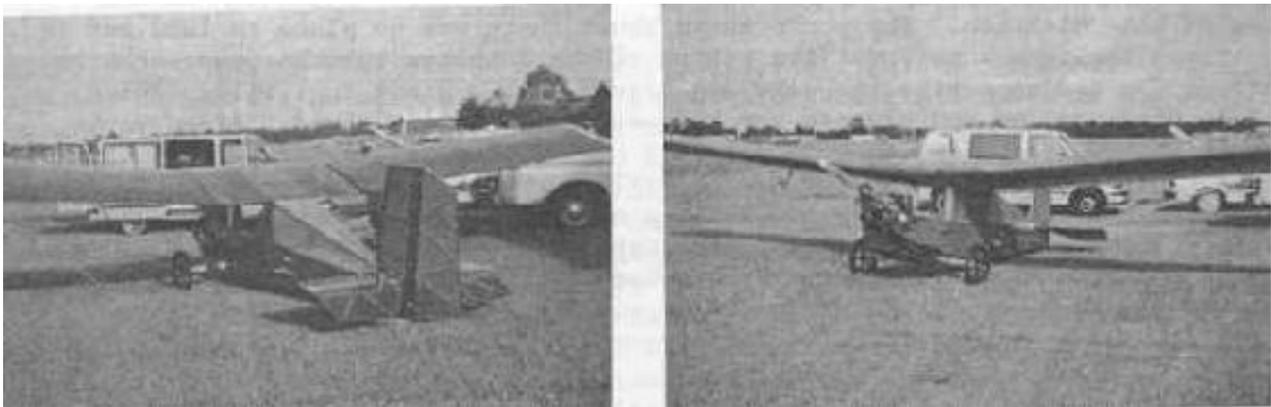
First KFM Powered Pup has Flown
Oshkosh 89 and News from Gerry Coppock
News from Al Clements of Sechelt B.C.
Modifications to Texas Sky Pup
Excerpts of a Letter from Newton Borden
Miscellaneous

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Please keep sending your letters and photos.

*** Important notice to subscribers.... This issue, No. 24 is only the third issue published for 1989 due to a decline in the "news" to be reported. There have been lots of new builders but few reported completions this year. Subscriptions for 1989 will be extended to include issue No. 25, whenever it comes out. Sky Pup News will henceforth be published irregularly 2 to 3 times per year. Subscriptions are still \$7.00 for 4 issues. Back issues are \$1.00 each in quantity.

FIRST KFM POWERED PUP HAS FLOWN



Mark Walker and Jim Carpenter of Tampa, FL have completed and flown the first KFM powered Sky Pup to be reported in this newsletter. The fuselage is tan and the wings are orange. The fabric cover was Dacron sheath lining and the quality of finish appears to be excellent. The 2-cylinder opposed 25HP engine required modifications to the exhaust system for mounting on the Pup. The gel-cell battery for the electric start is mounted on its side under the seat. Empty weight is 230 lb and the Pup is very much "per plans" except for the addition of a tailwheel. An electric generator type airspeed is mounted under the wing outboard of the wing attachment joint. The first flight was in October 1989 but the engine would only turn 5500 RPM so takeoff and climb was poor. The engine should turn 6200 RPM at full throttle. After some study it was decided to remove the 7 inches of exhaust pipe which had been added between the engine and the muffler. This was done and the engine returned to full power RPM. However, the weather has not permitted additional flight testing with the corrected exhaust. We will have more details about the project when they are able to fly again.

OSHKOSH 89 AND NEWS FROM GERRY COPPOCK



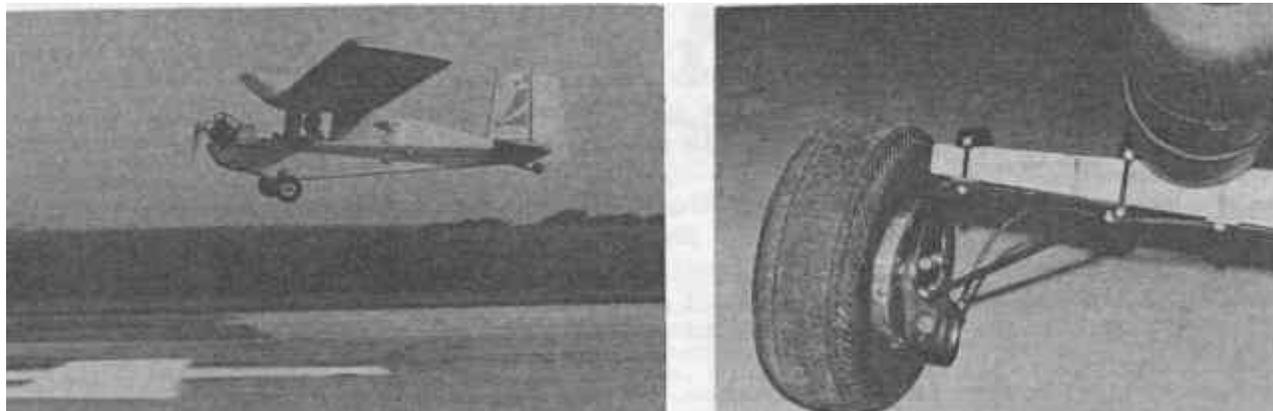
First the bad news. There were no Sky Pups on display at Oshkosh '89. Lots of builders and owners though. The photo at left shows a typical scene at the Sky Pup builders headquarters a Ollie's Birds Eye View campground. None of us were flying so there was no need to refrain from recreational beverages in the hot weather. A good time was had by all. Gerry and I had both flown at Oshkosh on previous years. However, this year we both were working so much overtime that we couldn't prepare and bring our Pups. Oshkosh was a much needed vacation. There were 15 to 20 builders and owners from all over the USA and Canada at the convention. Several builders have planned to bring their Pup but couldn't make it due to lack of airtime or the trailer was not yet complete. Still it was a treat for me to meet friends in person that I had known for years but only through letters and phone calls. I didn't keep a list of names but thanks to everyone for stopping by.

Also in the news, Gerry says he had a forced landing in his "Doghouse" on the shores of Lake Michigan. The photo above shows there was no place to land but in the water. The impact tore out the bottom of the fuselage but the damage can be repaired. The sudden engine stoppage was traced to a 2-piece fuel filter which could be disassembled and cleaned but had never been safety wired. After many years of flying it decided to come apart at the worst possible time. Many of you have probably also flown too low over hostile terrain on a few occasions. It is a risk you should avoid. Gerry has built a new workshop and begun construction of a 2-place, high wing, tub fuselage, prototype aircraft called the Babe-E. His new company is called High Wings Inc. He has been working on the design for some time with the help of Sport Flight and hopes it will be an improvement over other homebuilts in the area of cost and performance.

NEWS FROM AL CLEMENTS OF SECHLT B.C.

Al reports that though he only flew 3 months in 1989, he accumulated 50 hours of good fun flying (most of us have trouble putting on 50 hours in a whole year). His bird has 147 hours total. See newsletters No. 18 & 21. The Pup is as good as new with no maintenance needed this year. He did have an outer axle shackle pop off on a hard landing and so broke his homemade prop. It was no problem as he had a spare store-bought prop. Al has since made another 2-blade and a 4-blade prop but hasn't tried them out yet. He says he puts "silicone" on the rubber engine mounts to keep them from chaffing. It also works fine on the exhaust joints. It doesn't burn off as you would think. He is building up the forward deck with an engine cowl but feels it detracts from the "Flintstone Plane" appearance. A new axle spring of laminated ash and oak has been built. The straight ash axle was too springy and the former oak axle was too stiff. He has decided to remove the tailwheel as the landing runs on a bumpy field are too long.

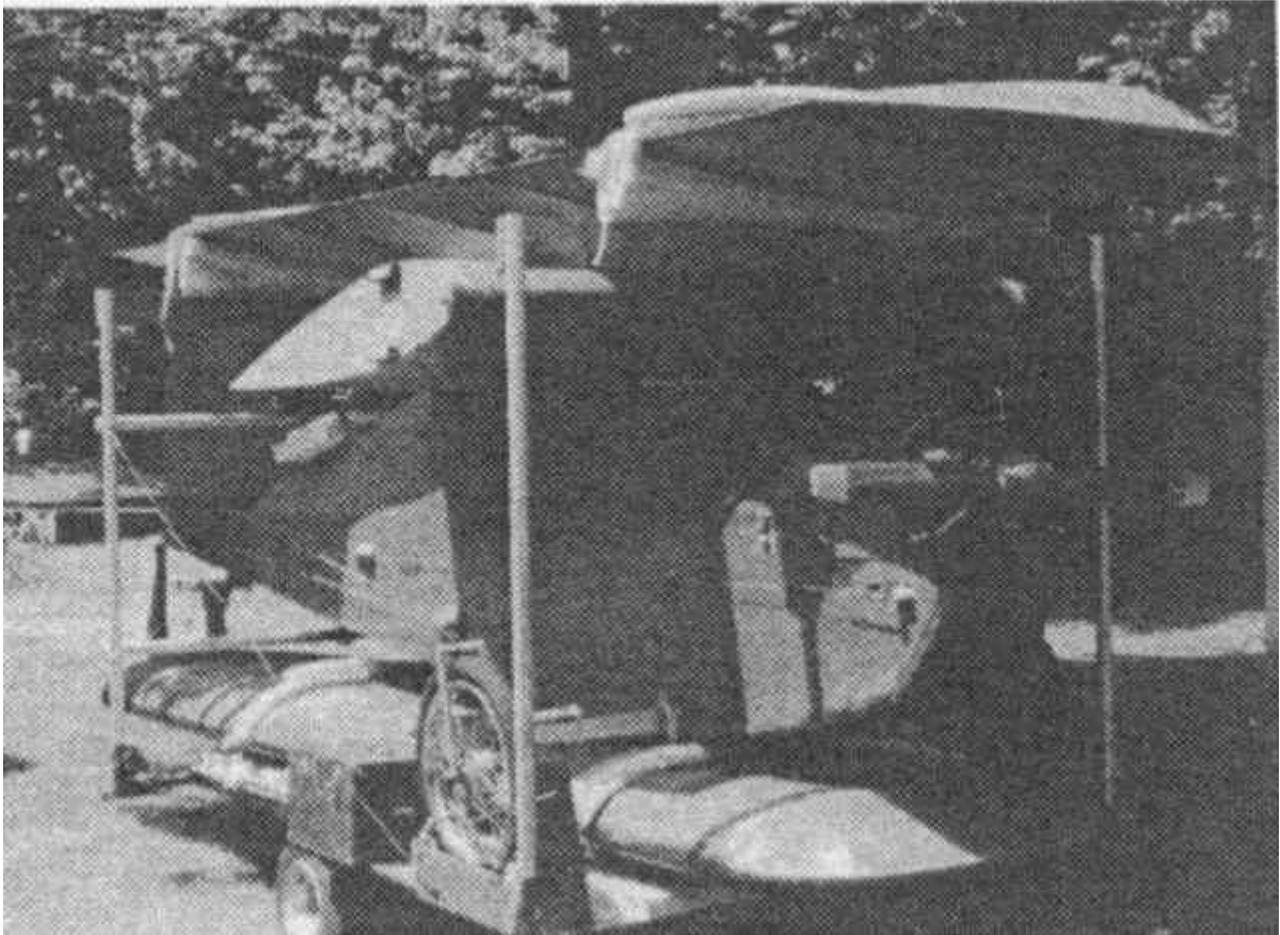
MODIFICATIONS TO TEXAS SKY PUP



Dean and Wayne Lowe have made a few modifications to their Pup which was featured in newsletter No. 23. They have added a steerable tailwheel, new muffler brackets to reduce vibration, and regular aircraft wheels and brakes. The wood rudder bar was replaced with an assembly which includes the function of the rudder and provides for individual hydraulic to brakes. Brake pressure is not sufficient to stand the Pup on its nose, but it can be adjusted so.

The engine mount was lowered 0.5 inches and moved back 1.5 inches to help the C.G. The head gasket was replaced with two head gaskets which reduced the compression and the vibration on the Rotax 277. Dean also says they have purchased a Ryan ST replica ultralight. It's a low wing, single place with a tube fuselage, Stits fabric, ailerons, and Rotax power. A photo of the aircraft in flight was included (the design was featured in the March 1985 issue of EAA Light Plane World p 25-28). The Ryan is for sale for \$2500. If anyone is interested call (817) 829-2089 after 6:00 pm.

EXCERPTS OF A LETTER FROM NEWTON BORDEN



“Dear Dan,.. Just a few lines to let you know how things are going. I built a lightweight trailer and towed my Pup down to the ultralight fly-in in Monterey, NY. I went with a friend who has a CG Hawk. It was a 12 hour tow each way. It was very hilly, hazy country, but I managed to get some shows with my video camera mounted on the Pup. I had the only Sky Pup at the fly-in but did meet 2 Sky Pup builders, Don Palmer and Bert Howland. Also last week I had an engine failure due to plugged fuel line and air sucking through my sight gauge (which was connected directly to the fuel supply line). The line would fill with air bubbles and the engine would quit. Then the line would fill with gas, I would restart and run for about 2 minutes until it would quit again. This went on for 5 to 6 restarts losing altitude and battery charge each time. I made it back to the field with just enough altitude for a downwind landing. Apparently the outlet of the fiberglass tank was being plugged with a gooey residue by pump pressure but would fill with gravity alone. After 3 summers, my Pup looks pretty messy. The orange color has faded, the latex cement is turning brown and the urethane is peeling. Maybe I'll recover it this winter. It's a pain in the butt to remove the wing each time after flying, so I just tie it down and hope for no bad storms. I almost made it to Oshkosh this year with my Pup. I was planning to leave Monterey, NY and go direct to Oshkosh but my buddy convinced me it was too long a haul. Hope you and your loved ones are in good health. Sincerely, “One of the Pack”,...Newton.

MISCELLANEOUS

Doug Rhode of Manitowac, WI called to say he had bought a completed Sky Pup from Ken Appleby. The Zenoah engine ran hot on static runup so the Pup was never flown. Doug has also purchased a Konig 3-cylinder radial. The Pup weighed only 202 lbs with the Zenoah so with the Konig engine this should be one of the lightest Pups flying. Look for the Pup at the Oshkosh convention.

Andre St. Pierre of Quebec, Canada has flown his Sky Pup a total of 110 hours in 1989 according to Paul Pontois. WOW!! That's a lot of flying. New builders take note next time someone suggests your 2-axis taildragger will be limited too much by crosswinds. Several Pups are approaching 500 hrs. How many plans-built aircraft actually fly more hours than they took to build?

Rumor has it that Robert Kenne of Houston, TX has completed but not yet flown his Sky Pup which has added wing spoilers and attachment blocks for floats.

You may have noticed the address for Sky Pup News has not changed as predicted in the previous newsletter. Development and construction of our new farm has taken longer than expected. The move will occur in 1990 or else!

Some of the new builders on our list:

Guenther Schmidt of Seattle, was (has Ultra 275 engine)

Howard Fortner of Houston, TX (looking for used engine)

David Ardoin of Zille Platte, LA (ready for cover)

Ted Kowalski of Strongville, OH

George Cox of La Palma, CA

Chris Valdivia of Rosemond, CA

Allain Hale of Sarasota, FL

Fred Anderson of Manhattan Beach, CA

Claire Smith of South Haven, MI

SKY PUP NEWS



Newsletter No. 25

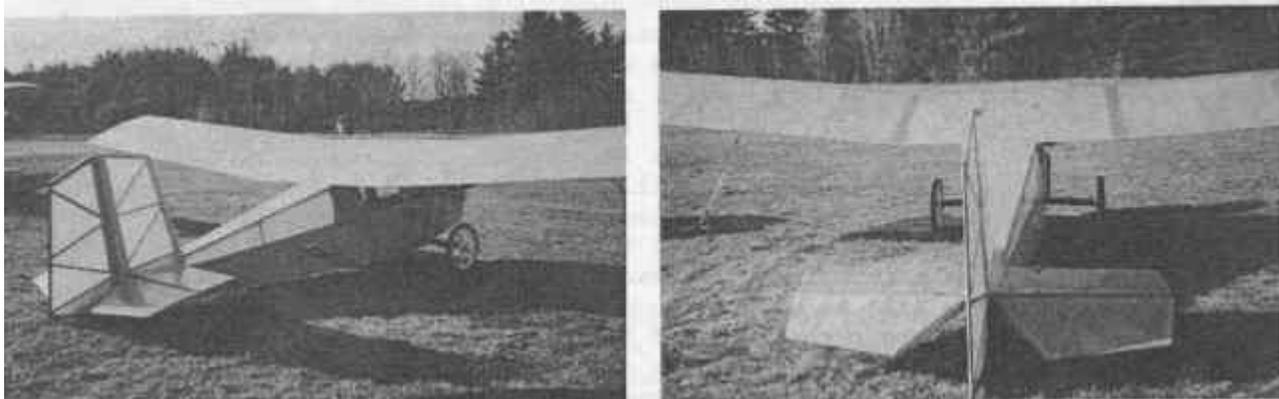
June 1990

**New Sky Pup from Maine
New Blue Pup from Houston
Pennsylvania Pup for Sale
Some Tips on Your First Flight
More Miscellaneous
News from Quebec
Newton Borden
Miscellaneous**

SKY PUP NEWS is a quarterly newsletter for builders of the Sport Flight "Sky Pup". The purpose of the newsletter is to provide for the open exchange of information and to encourage builders to share their experiences of building and flying the Sky Pup. Beginning with this issue, the newsletter will be written by Sky Pup builders and enthusiasts. Unless specifically stated, all ideas, suggestions and building tips are strictly the opinion of the contributor and have not been approved by Sport Flight Engineering Inc. No warranty is made as to the airworthiness or suitability of modifications or building tips. When in doubt, you should follow the plans as close as possible and contact Sport Flight Engineering if you have questions. SKY PUP NEWS is compiled and distributed by Dan Grunloh, Rt 2, Box 82, Potomac, Illinois, 61865. Subscription are \$7.00 for the calendar year (\$10.00 overseas). If you want to talk about the Sky Pup, or about airplanes and homebuilding in general, please feel free to call me at (217) 569-2121 late evenings.

Please keep sending your letters and photos.

NEW SKY PUP FROM MAINE



Rev. Earl R. Gray of Kezar Falls, Maine has completed and flown his Sky Pup shown above. First flight was May 30, 1990 and he says the whole process was fun from beginning to end. Photo taken during the construction process show excellent workmanship. The initial flight was taped on a camcorder at Air Tech in Limerick, Maine. The colors are white and yellow. The leading edge of the wing, fixed tail surfaces and lower fuselage are yellow, while wing, movable tail surfaces and turtledeck are white. The motocross wheels are white with blue tires. The fabric is Dacron sheath lining as can be seen on the white areas where the writing on the foam is quite visible. Earl found that the yellow fabric on the blue foam results in a slight greenish tinge in the foam areas. The engine is a Cuyuna UL-02 with Ultraprop. The horsepower (35) is more than prescribed, but it is smooth and he doesn't have to give full throttle. The weight and balance figures out OK. For the extra 20 lbs of engine, he mounted a fiberglass fuel tank in the wing center section. The empty weight came out to only 197 lbs which gives a gross weight of 387 lbs. This Pup is an excellent example of low empty weight that is possible with the Sky Pup. Earl says he built his landing gear out of oak and damaged it on his first day of test flying. A wind gust picked up one wing and dumped him on the runway hard and broke the landing gear and wheel. He has since ordered new landing gear of ash. There was very little damage to the plane. The lesson here is that the first few flights should be made in calm conditions, and remember to keep plenty of airspeed at first especially when near the ground. Earl will be retiring soon so all his playthings are for sale including the Sky Pup, a KR-1, and a KR-2. See his address in the previous issue (no. 24).

NEW BLUE PUP FROM HOUSTON





Howard Fortner of Houston, Texas sent these photos of his Rotax powered Pup which made it first flight on Sunday, June 3rd. A cowling has been installed and a ballistic parachute is mounted on the left landing gear. He installed a CB radio and battery, with the antenna built into the vertical stabilizer. The airspeed indicator pitot tube runs through the aft ribs all the way out to the last wing compartment with a quick disconnect at the wing joint. A storage compartment was built into the turtledeck. The finish and color is "Silithane" sprayed on. The color is dark blue on the wing and horizontal tail and light green on the fuselage and vertical feathers. He and his wife enjoyed the project very much and it was educational as well. He did have to search for some of the dimensions. The sewn together hinges were a real pain. A 2-1/2 gallon fuel tank is mounted recessed into the forward deck and another fuel tank is mounted in the centersection to the right of the fuselage to make leaks and spills more visible. Wires were run to the top of the tail section for possible addition of a strobe. There will be a windshield. Instruments are mounted behind the centersection spar with airspeed, altimeter, CHT, RPM, and a turn indicator made from clear hoes and colored water (the slip-skid indicator will be useless on a Sky Pup). The first take-off was unexpected. It was windy and turbulent, and he had only minimal fuel. After several attempts at crosswind landing, he decided to land in a plowed field. However, an unseen drainage ditch caused damage to the landing gear. Howard took his training in a Citabria, but says his first Sky Pup flight was much too bumpy to do anything but hang on and try to get back down (the lesson is, don't fast taxi on a hot day in the middle of a sunny afternoon. Wait for early evening). the total cost for this Pup was \$3200 including everything like drill bits, brushes, cleaners, parachute, and mistakes. The total time was about 600 hours or 4 months. He says he could do another on for considerably less time and money. Howard sent along his thanks for my help and advice, an also want to thank his friends, neighbors, and wife for all their understanding and help on the project.

PENNSYLVANIA PUP FOR SALE



Thomas Bird of Bellefonte, PA sent photos of his Cuyuna powered Sky Pup which has been flown for about 20 hours. The color is mostly white. The leading edges of the tail, wheel covers, and cockpit interior are blue. The quality of the finish is superb and the trim stripe gives it an overall very sharp appearance. Tom wants to sell his Sky Pup. The price is \$1995. Write to Tom at, R #4, Box 128, Bellefonte, PA, 16823 or call 814-355-9240.

SOME TIPS FOR YOUR FIRST FLIGHT

Over the last few years, I have received a number of reports of difficulty with the first flight resulting in minor damage (usually the landing gear). In almost every case, the cause has been failure to follow the instructions from Sport Flight, or failure to follow common ultralight flying principles, or failure to follow procedures common to all aircraft.

Never conduct fast taxi tests with an aircraft that is not totally ready to fly. That means the seat belt must be installed, there must be enough fuel onboard for at least 30 minutes, and the pilot should have a helmet. A number of builders have found themselves in the air before they were ready. You should have at least a 1000 ft runway with no obstacles. Grass is much better than pavement.

Test flights should be conducted only in the calmest conditions. (A direct quote from the Sky Pup manual.) Regardless of your experience in other aircraft, there should be no wind. In calm conditions you can fast taxi both directions and land either direction if needed. Also if an off-field landing becomes necessary, you are not limited by the wind direction. Why take chances? The best times are early in the morning and late in the evening. In the morning, conditions will gradually worsen as the wind and turbulence picks up due to heating from the sun. Early evening is best as the conditions will usually improve toward sunset. If you are worried about landing in the dark, then takeoff so you will run out of fuel before darkness begins. At least you will have light for your forced landing.

Avoid flying close to the ground at low airspeed. Many experts suggest you make low hops before climbing to altitude. Others disagree. The idea is to find out if the plane is in reasonable trim and will maintain level flight without excess control deflection. Only a few feet of altitude is needed for this test. As long as the controls are somewhere near the middle of their range, you are OK. The most common cause of landing gear damage on the first flight seems to be low airspeed on initial hops. If you are 10 to 15 up at minimum airspeed, and you drift off the runway, the controls may not respond quickly enough to straighten it out. Keep those initial hops low and only in calm conditions!

For the initial takeoff. The best technique is to keep the tail about halfway between level attitude and tail on the ground and wait for it to lift off by itself. If it doesn't, then add more back stick. Once you break ground, let the stick come forward to build up more speed. You will feel the controls become more responsive. If the stick is well back or far forward in level flight, your CG or trim may be off. Do not climb steeply on the first flight. It's possible to have the nose so high it will only mush along at low airspeed and not gain altitude.

Climb straight out to several hundred feet before making any turns. The rudder control is very effective and you should have no problems getting the feel of it. Notice if the rudder controls are near the middle when in level flight. A strong turning tendency indicates wing or vertical tail misalignment. If you are holding too much back pressure or forward pressure on the stick, you may have to adjust the CG or the tail incidence. Before your first landing, climb to 500 to 1000 feet and explore the slow flight characteristics of your Pup. Reduce power and let the nose come down for a normal glide. Take note of the stick pressure and position and aircraft attitude you will be using in a landing approach. Next, ease the stick back farther until you begin to feel an increased sink rate (and probably more stick pressure). Avoid this condition when near the ground.

Landing is the easiest part. Make a long straight approach with partial power and normal glide speed. Adjust the throttle so you will make the runway. You only have to fly level close to the ground and reduce power when the wheels touch. Your first landing may be fast so be careful of lowering the tail too soon or it will takeoff again. . . . the next step is to enter your first flight in a log book!

MORE MISCELLANEOUS

Clyde French of Durham, NC (formerly Grinnel, Iowa see issue #20) will be moving to Texas. His new address is: XXXXXX He sent information about the fabric cement he used for covering his Sky Pup. It can be ordered directly from Chicago. The price is about \$15 per qt. or \$55 per gal.

Oshkosh '90 is July 27th to August 2nd. I plan to be there through the first weekend at least but probably will not have my Sky Pup. Check at Ollies Birds Eye View Campground near the Ultralight Entrance.

The mailing address for the Sky Pup News will change to Loda, IL late this summer. All subscribers will receive a notice of the new address before we actually move.

Dan Grunloh

NEWS FROM QUEBEC

Andre St. Pierre sent these photos along with news from the far north. On the left is his Pup mounted on skis. He made very few flights this winter on skis because of the poor weather. He started flying on wheels again on March 12. The photo on the right is a 2-seat offspring of the Sky Pup completed by Jean-Claude Hivon called the Caronet. The aircraft was designed by Rejean Carion, a very experienced model airplane builder from Rimouski, who learned about the Sky Pup from his friend Regis Castonguay (another Sky Pup builder, issue #5). He was impressed by the simplicity and ease of construction and decided to make up plans for a 2-seater based on the Piper J3 measurements. Most of the airframe is similar and the airfoil is the same except slightly thinner. Unfortunately Rejean fell sick during construction of the plane and learned that he had terminal cancer. He kept trying to complete the project but had to give it up about half way through due to his worsening illness. Jean Claude heard about the project and decided to try and finish it

while Rejean was still around to see it fly. Jean Claude was an excellent candidate as he is a farmer who has lots of free time in the winter and had previously built a Sky Pup.



The aircraft was completed and flown last Fall. He was able to show a video tape of the first flight to Rejean just one week before he passed away in the hospital. The plane is named in his memory. Jean Claude used the airplane very often on skis this winter and it would outfly every ultralight in the surrounding area. Andre says he is thinking about building one himself as 2-place ultralights of a max gross weight of 1060 lbs will be legal in Canada next year. The blue and yellow, Rotax 503 powered aircraft has a 36 ft wingspan, 10 gal fuel capacity, and has an empty weight of 420 lbs. Top speed is 100 MPH, cruise is 60 MPH at 5200 RPM, and it stall at 30 MPH.

Newton Borden



Newton Borden of South Weymouth, MA sent this terrific photo of his Koenig powered Pup and a copy of a local newspaper story about his bird which featured a large color photo, on the front page no less! I just had to include this photo because good air to air shots are hard to get and they really show the Sky Pup at it's best in the air and having fun. Everyone should have at least one photo like this to send out to friends. Best results are obtained if the terrain is showing below the aircraft and if the aircraft is slightly above the horizon. It also helps to have a good clear sunny day.

MISCELLANEOUS

Greg Pardee of Owosso, MI announced in the last issue that his Sky Pup is for sale less engine for \$900. See issue #18. He is building a Mini-Max. He enjoyed flying the Sky Pup and discovered that the engine mount used on the Mini-Max works great on the Pup. The 3/8 plywood and soft mounts completely eliminates vibration. He highly recommends this mount which is available from Team Inc. for about \$20.

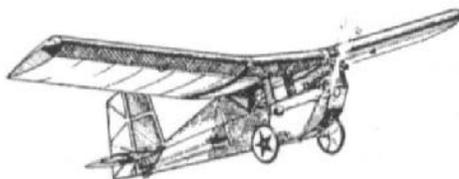
Raymond Maynard of Lake Ann, MI (issue #17) is parting out his Sky Pup and will sell the Rotax 277 engine and Sky Pup plans. While attempting to land on a narrow airstrip, he hooked the landing gear and quickly found himself upside down. He is getting along in years, and at the insistence of his wife, has decided to retire from flying. His address is: Rt. 1, Box 561, Lake Ann, MI 49650 (616) 275-7628

Brain Helsaple of Seiad Valley, CA wants to sell his Pup (issue #18). The Pup has been hopped but not actually flown at altitude. He has about 8 hours taxiing with various wheels and brakes but almost zero actual airtime (and 3 years in the garage). The engine is a 386cc Rotax opposed twin with belt reduction. His address is: PO Box 521, 45013 Hwy. 96, Seiad Valley, CA 96086

Mark Walker and Jim Carpenter of Tampa, FL must sell their KFM Sky Pup reported in the previous issue #24. They are both having medical problems. The Pup has 5 hours flying time, is easy to fly and very stable. The asking price is \$3200 due to the expensive KFM engine. Write to Mark at, 8815 Higbie Place, Tampa, FL 33615

John Komlosy, 235 Blue Ridge Dr, Boulder Creek, CA 95006 has two zero time Cuyuna 215 engines for sale or trade and wants something like the 3-cylinder Koenig.

Original Newsletters edited by Dan Grunloh, electronic edition compiled by Edwin Lelieveld and Roger Ford.



SKY PUP NEWS



Newsletter No. 26

October 1990

**First Pup Reported from Idaho
Sky Pup Crunched in Wind Gust
Mounting a Steerable Tailwheel
Wax Your Puppy!!
Update from Andre St. Pierre**

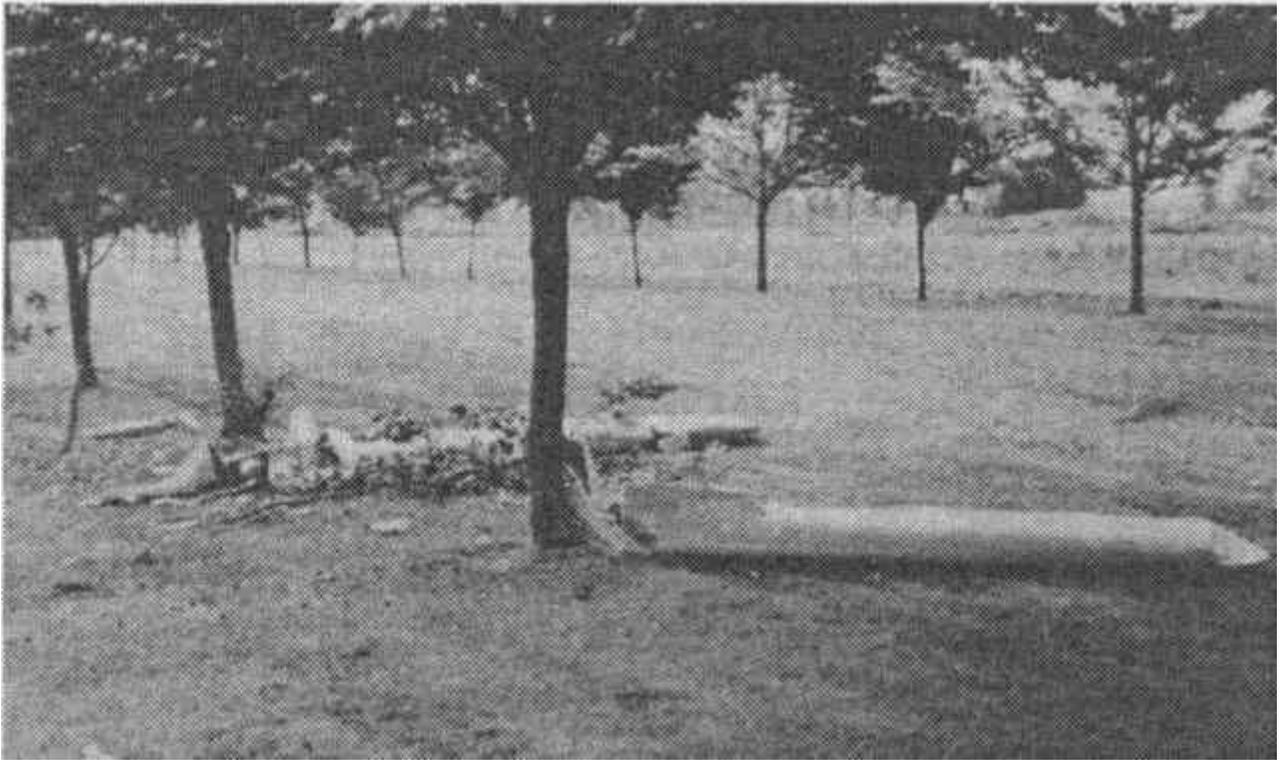
SKY PUP NEWS is a quarterly newsletter for builders of the Sport Flight "Sky Pup". The purpose of the newsletter is to provide for the open exchange of information and to encourage builders to share their experiences of building and flying the Sky Pup. Beginning with this issue, the newsletter will be written by Sky Pup builders and enthusiasts. Unless specifically stated, all ideas, suggestions and building tips are strictly the opinion of the contributor and have not been approved by Sport Flight Engineering Inc. No warranty is made as to the airworthiness or suitability of modifications or building tips. When in doubt, you should follow the plans as close as possible and contact Sport Flight Engineering if you have questions. SKY PUP NEWS is compiled and distributed by Dan Grunloh, Rt 2, Box 82, Potomac, Illinois, 61865. Subscription are \$7.00 for the calendar year (\$10.00 overseas). If you want to talk about the Sky Pup, or about airplanes and homebuilding in general, please feel free to call me at (217) 569-2121 late evenings. Please keep sending your letters and photos.

First Pup Reported from Idaho



Bob Schaefer of Boise, Idaho called in September to say his Rotax powered Sky Pup was almost ready to fly. He bought a used engine for \$600 and built his own exhaust. The 60x28 prop is from Tennessee Propellers. Bob covered his Pup with fabric from T.E.A.M. and the finish is acrylic latex enamel. This is a very sharp looking Pup. The colors are blue and yellow. The airframe is "per plans" except for a Steerable Tailwheel and a 6 inch access hole behind the seatback. Empty weight is 210 lbs. Yes, the Sky Pup can be built light! Bob painted all exposed foam with latex. He tested small pieces exposed to sunlight and discovered that even one brush coat will stop the otherwise rapid deterioration of bare foam. His plastic wheels are the type with metal star insert at each end of the hub and are reportedly stronger than Troxel wheels. Brass bushings were made on a lathe. A shroud was added to help cool the engine and he is experimenting with a cardboard lip on the rear (exit side) which seems to help even more (see cowl flaps on old radial engine planes). Bob also built a very nice trailer for his Pup. Prior to flying his Pup, he took instruction in a 2-seat Drifter. The first flight of the Idaho Pup was made on September 16th by his instructor. I flew hands off with a max RPM of 6200 and minimum cruise at 4200 RPM. It will easily out climb Mini-Max with the same engine (it helps to build light). Unfortunately, the landing gear broke while taxiing after a number of takeoffs and landings were made. The maple axle had wavy grain and the break occurred at a weak spot. A replacement was fabricated with vertical laminations. Bob says he took off on a 45 mile XC flight not long after his first flight. The nearby Alvard Desert is 11 mile long and 6 miles wide, smooth and hard, no rocks or plants. It even has hot springs for taking bath on flying outings!

SKY PUP CRUNCHED IN WIND GUST



On the morning of August 16, 1990, the unnamed Sky Pup builder and pilot was returning from a 45 minute flight in overcast but calm conditions when he ran into a rain shower. He put the Pup in a right turn but suddenly the Pup was in a steep bank to the left and descending. He added power but only had about 60 feet of altitude and didn't have time to recover. The Pup crashed through a line of trees and sheared off both wings near the attachment points. It hit the ground and bounced about 15 feet into a 4 foot deep ditch and came to a very sudden stop. The pilot was amazed that he was unhurt. However, the airframe was totaled.



The aft fuselage and rudder were the only undamaged components. The prop was splintered a foot on each side of the hub but 3 or 4 tree branches an inch thick had been chopped off. The landing gear was ripped off on the initial impact and the forward fuselage and centersection cracked loose when the Pup hit the ditch. The engine mount and other major structural points were intact. There was no evidence of control system failure. The pilot practically shoveled the "Pup droppings" back into its trailer for a ride to the city dump. Bolts, fittings, and hardware which could be reused were saved. The pilot believes he must have flown into a wind gust or shear associated with the rain squall. Surface winds were calm moments after the accident. He had logged 207 hours total on the Pup. His flight suit saved him from abrasions and his helmet was scarred by an overhead fuel valve. He states that the airframe is unbelievably tough and that it saved him from serious injury. He is wondering what color to make his next Pup and resolves to build it lighter than his first attempt. The empty weight started out at about 230 lbs but ended up near 250 lbs with the addition of more paint, a full cowling and other additions. If there is a lesson to be learned from this accident it is clearly that you should avoid flying in questionable weather conditions. Though conditions were calm at the time of this accident, a large system can produce rain, wind gusts, and lightning very unexpectedly. Unseen thunderstorms hiding above the overcast can produce a "gust front" and wind shear 30 mile away. Flying under heavy overcast is always tricky as the ceiling can drop unexpectedly. You may be forced to fly too low for safety in case of a wind gust or engine failure. Be a "fair weather" pilot.

RAY DEAN'S LETTER

I purchased this airplane from a friend who had started on it a couple of years ago and had made very little progress. I began working on it in May 1990, and flew it for the first time in August, 1990. It is powered by a Cuyuna 215 engine and covered with Stits aircraft fabric, which I put on, and my wife, Barb, shrunk to fit (she only made one small hole with the heat gun). It is painted with Sears Weatherbeater paint. I built the reduction drive myself and used a 52" propeller. I made the instrument panel from aluminum and installed an airspeed indicator and exhaust gas and cylinder head temperature gauges. I found the 2 gal. gas tank in a friend's junk pile.

Although the windshield is optional, I made one from 1/16 Lexan and am glad I put it on as it sure helps keep the wind out of my face. I did not put anything over the hole in the bottom. The air that comes through there is minimal. I used a tail wheel rather than a skid. Originally, the tailwheel was not steerable, but I later added the necessary cables to make it steerable. I made the gap seals from denim fabric, using eyelets and matching shoelaces for fasteners and they work very well. Barb made the seat cushions from denim.

On August 7, 1990 a couple of friends, my wife and kids helped load the plane in pickups to haul it to the airport where the wings and gap seals were installed.

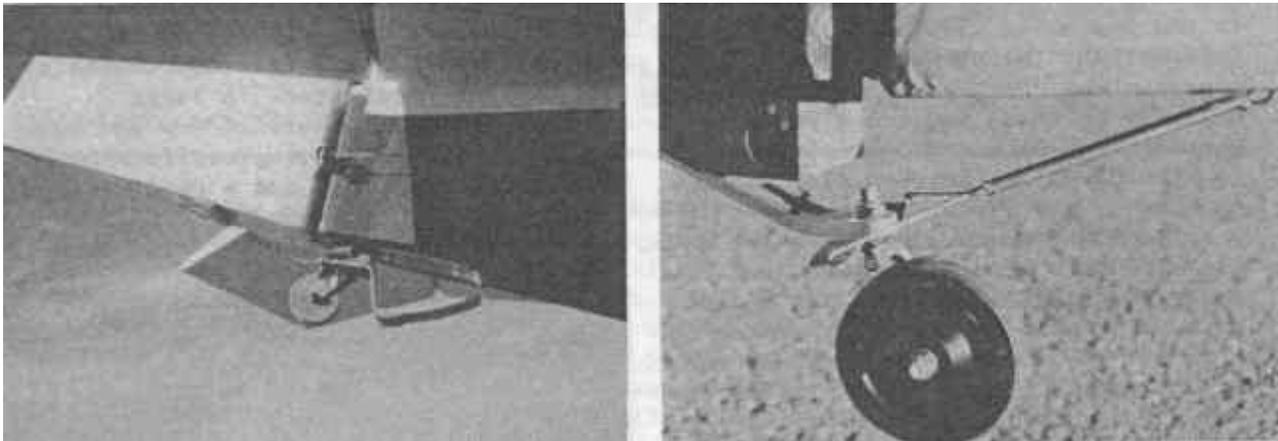
After admiring our handiwork, I taxied up and down the runway for a while to get the feel of it, slowly at first then faster, letting the tail come up, and eventually it was time to bring the whole airplane off the ground. I "hopped" a few feet off the ground several times and when it looked like the Pup was going to be airworthy, I went ahead and took off. The plane handled okay, but there was a problem with the reduction drive, it was noseheavy, had pretty strong vibration, and also needed a lot of right rudder. After a couple of short flights in the traffic pattern, I hangared it until I could get some of these problems worked out. I did, however, put it on display at our airport breakfast and it sure drew a lot of comments and head shakes (people could not believe anyone would actually fly something made out of styrofoam).

The reduction drive went back to the drawing board, a new belt, and two weeks later it worked like a charm. I added some weight to the tail (a little at a time) and a small aluminum trim tab, raised the front of the engine a bit, and changed the brackets on the exhaust pipe to reduce vibration. After making these modifications, the engine purrs like a kitten and the aircraft handles very well. Once all the "bugs" were worked out, another friend who owns an automobile striping business, added the finishing touches.

In mid September, I decided to fly the Sky Pup from the airport to my home

MOUNTING A STEERABLE TAILWHEEL

The addition of a Tailwheel is the most popular modification to the Sky Pup design. The original skid has the advantage of being simple, trouble free, and almost indestructible. It provides excellent service on grass runways where you have plenty of room to taxi. The skid also provide some braking action with full up elevator when landing on grass.

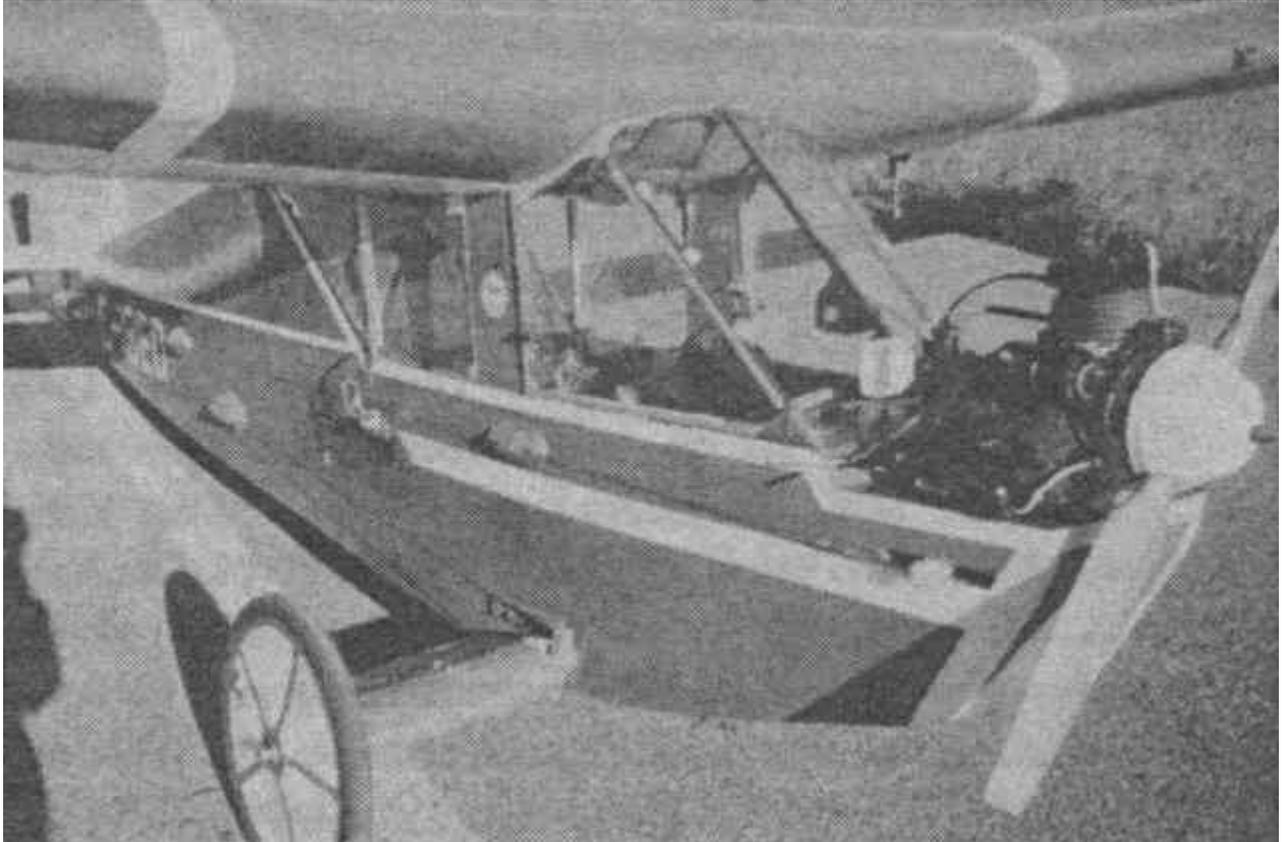


If you must operate from paved runways and taxi among other aircraft, a steerable tailwheel and brakes are essential. For best results the tailwheel and the swivel should both have ball bearings rather than bushings. There should be some provision for spring suspension to prevent damage during hard landings. And most important, make provisions so that side loads on the tailwheel are not transferred to the rudder horn or hinge fabric. The best method for connecting the rudder control to the tailwheel was first reported by Andre St. Pierre in issue #21 and is shown in the photo on the left. The hardware store caster is mounted on a bent bracket to provide suspension (first seen on Gerry Coppock's Pup) and is connected to the underside of the rudder with a long spring. A tailwheel steering arm was fabricated from threaded rod with a small hole on each end for attachment of stiff wire bracket. A small wood block is added to the underside of the rudder. This method seems preferable to earlier designs which connected the steering arm directly to the rudder cable or rudder horn. On the right is a photo of a Mini-Max tailwheel mounted on Paul Pontois' Pup. Here the original skid block is retained so this would be ideal as a retrofit for Pups already flying with a skid. Be sure the mounting bracket has enough spring to provide some suspension. The Mini-Max tailwheel is a very well built unit. Both builders report their tailwheels work great.

WAX YOUR PUPPY!!

After several years of storing my plane in a partially open hangar, and dealing with the dirt, bugs, and bird droppings, I finally decided to apply a thin coating of Lemon Pledge furniture polish. What a tremendous difference! Dirt and bugs do not collect on the airframe as bad and it's much easier to clean. I suppose I hesitated to add a wax at first because of the added weight and the potential difficulty with fabric repairs. However, you have to clean the fabric with mineral spirits or alcohol to remove any oil before making repairs anyway, and the weight buildup is very, very small. It really does help a lot. You should wax your prop too! The bugs that accumulate during dawn and dusk flights will wipe off much easier. A clean airplane and a clean prop will definitely give better performance.

UPDATE FROM ANDRE ST. PIERRE



Andre writes that since Kitplanes magazine published the picture of his Sky Pup in the September 1990 issue, he has received 27 letters from readers asking for information. He answered each of them and sent technical information, copies of magazine articles, and information about the Sky Pup newsletter. A large majority of those who wrote for information have decided to build a Pup and have subscribed to the newsletter. Andre also sent this photo showing modifications to his Pup which includes side windows, landing gear fairing, and a door for the opening in the floor. H gained 8-10 mph and now has a best cruise of 60 mph. The landing gear fairing was built using the same foam used for seat padding, assembled with contact cement, and secured on the landing gear with duct tape. The door in the floor was built with $\frac{3}{4}$ inch foam, opens inward, and uses fabric hinge. When closed, the door is secured by a small Velcro tape. It works great. André reports that he has flown his Pup 106 hours in 1990. He attended a local EAA chapter fly-in, and the Sky Pup made such an impression, he was asked to give a lecture on the aircraft. Late several people said it was the most interesting they had seen in several years. It really surprised a lot of his fellow builders.

Dan Grunloh
P.O. Box 368
Loda, IL 60948

SKY PUP NEWS



Newsletter No. 27

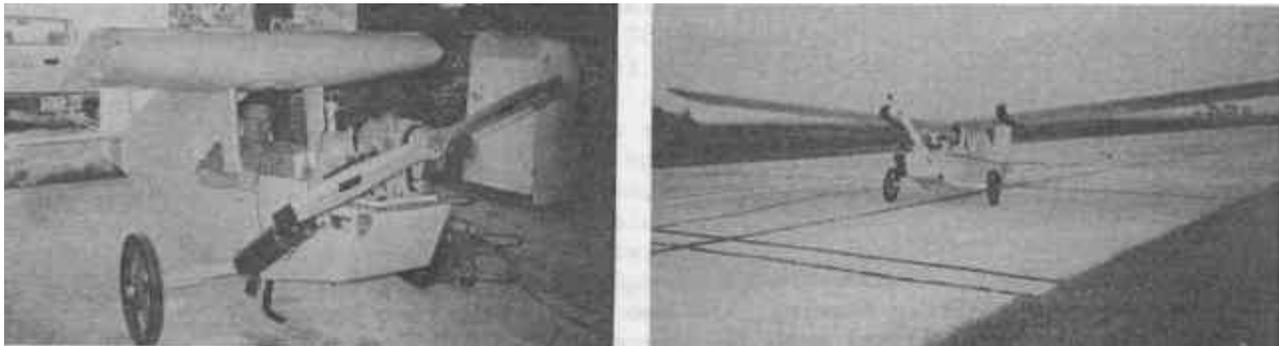
January 1991

Ray Dean's Fast Track to Fame
Caution Mounting Chute on Landing Gear
Cooling the Rotax 277FA
More Ideas for Trailers
Working on the Belly
Ray Dean's Letter
Miscellaneous

SKY PUP NEWS is a quarterly newsletter for builders of the Sport Flight "Sky Pup". The purpose of the newsletter is to provide for the open exchange of information and to encourage builders to share their experiences of building and flying the Sky Pup. Beginning with this issue, the newsletter will be written by Sky Pup builders and enthusiasts. Unless specifically stated, all ideas, suggestions and building tips are strictly the opinion of the contributor and have not been approved by Sport Flight Engineering Inc. No warranty is made as to the airworthiness or suitability of modifications or building tips. When in doubt, you should follow the plans as close as possible and contact Sport Flight Engineering if you have questions. SKY PUP NEWS is compiled and distributed by Dan Grunloh... Rt 2, Box 82, Potomac, Illinois, 61865. Subscription are \$7.00 for the calendar year (\$10.00 overseas). If you want to talk about the Sky Pup, or about airplanes and homebuilding in general, please feel free to call me at (217) 569-2121 late evenings.

Please keep sending your letters and photos.

RAY DEAN'S FAST TRACK TO FAME

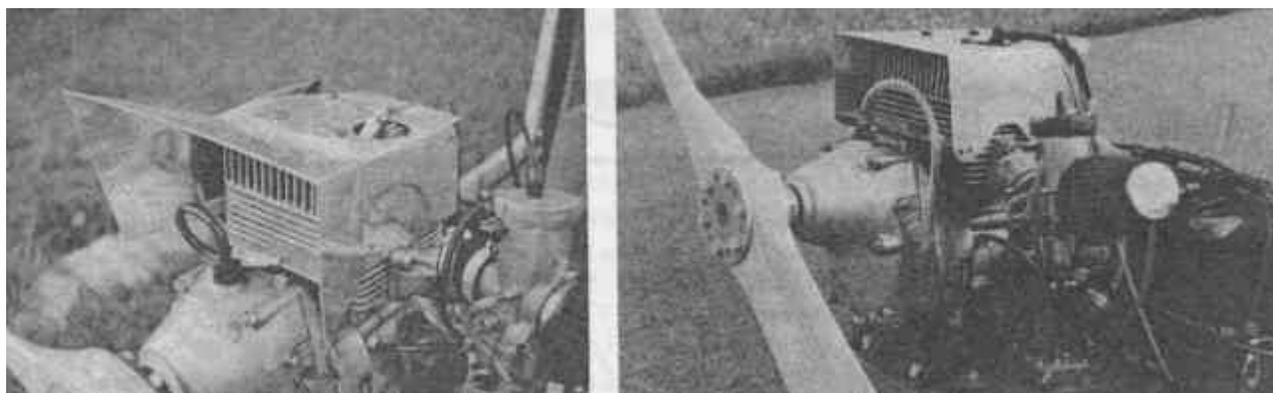


Sky Pup builder Ray Dean of Melvin, IA bought a partially completed kit from a friend, began work in May 1990, and made his first flight in August. He sent photos to Kitplanes Magazine and the Pup was featured in the February 1991 issue. Since the magazine came out, he has been flooded with letters asking for information and also received a call from the magazine for more information as they have also received many inquiries. A future issue of Kitplanes will have details about the newsletter so there will probably be many new builders as a result. See elsewhere in this issue for Ray Dean's letter about his Pup.

CAUTION MOUNTING CHUTE ON LANDING GEAR

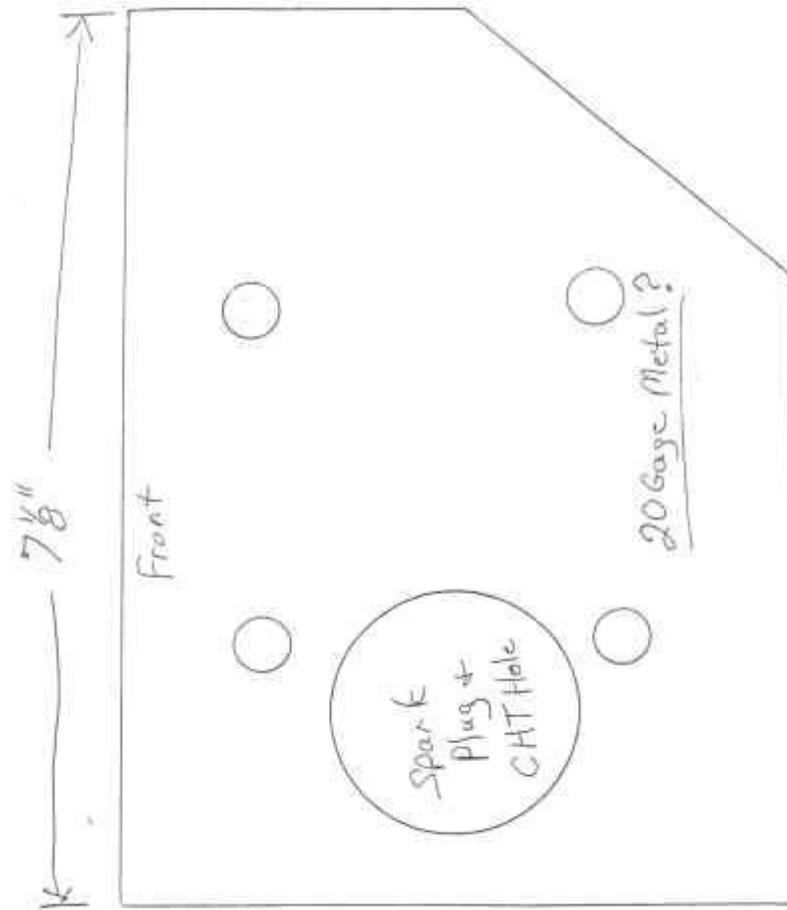
Howard Fortner of Houston, TX called to say that he had a forced landing due to a fuel flow problem (strictly pilot error). He intentionally ran his upper fuel tank dry to determine the maximum time before switching to his other fuel tank. However, the engine would not restart. He later learned this was not due to lack of fuel but rather he forgot to reduce the throttle before attempting the restart. The bad news was that he encountered a ditch during the forced landing and broke off the landing gear which pulled on the cable activating the chute mounted on the gear. The ballistic chute fired off resulting in a very costly repack. Darnn! Anyone contemplating mounting a ballistic chute on the landing gear had best re-think the routing of the activating cable. Howard will switch to a soft pack ballistic but says he has had poor response and service from BRS.

COOLING THE ROTAX 277F



A number of Sky Pup builders have reported high CHT temperatures with the free-air Rotax 277 engine. The problem has also occurred in the Mini-Max ultralight which has the same engine configuration. Readings of 375 to 425 degrees are common. The primary cause is assumed to be the gear drive and prop hub which block air flow to the cylinder when mounted in the up position. Also, the cooling fins on the head are curved the wrong way. Several builders have tried to rotate the head and cylinder 180 degrees but this leads to numerous complications. Included here are photos and drawings of two cowlings (or air scoops) which have proved helpful on Sky Pups. Before you add a cowling, you should determine that your gauges are reliable and the prop is correctly matched to your engine. Though a 60x28 prop is suggested, differences in props and engines make this only a rough guide. If the max RPM is over 6300 to 6400, the engine will not be operating under enough load and it will run hot! The engines do vary a lot! My original factory prop turned 6600 to 6700 RPM. After trying two more props the RPM was down to 6400 with a 60x31 prop. However it still ran about 400 degrees CHT when climbing. After trying several different cowling designs it now rarely exceeds 350 degrees. Also you will find out how difficult it is to get accurate numbers for RPM and temperature. Most analog gauges are greatly affected by vibration in the instrument panel. I carried instruments in my lap and strapped to my arm to totally eliminate vibration induced errors. Ideally, you should make repeated tests in climb and cruise with several different probes on the engine to detect any hot spots and make corrections for ambient temperature. This procedure should be repeated for each variation in cowling design. Unfortunately the Rotax factory has never done this work and few of us have the time, equipment, or knowledge. In spite of the lack of truly scientific testing, the two cowling designs shown here have demonstrated a 50 to 75 and even 100 degree drop in CHT temperatures on several Sky Pups. The photo on the left is from Howard Fortner, who also built an extra cowling which he sent to me for testing. I got a 75 degree drop in climb and about 50 degree drop in cruise. The photo on the right is from Paul Pontois. See also Bob Schaeffer's Pup in its trailer, and other Pup in previous issues. Generally, the cowling should enclose the sides and top and it should extend 2 to 3 inches in front of the cylinder to be effective. Note Howard Fortner's cowling flares outward to collect more air. These are actually "air scoops" not true pressure cowlings so accepted rule about inlet and outlet size may not apply. They can be built out of any thin sheet metal, plain, galvanized, or aluminum and painted if desired. The lower edges must be secured against vibration with bolts, tabs, springs, or safety wire. Cracks will eventually occur at sharp bends or welds if vibration persists. One final idea. It has been suggested that a prop spinner might also help the cooling by improving the airflow over the engine. You must preflight prop spinners often as they are prone to come off in flight and could damage the prop or airframe.

(Fortner cowling)



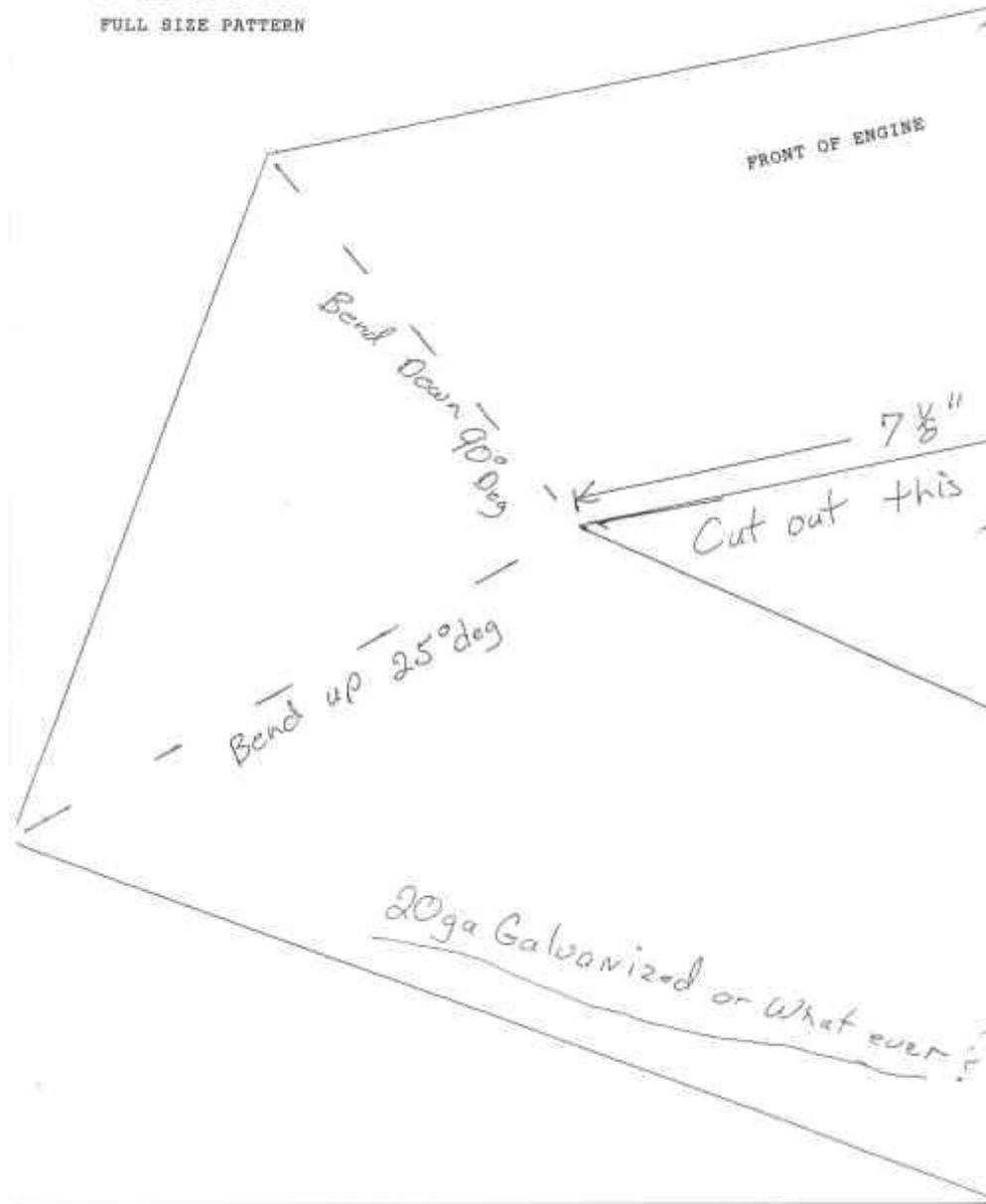
Weld or braze together
Make 3/4 x 3/4 x 4" long tab for pop rivets



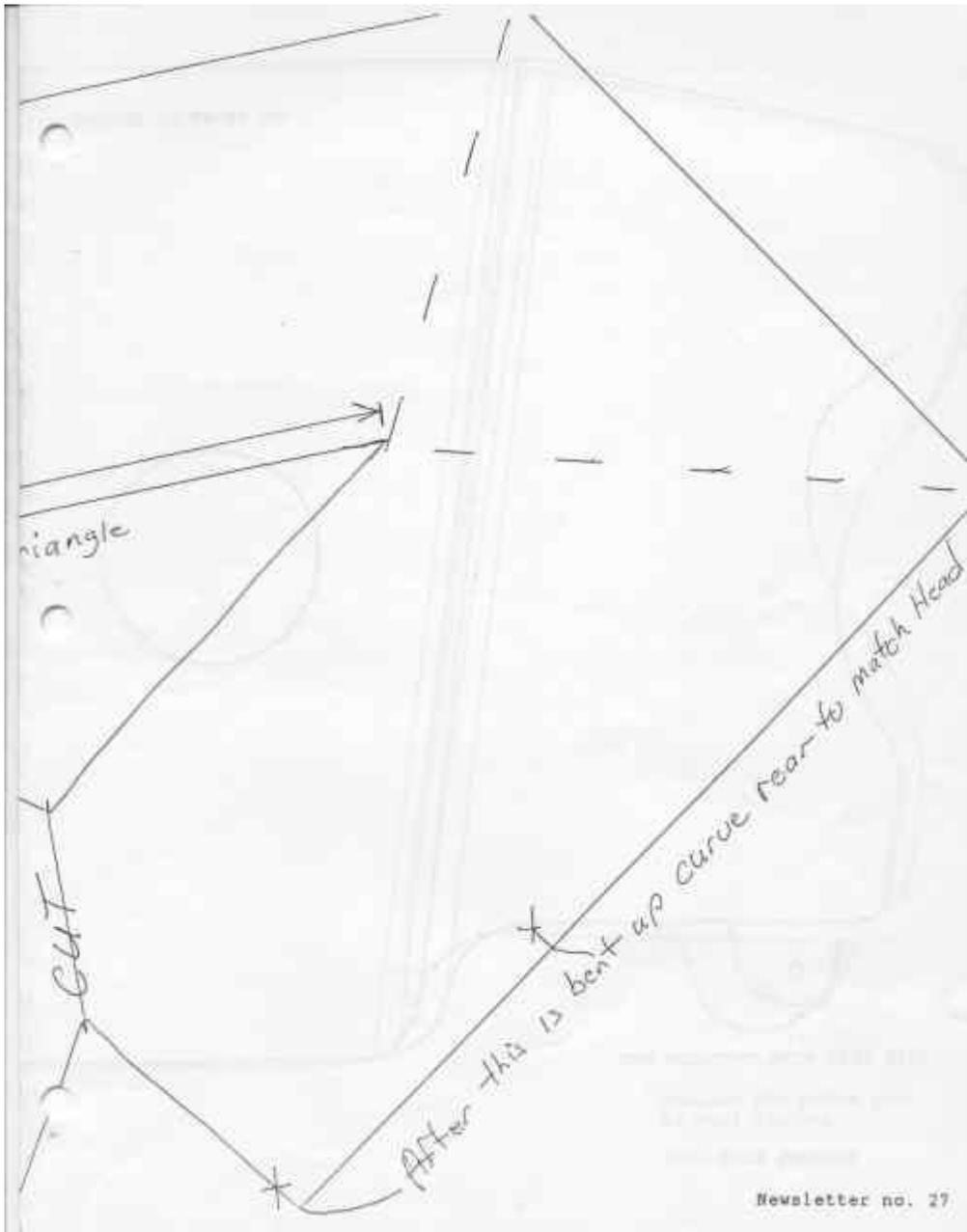
Note: The above sketch needs to be joined with the following sketch (2piece)

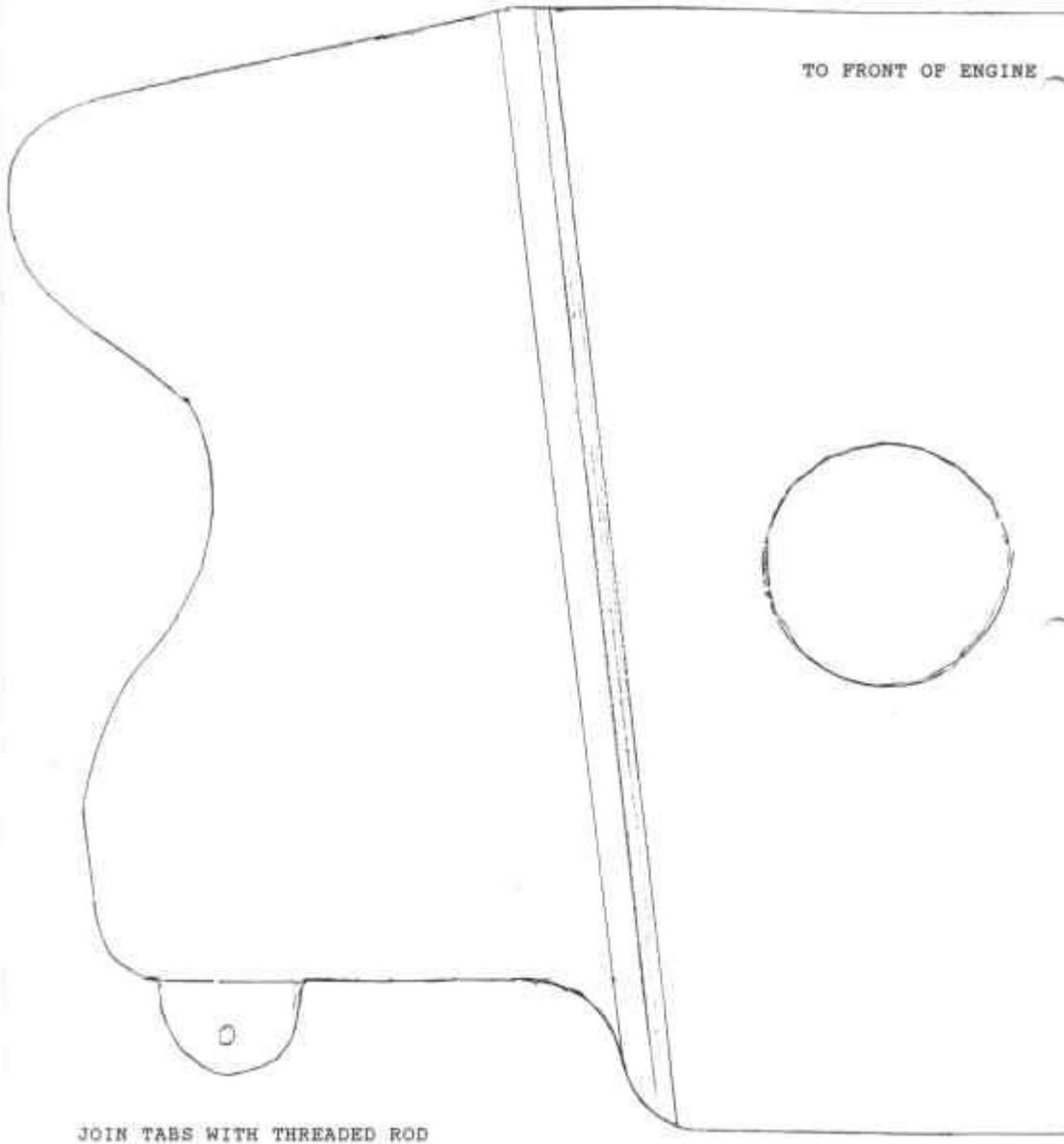
TWO-PIECE COWLING FOR ROTAX 277
by Howard Fortner
FULL SIZE PATTERN

(see also pattern for top piece)



Note: The above sketch needs to be joined at the center with the sketch below.(Triangle)

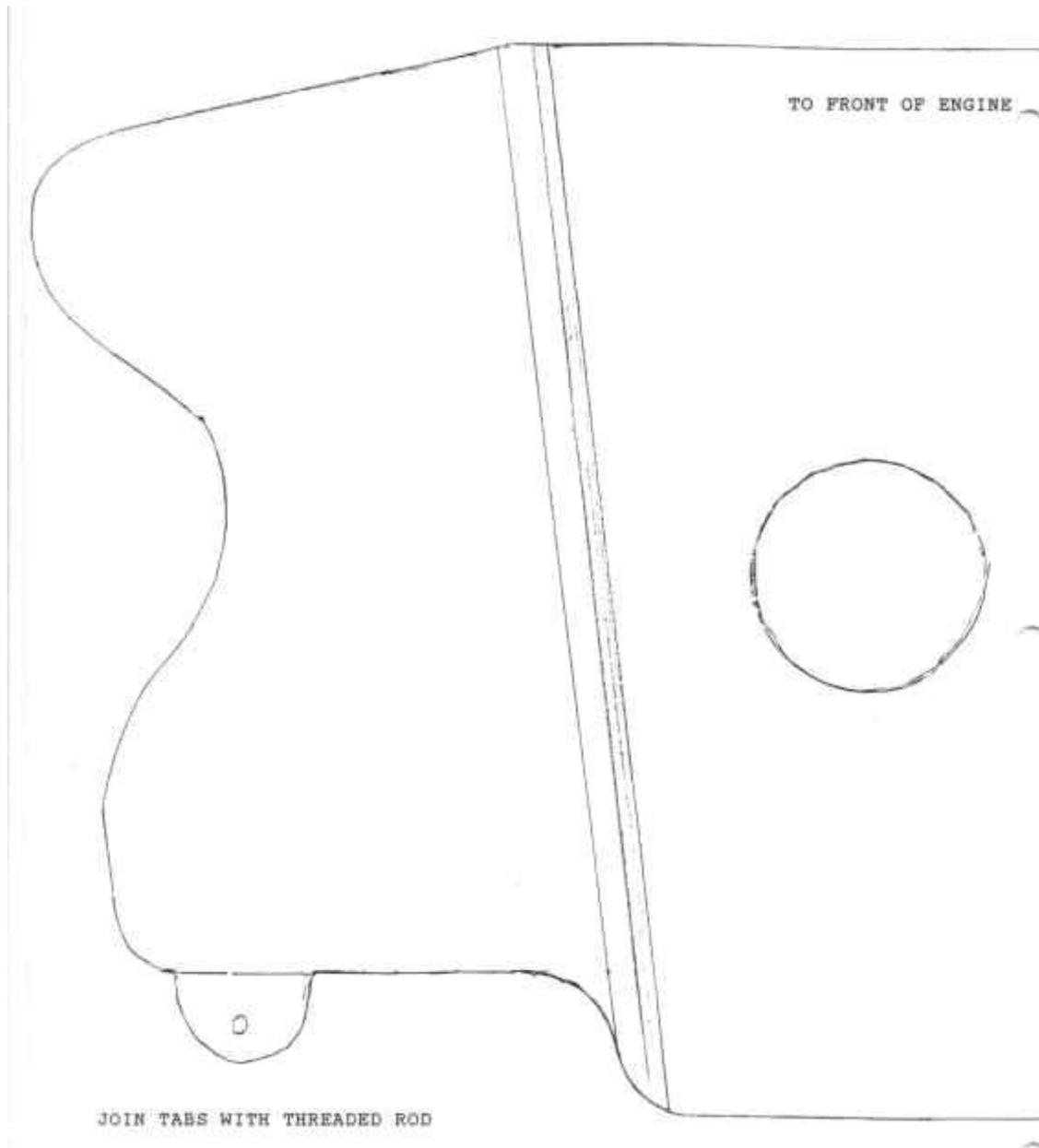




TO FRONT OF ENGINE

JOIN TABS WITH THREADED ROD

(JOIN TABS)



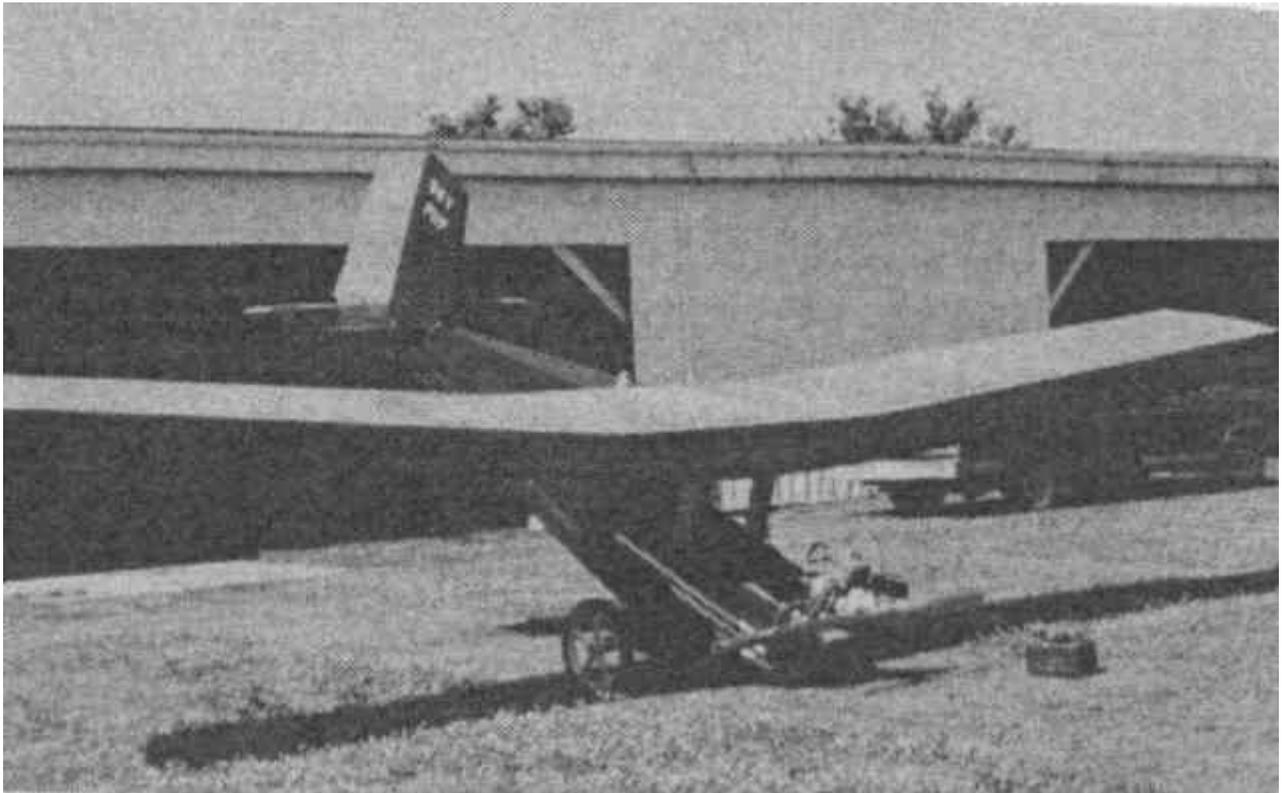
MORE IDEAS FOR TRAILERS

A trailer setup for transporting your Pup is most essential. You may have to haul the Pup from your workshop to the airport for its first flight, travel to distant airshows, or more important, rescue the bird after a forced landing on a cross-country flight. The design of your trailer is important as it is easier to damage the Pup when trailering it than when flying. An open trailer may be better than a fully enclosed design as you can see in the rear view mirror how it's riding and if your ropes have come loose. I've had friends haul their ultralight to Oshkosh and not discover until they arrived that it had come loose and been damaged in its trailer. Also, fully enclosed box trailers are sometimes top heavy and more sensitive to wind. Ideas for trailers have been reported previously in issues no. 14, 21, 22, and 24. The photo on the left is from Ray Dean of Melvin, Iowa. The wings are mounted in a box, covered with a tarp, and the fuselage is loaded tail first on top.



The photo on the right is from Bob Schaeffer of Boise, Idaho. The wings are mounted in foam cradles above the fuselage. The design is similar to that used by Newton Borden and Donald Diggs (issues 21 & 24). The logical points for attaching the wings to the trailer is at the steel win attach brackets as they are the strongest part of the wing. Use aluminum bolts or rods if you want to reduce wear on the fittings over rough roads. The fuselage will be more stable if you also bungee it down from the centersection wing attach fittings. I threaded two strands of no. 12 insulated copper wire through the holes to make a loop for the bungee. You will also want to tie the control stick or attach wind locks to the elevators to prevent them from flopping up and down on bumpy roads.

WORKING ON THE BELLY



Working on the belly is easy if you know this trick. I had flown my Pup for four years before I discovered that the Pup would sit in this position. Turn the prop horizontal, drain or remove the fuel tank, and push down on the nose until the CG comes ahead of the gear. It's quite stable in this position though I wouldn't try it in a wind. Put a foam pad under the nose if you want. Great for cleaning underneath, or inspection and repair of the tail.

MISCELLANEOUS

Terry Chupp of Elkhart, IN is an avid RC builder and new Sky Pup builder who is building a 12x16 ft. shed for construction of a Pup. Will it fit?

New builder Jon Speak of Burlington, IA is planning on writing a multi-part magazine article on the construction of a Sky Pup.

Builder W. Laan from New Zealand reported that a 36 inch wingspan RC model Sky Pup was flown at the National Championship competition in New Zealand.

For Sale: 50 yards brand new Ceconite fabric for Sky Pup. Paid \$257, make offer. Contact Dan Rauch 3187 Country Park Dr., Toddville, IA 52341

Thomas Wood of Unadilla, NY, (issue #16) reports that he still has his Sky Pup but it's under repair. His partner, Ron Jones, was teaching his 16 year old stepson to fly when he dropped it in and broke the gear. The nose and engine came off at the wing support. It's currently back up on its gear and waiting for warm weather for recover and paint.

Greg Pardee of Owosso, MI (issue #18) has sold his Pup to David Meihl of Springboro, PA. Greg has built and is flying a Mini-Max which he says is very responsive and fast but draggier than the Pup.

Ray Dean called to say he has straightened out the plastic wheels on his Pup which were bent in landing accident by putting them in the oven at 350 degrees for 10 minutes!!

RAY DEAN'S LETTER

I purchased this airplane from a friend who had started on it a couple of years ago and had made very little progress. I began working on it in May 1990, and flew it for the first time in August, 1990. It is powered by a Cuyuna 215 engine and covered with Stits aircraft fabric, which I put on, and my wife, Barb, shrunk to fit (she only made one small hole with the heat gun). It is painted with Sears Weatherbeaten paint. I built the reduction drive myself and used a 52" propeller. I made the instrument panel from aluminum and installed an airspeed indicator and exhaust gas and cylinder head temperature gauges. I found the 2 gal. gas tank in a friend's junk pile.

Although the windshield is optional, I made one from 1/16 lexan and am glad I put it on as it sure helps keep the wind out of my face. I did not put anything over the hole in the bottom. The air that comes through there is minimal. I used a tail wheel rather than a skid. Originally, the tailwheel was not steerable, but I latter added the necessary cables to make it steerable. I made the gap seals from denim fabric, using eyelets and matching shoelaces for fasteners and they work very well. Barb made the seat cushions from denim.

On August 7, 1990 a couple of friends, my wife and kids helped load the plane in pickups to haul it to the airport where the wings and gap seals were installed. After admiring our handiwork, I taxied up and down the runway for a while to get the feel of it. Slowly at first then faster, letting the tail come up, and eventually it was time to bring the whole airplane off the ground. I "hopped" a few feet off the ground several times and when it looked like the Pup was going to be airworthy, I went ahead and took off. The plane handled okay, but there was a problem with the reduction drive, it was nose heavy, had pretty strong vibration, and also needed a lot of right rudder. After a couple of short flights in the traffic pattern, I hangared it until I could get some of these problems worked out. I did, however, put it on display at our airport breakfast and it sure drew a lot of comments and head shakes (people could not believe anyone would actually fly something made out of styrofoam).

The reduction drive went back to the drawing board, a new belt, and two weeks later it worked like a charm. I added some weight to the tail (a little at a time) and a small aluminum trim tab, raised the front of the engine a bit, and changed the brackets on the exhaust pipe to reduce vibration. After making these modifications, the engine purrs like a kitten and the aircraft handles very well. Once all the "bugs" were worked out, another friend who owns an automobile striping business, added the finishing touches.

In mid September, I decided to fly the Sky Pup from the airport to my home about 7 miles away so I could keep it in my own hangar and eliminate the drive to the airport every time I wanted to fly it. I planned to land in my front yard but wasn't sure there was enough room. After making a pass and deciding that it looked okay, I went for the landing. I had to come over some trees about an eighth of a mile from my yard. Everything went fine and the landing was a "greaser". However, after the nice touchdown I realized I did not have enough room to get stopped (what brakes?). It was too late to add power and get off the ground again, and another set off trees were meeting me head on. When all was said and done, the airplane had pitched forward, breaking the prop and bending the spokes on the tires. I learned that even though 350 feet may be enough to take off, it is not enough for landing. I now have a new prop on 'order and will put on different tires. My wife says it sure would be nice to have some brakes (I wonder why?). I plan to have as Sky Pup back in the air before the snow flies. – Ray Dean

SKY PUP NEWS



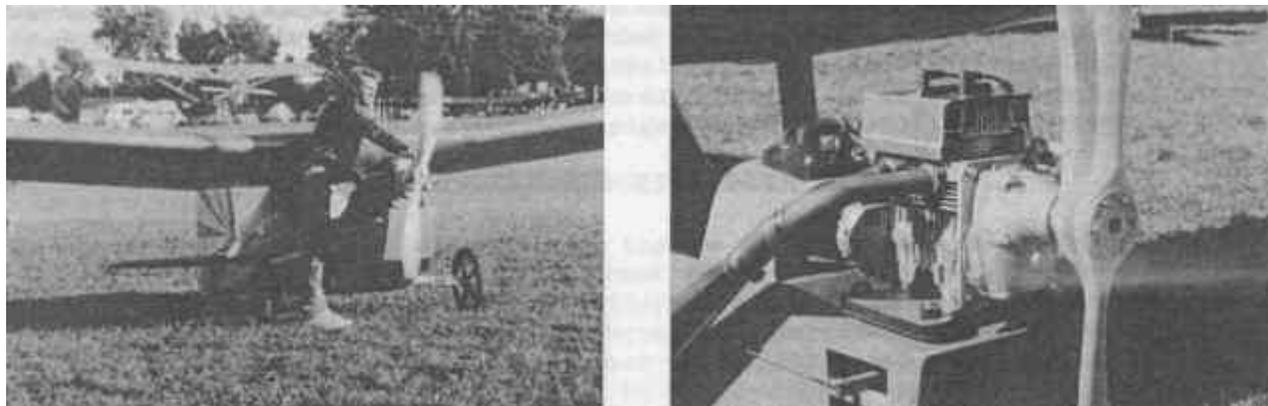
Newsletter No. 28

January 1992

Todd Douma at Oshkosh '91
Sky Pup Builder Has Flown 286 Hours His First Year
Another Wisconsin Pup Ready to Fly
Jim Liebich Ready to Fly
Update from Al Mays
Beware of "Velocity Never Exceed"
Trouble Finding Fabric Cement?
Don Caron's Warning About Unknown Foam
Greetings and Miscellaneous for Issue No. 28
Bob's Brakes
Electrical Trim Tab
Ed Toner Sky Pup Model Plans
More Photos for Issue No. 28

SKY PUP NEWS is published irregularly, once or twice a year, for builders and owners of the Sport Flight Sky Pup ultralight. Unless specifically stated, all ideas, suggestions, and building tips are strictly the opinion of the contributor and have not been approved by Sport Flight Engineering. No warranty is made as to the airworthiness of modifications or building tips. The subscription rate is \$1.50 per issue. Back issues are \$1.00 each. A full set of back issues is \$25.00. Write to Dan Grunloh, P.O. Box 368, Loda, IL 60948. Please call me at 217-386-2213 after 9 PM if you have an questions about the Sky Pup or the newsletter. Also send photos and details about your project so others can share your experiences.

TODD DOUMA AT OSHKOSH '91



Sky Pup enthusiasts at Oshkosh '91, who were there on the first opening day, were delighted and surprised to see a Sky Pup appear in the ultralight pattern. It was Todd Douma of Hortonville, WI with SN 1916 (first reported in issue no. 22). He had flown for just the one day. Todd's Pup was only the 3rd plans-built Sky Pup to fly at Oshkosh. Seeing this very high quality Pup first hand was a real treat. Todd works for a company in the aircraft business and has access to materials and methods not as easily available to many of us. For example, the custom leather headrest and use of real swaged cables instead of nicopress sleeves. The attention to detail and quality of workmanship can be seen throughout the aircraft. He machined his own adapter plate to mount a Rotax gearbox on the Kawasaki 340, the custom made throttle features a nicely knurled handle, and the lightweight muffler is stainless steel. Changing exhaust systems on 2-strokes can be tricky and Todd admits he has a minor flat spot in the midrange which is not a problem. The weight savings helps offset the gain from the use of a slightly heavier engine. The final empty weight is within the range of Rotax powered Pups at 229 lbs but the engine is much smoother (and much cheaper). The blue and silver covering was achieved with light aircraft fabric and finishes, and should last a long time. Thanks again Todd for showing us how to build a really good one!

SKY PUP BUILDER HAS FLOWN 286 HOURS HIS FIRST YEAR

Bob Schaeffer of Boise, Idaho (see issue #26) writes that on the one year anniversary of the first flight of his Pup, he has logged a total of 268 hrs. Total time as of December 1991 is 340 hours. He says it could have been more, but due to screw ups and subsequent repairs the Pup was out of commission for two of the first twelve months. It hasn't been idle for very many weekends. Also these

hours were logged with only a 2.5 gal fuel tank and flights were seldom over one hour. Bob sent along some aerial photos. The Snake River from 6000 ft over Murphy, ID and the mountain and valleys are beautiful. No wonder he flies so often. The only parts wearing out were the tailwheel and the elevator horns on the control stick wore the holes out of round. He noticed the turnbuckle clevis is wide enough to allow the bolt to move sideways and wear on the hole. The replacement horns are doubled so there is less movement. (Builders please note: thin washer should be added between the ears of the turnbuckle clevis to reduce lateral movement.) Bob says he broke off two landing gears during rough landings so he laminated a piece of 16 Ga. Steel to the bottom of the maple gear with epoxy. He says it seems quite strong but doesn't have much spring to it. Bob also designed and built custom disc brakes for his Pup. See enclosed photos and drawings. He says the total weight of the brakes, cables, and two levers mounted just below the bend of the control stick is 2.5 lbs. They are not strong brakes but do help in slowing and turning. Any stronger brakes may nose over the plane or twist the wood axle. Be advised that dimension on the enclosed drawings are approximate and that parts should be cut to fit. Also, the cable attach bracket in the drawing is different (and better) than the one in the photos. Bob also added an electric trim tab to the elevator which he says works great. It's powered by 3 AA batteries, controlled by a switch (spring loaded center off) and the motor is from a RC-model servo. Retractable landing gear servos work best.

ANOTHER WISCONSIN PUP READY TO FLY



Rex Rhode of Montello, Wisc. Reports his Sky Pup shown at right is completed and ready to fly. The covering is white sheath lining, the colors are grey and white and the finish is latex and polyurethane. The engine is a Rotax 277 with a homebuilt 4-belt reduction (2.33 to 1). The 54x32 prop did not initially deliver the full RPM that was expected. Reducing the outlet diameter of the homemade exhaust system brought the RPM up to 6000. Tires are wheelbarrow 8"x4" rims hence the need for a reduced prop diameter. The empty weight is 220 lbs and the fuselage is 2" wide than the plans. The CG came out to 5.9 inches and he says the tail lifts easily. Initially the use Rotax refused to start until it was discovered the cam that drives the points was loose on the crankshaft. Rex reported he was having so much fun with taxi testing he made 10 long runs each direction until he overheated and froze up a wheel due to lack of lubrication. He has since added wheel bearings. The Pup also features a lexan windshield hinged in front and held down with bungee, and a lexan cover over the hole in the floor. An unusual modification is the control stick which is mounted off to the right side so it doesn't get in the way when climbing in and out. Rex has a trailer which is an old 16 ft camper gutted out. The wings slide in close to the ceiling, and the fuselage rolls underneath. He covers the back with a tarp and it's ready to go. The trailer can still be used for camping.

JIM LIEBICH READY TO FLY

Jim Liebich of Hoffman Estanted, IL reports his Zenoah powered Sky Pup is finally ready to fly. See issue #21. The trailer he had built was collapsed by snow the previous winter (the trailer was empty at the time). He has now replaced the tarp over conduit framework with plywood sides and foil coated Styrofoam roof. Now the Pup can be stored in the trailer and his garage is a garage again instead of a hangar. Jim just recently retired and now hopes to find the time to get the bird in the air. He has a problem finding a place to fly as he lives only about 10 miles from O'Hare International airport.

UPDATE FROM AL MAY

Al Mays of Normal, IL (see issue #15) reports his Cuyuna powered Sky Pup is still flying nicely and that he has logged about 170 hours. The only problem has been a forced landing and a broken landing gear. After about a one hour flight, he returned to his home strip and the engine quit in the landing pattern when he throttled back to idle. After turning on final, he could see he would not clear the fence at the end of the runway and elected to turn and land in a neighbor's field. There was no damage. After pushing the plane 150 yards to the airstrip, the engine started on the first pull. He suspects carburetor ice. The broken landing gear occurred when he hit a small bump while taxiing and was due to defective materials. The wood kit from Wicks was excellent except for the landing gear which was laminated lengthwise from two pieces. It worked without problem for about 100 hours and many landings. When the gear broke and split in the middle it was found to have a knot on one of the inner faces. The break had spread from that point outward in both directions. After making repairs, the Pup was happily back in the air with a solid maple gear. Also Al reports the performance of his Pup increased dramatically when he switched to an adjustable prop. The original 58x24 prop gave only about 5000 RPM at full throttle.

BEWARE OF "VELOCITY NEVER EXCEED"

I received a report from a Sky Pup owner that he has repeatedly flown well in excess of VNE (69mph) on numerous occasions without any problem. I strongly urged him to show some restraint. VNE is a little different than maneuvering speed or stall speed. So many different things can go wrong at high speeds. Designers look at all the different factors and then pick a "best estimate" based on the mission of the aircraft. It is then flown to that speed to see what happens. If everything is OK, that's the VNE. You can fly at VNE all day if you don't exceed the structural loads in gusts or in a sharp maneuver. Just because one copy of a homebuilt design has exceeded the design VNE does not mean they all will. Besides, next time his control cables might be a little looser or the dive a little longer and a flutter begins. The real danger at the higher speeds is not VNE but maneuvering speed or structural cruising speed. A sudden control movement or a wind shear can easily over-stress the wings when you are at VNE. If you exceed 69mph in a Sky Pup at any time, or fly over 54mph in rough turbulence, you are asking for trouble!

TROUBLE FINDING FABRIC CEMENT?

Several builders have reported difficulty locating latex contact cement for gluing on the fabric cover. Kingko which was available from Wicks can no longer be obtained. I cannot find Borden's acrylic latex cement which I used on mine. Dana Rauch has found that DAP acrylic latex contact cement can be obtained or ordered from the hardware store. He says it works great. It's slightly thicker than the others and dries faster. He uses a hair dryer to set the glue even faster. Another source might be Macklenburg-Duncan acrylic based contact cement which I have not yet tried. Any contact cement labeled "flammable", contains solvents which will dissolve foam. To use them any foam must be very well sealed with polyurethane to protect it.

DON CARON'S WARNING ABOUT UNKNOWN FOAM

Don Caron of Santa Fe, TX purchased a completed Sky Pup (SN 2536) from another builder and has discovered that the blue foam that was used was not like the Dow or Corning extruded polystyrene which is recommended. It was a rough, brittle medium cell foam which crumbles easily. The original source of the foam could not be determined. He sent a sample to Sport Flight where it was tested and found to have a shear strength of 20 psi. The Sky Pup design calls for strength of 70 psi minimum. Further examination of the airframe revealed that part of the aircraft including the main wing spar was built with the correct foam. Don will be facing a major rebuild before the airframe can be flown. The aircraft had a KFM engine, good workmanship, and good instrumentation though it was heavy at 250 lbs dry. It had added float hard points, spoilers, tailwheel, brakes, rudder pedals, inside cables, and about 25 sq. ft. of added 1/16 plywood in the aft fuselage. It had been taxied but not flown. Don also had suspected there was water accumulation in the rear fuselage and found that a quick thrust of the knife would easily separate the plywood from the fir. It is imperative that drain holes be provided in the aft fuselage bays anywhere water might accumulate (cut a notch in the bottom of each fuselage bulkhead and drill hole in the tailskid mounting block, or provide a hole for each fuselage chamber). Anyone considering purchase of a completed Sky Pup should ask about the type of wood, foam, and glue that was used. Be suspicious of any aircraft with extensive design modifications. Consider building it yourself!

GREETINGS AND MISCELLANEOUS FOR ISSUE NO. 28

Dear Sky Pup Friends,

Sorry this newsletter is going out so late again. It should be called SKY PUP HISTORY instead of SKY PUP NEWS. My eternal gratitude goes out to all of you for your patience and support for this newsletter. The last time I sent out the newsletter, it was so late I had to send two issues together. This time I've just combined everything together into one. I regret to announce the reason for the added delay is that I had an on-the-job accident in January which resulted in 22 stitches in my hand and a cast on my right arm from the elbow to the fingertips for a month. I fell in the lab where I work at the University of Illinois and stuck a piece of glass into my hand. Tendons and nerves had to be reconnected. I quickly discovered all the things you cannot do with only one hand. The cast has been off for three weeks and I'm starting to use my right hand again. I can now hold a pencil, tie my own shoelaces, drive a car, and type with two fingers instead of one. I still can't feel two of my fingers. It will be 6 months or so before I can expect to regain the full range of motion and complete feeling in my fingers.

CONGRATULATIONS go to Howard "Mud Puppy" Fortner, of Houston TX who received recognition in the December 1991 issue of ULTRALIGHT FLYING magazine for his participation in the Texas TXC-1000. This is an organized 1000 mile cross country flight

which spans several southwestern states. Howard showed that the humble Sky Pup can indeed go on a long cross-country just like the latest \$10,000 machines.

BING CARBURETOR UPDATE: Rotax has announced a change in the design of the Bing carb floats which formerly had an aluminum guide tube. Material from a very worn guide tube could block the fuel jets or cause the floats to stick. (See issue #17 for a report of my own experience with this problem.) The new carburetor floats have a brass guide tubes for better sliding ability and less wear. Check your floats for wear and contact your Rotax parts source for the new floats.

REPORT FROM THE FAR NORTH: Paul Pontois sent news about George Gaudet, who is the most northeastern builder in North America. He lives in the La Madeleine Islands, very small islands in the Atlantic Ocean, belonging to Quebec. The last time George called for a building tip there was a snowstorm, with 6 feet of snow around his house, wind blowing 90 MPH, and the sea was frozen out for 7 miles. George, a professional photographer, started his Pup about 6 months ago.

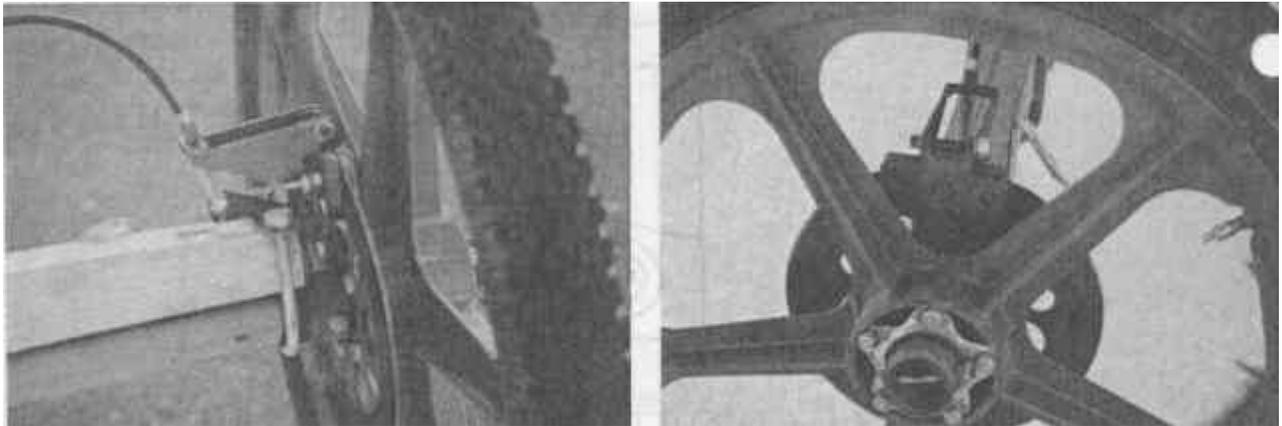
NEW BUILDER Bob Miller of Nashville, TN is Just getting started on his Pup, but sent along pictures of his previous project, a Woodhopper on floats. The photos show a very nice yellow wire-braced bird on floats and in the air over a scenic lake. This is a very rare ultralight, and a major accomplishment.

ED TONER the airplane model builder first mentioned in issue no. 23, sent a copy of the magazine article which featured his free-flight Cox .020 powered Sky Pup. It was in the March 1991 "FLYING models". Looks like it would be lots of fun. (Here's some trivia: Ed Toner's model uses a flat bottom airfoil which has a greater pitching moment. Note enlarged horizontal stabilizer in enclosed drawings.

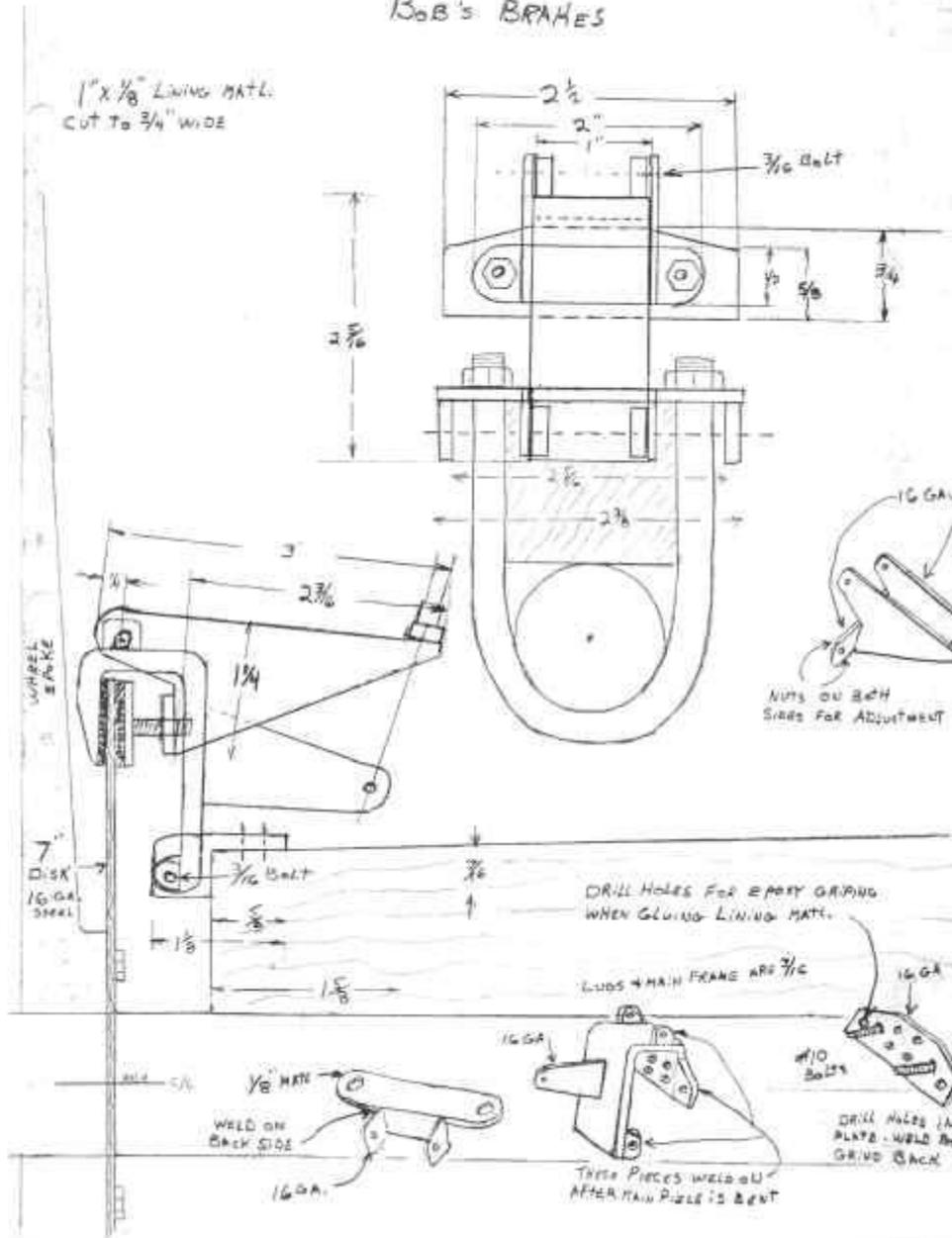
OSHKOSH '92 CONVENTION: This year is the 40th anniversary of the event and will likely result in an unusually large turnout. I hope someone will bring a Sky Pup. The ultralight pattern and runway have been very much improved. Here is a chance for many thousands of people to see their first Sky Pup. I will be there and may have my Pup if I can get it and my trailer refurbished in time. See you there!

Dan Grunloh

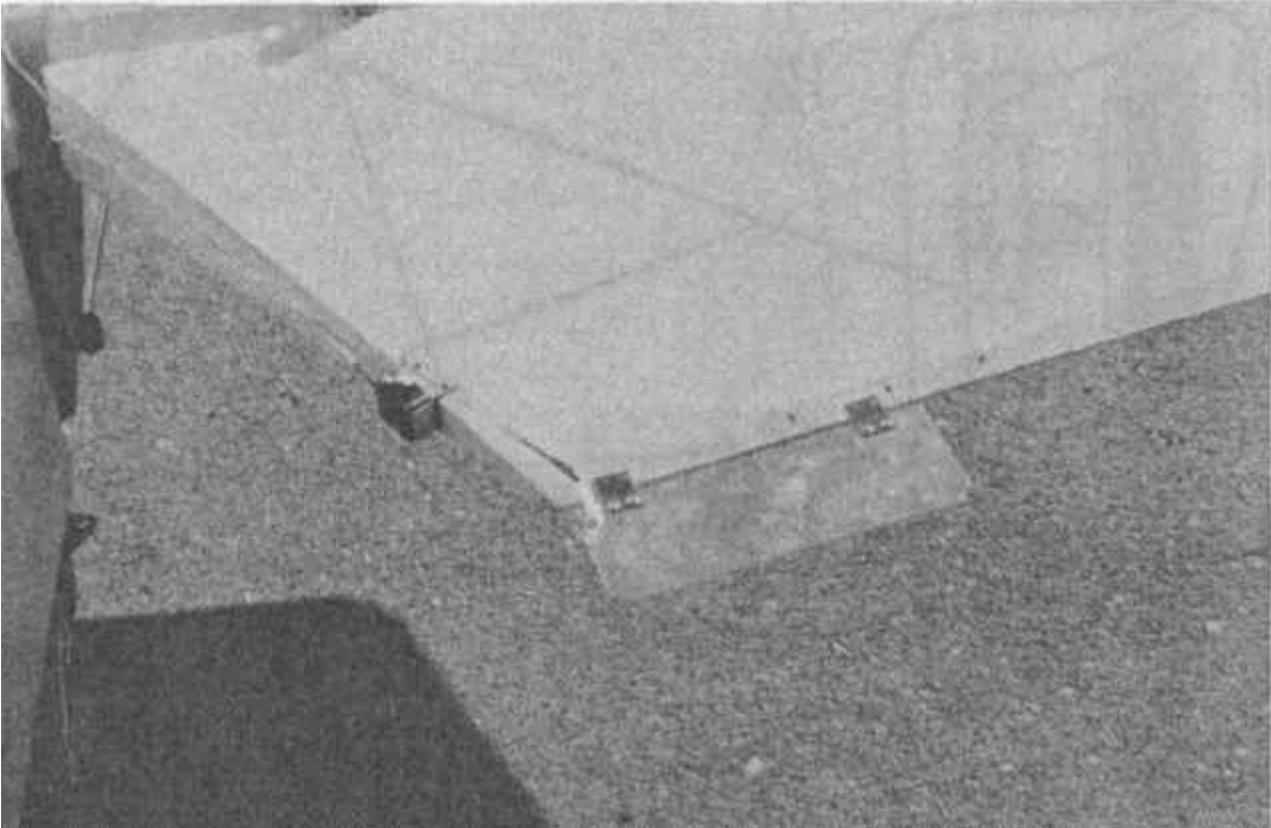
BOB'S BRAKES



BOB'S BRAKES



ELECTRIC TRIM TAB



3 AA BATTERYS OR 9VOLT AND
4.5 volts $\frac{1}{2}$ WATT 500HM
RESISTOR

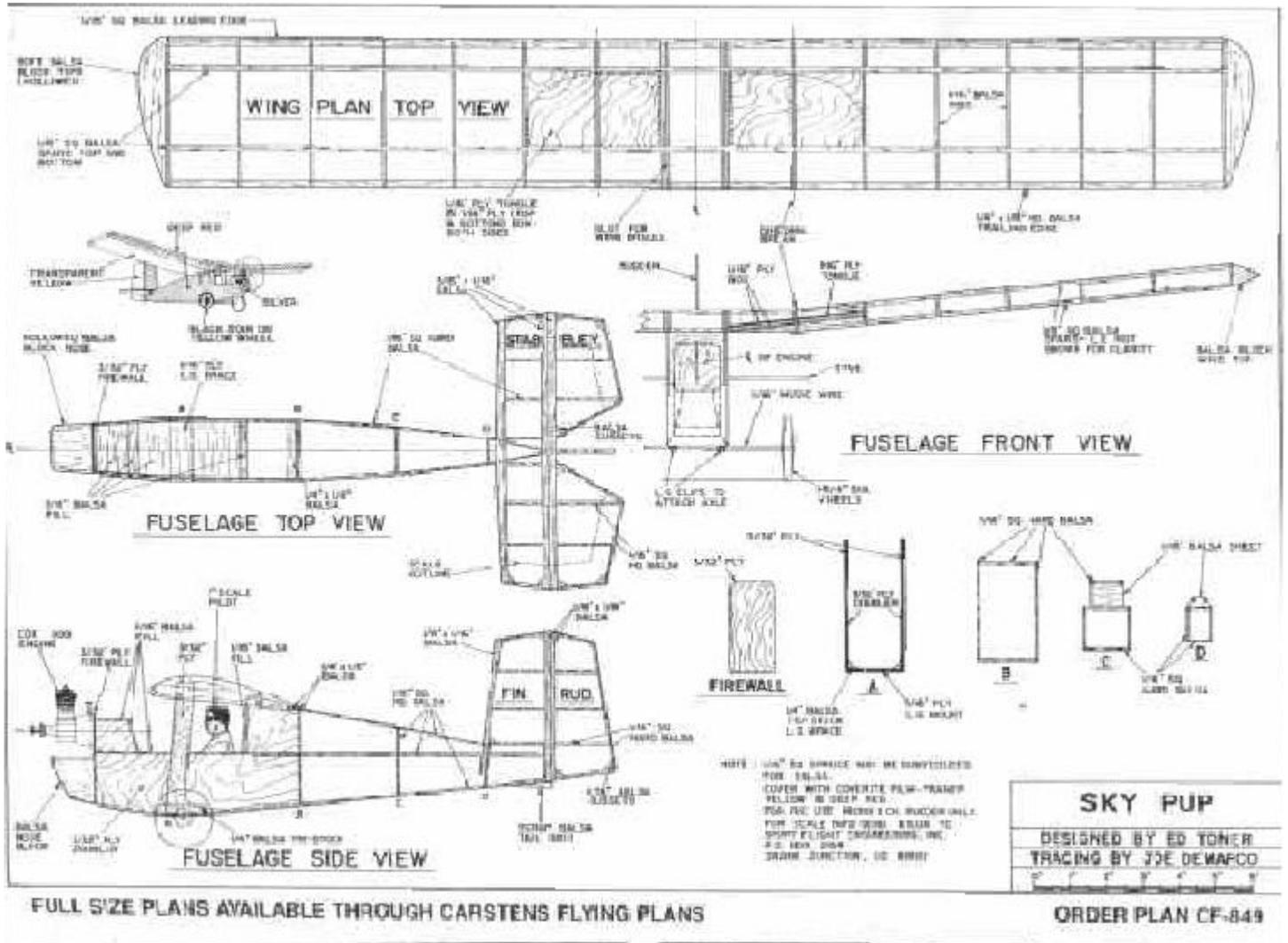


MINATURE DOUBLE POLE
DOUBLE THROW SWITCH
WITH SPRING LOADED
CENTER-OFF

RETRACTABLE
L.G. SERVO'S
ARE HIGH TORQUE
AND SLOW SPEED

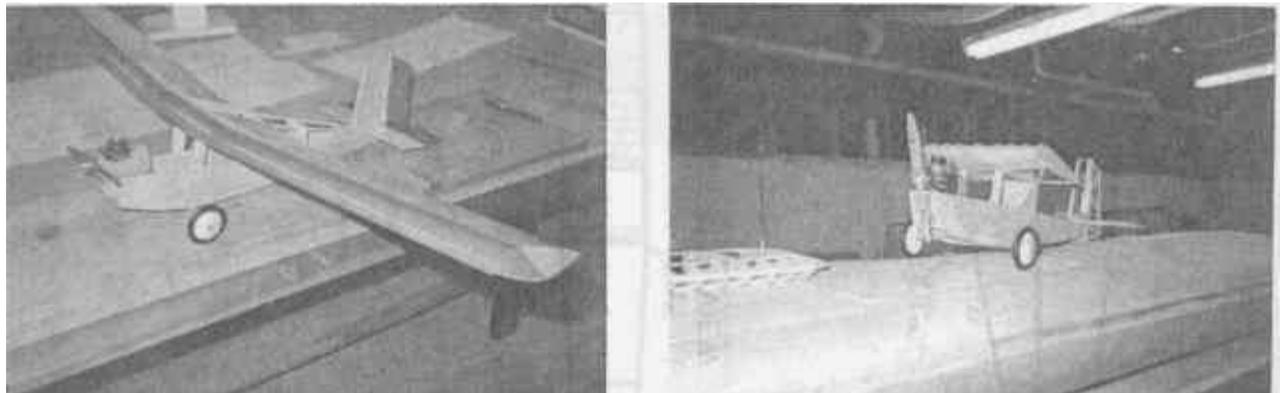
TAKE BOTTOM OFF OF SERVO
PULL CIRCUIT BOARD OUT AND
CUT THE WIRES GOING TO MOTOR.
THROW CIRCUIT BOARD AWAY
AND SOLDER WIRES TO TERMINALS
ON MOTOR. INSTAL BOTTOM OF
SERVO

Ed Toner's Sky Pup Model



MORE PHOTOS FOR ISSUE NO. 28

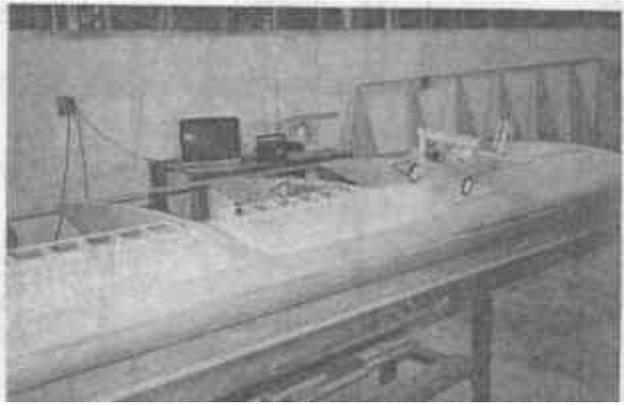
Kenneth Thompson's 1/8 scale model and middle right.



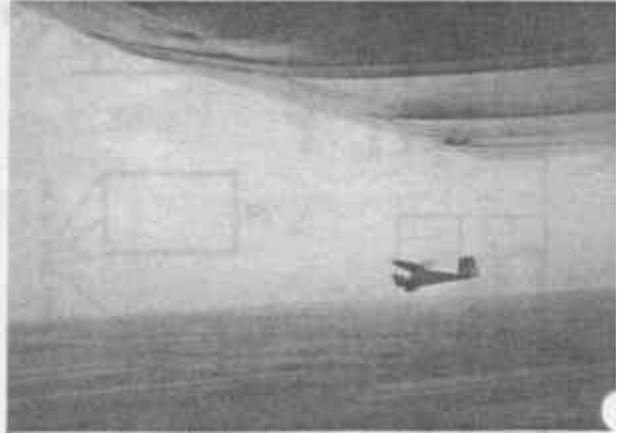
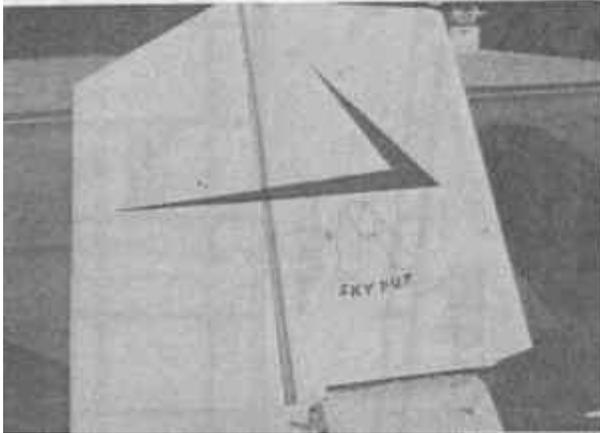
EARL GRAY'S PUP FOR SALE



BOB SCHAEFER'S TAIL FIN



PAUL PONTOIS MORNING FLIGHT



Dan Grunloh
P.O. Box 368
Loda, IL 60948

SKY PUP NEWS



Newsletter No. 29

June 1993

Todd Douma Returns to Oshkosh '92
Bob Schaeffer Setting More Sky Pup Records
Sky Pup Builder Update
Construction Tips
New Pup Completed in the Northwest
The Terry Rockwell Story
Letter from Newton Borden
Landing Gear Damage Repair
Al May's Card

SKY PUP NEWS is published irregularly, once or twice a year, for builders and owners of the Sport Flight Sky Pup ultralight. Unless specifically stated, all ideas, suggestions, and building tips are strictly the opinion of the contributor and have not been approved by Sport Flight Engineering. No warranty is made as to the airworthiness of modifications or building tips. The subscription rate is \$1.50 per issue. Back issues are \$1.00 each. A full set of back issues is \$25.00. Write to Dan Grunloh, P.O. Box 368, Loda, IL 60948. Please call me at 217-386-2213 after 9 PM if you have any questions about the Sky Pup or the newsletter. Also send photos and details about your project so others can share your experiences.

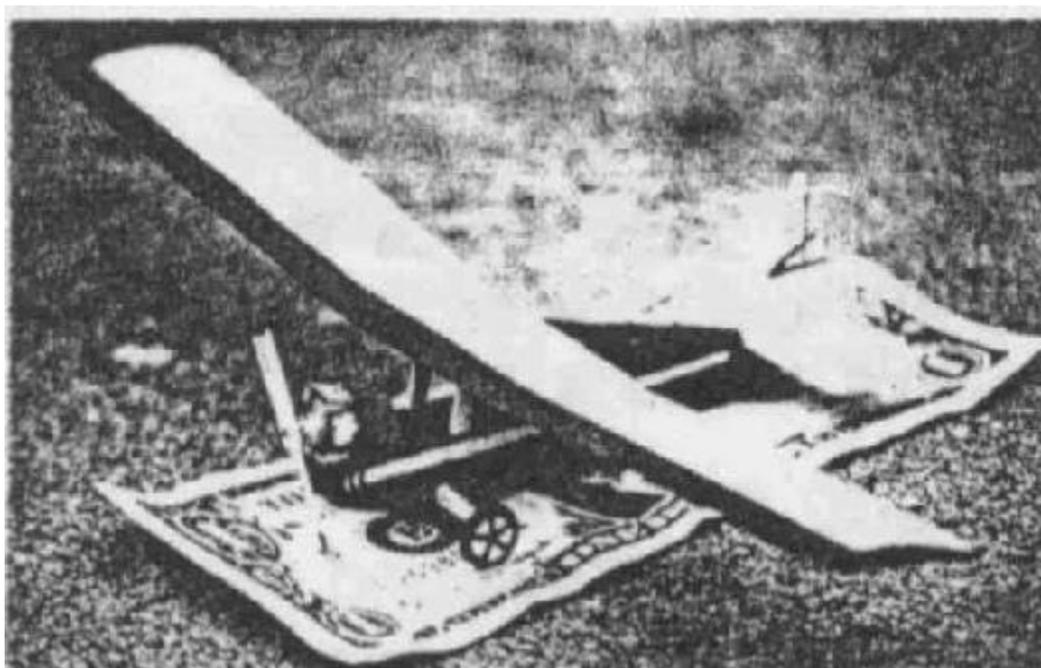
TODD DOUMA RETURNS TO OSHKOSH '92



Todd Douma of Hortonville, WI flew his Sky Pup to the Oshkosh '92 convention. This was his second year at Oshkosh and Todd is still the only builder to actually FLY his Pup TO the convention. Also, all four Pups which have been at Oshkosh have been there at least twice. Todd's Pup was essentially the same as it appeared the previous year, except the wheels had been changed to wheelbarrow tires with nice aluminum covers. He had a landing accident on the return trip from Oshkosh '91. He flew to his Dad's farm and was dismayed to find that no hay fields had been cut. He chose to land on a road he had used before. While trying to avoid poles on one side, he hit tall weeds on the other and the Pup turned sideways, broke both wheels, and went into the ditch. Damage to the fuselage was very minimal. One final note; the Oshkosh '92 Convention video tape produced by EAA includes a brief shot of Todd coming in for a landing (you have to look to find it).

BOB SCHAEFFER SETTING MORE SKY PUP RECORDS

Bob Schaeffer of Boise, ID called in March '92 to report he has accumulated 430 hours of flying time (see issue no. 26,28) and will exceed the time needed to build the Pup this year, his goal since completion. When I saw Bob in August at Oshkosh '92 he was up to 498.5 hours. Also, he decided to try and see how many airstrips in his area he could land at in only one day. He searched for airstrips and carefully planned the route. The final total was 51 airstrips in one day. Some were only touch and go's, but it took almost 5 hours flying time. At Oshkosh '92, he showed us a map with all the airstrips marked and the route that was used. A truly amazing record. Bob report some engine wear after almost 500 hours of flying. He has worn out the carburetor. Carb slide and guide pin slot were worn. Float guide pins worn thin and the sleeves in floats were almost gone. He replaced the guide pins with brass hardware rod and the sleeves with new brass tube which were an exact snug fit. Last minute news July 1, 1993: Total flying time is now 608 hour and everything is OK. Bob decided to best his previous record for the "Worlds Smallest Sky Pup" (see issue no. 23). The new version fits on a one dollar bill and won an award at a local model contest. I will include a better photo in the next issue.



SKY PUP BUILDER UPDATE

-----Iowa Pup Almost Ready to Fly-----

Dana Rauch writes Dec. '92 that he has the entire airframe covered and is now working on the controls and engine installation. Dana plans to visit another Pup builder, Ray Dean from Melvin, IA, who will weld up his exhaust system and help with the mounting. If things go as planned, he hopes to have his sky Pup at Oshkosh '93 for our 10th Anniversary. He still has to build a trailer. Dana called June 1, 1993 to say his Pup is 99% completed and still hopes to have it at Oshkosh but will probably not be flying at the convention. When he visited Ray Dean he learned that Ray has damaged his Pup in a forced landing. Apparently, a ground adjustable prop had been installed with the wrong pitch. The engine reportedly ran OK on the ground but quit soon after takeoff wit only 20 ft of altitude. The forced landing in a field completely totaled the front of the fuselage (wecan't stress enough the importance of ensuring that your engine turns the correct max RPM at full throttle BEFORE you take off (6200-6400 RPM for the Rotax 277)). If the Rotax turns less than 6000 RPM or more than 6600 RPM at full throttle you should correct the problem before attempting flight.

-----New Illinois Builder-----

Don Handley or Martinsville, IL reported he has the right wing ready for cover, left wing has D-cell, aft ribs and trailing edge. The tail feathers are built. Says he has been on the project over two years and doesn't intend to try to rush to completion. He is taking his time, enjoying the building process, along with the frustration of not having four hands! He says the centersection is coming along but he would like to see a fuselage to clear up some questions in his alleged mind.

-----Most Northerly Sky Pup-----

George Gaudet of Iles De La Madeleine, Quebec wrote in April '92 that with only 4 month construction he has completed the wings and tail and has put 300 hours in the project (see issue no. 28). He says he hopes everyone doesn't get the impression that the weather up there is always like the colored description given by his friend, Paul Pontois. The winds there are terribly stormy or near calm. There's no in between. That's why he would like to hear from readers any idea about building a shelter over a wing deployed Sky Pup. See the mailing list for his address.

-----Pup Project with Musical Overtones-----

New builder Harris Hanser of Warren, OH called to say he has purchased a partially completed Sky Pup from a builder in Kansas. He says the workmanship was very good as the original builder was a violin maker! The Pup was about 2/3 completed (the D-cell was ready for plywood), and he has a new Rotax 277 still in the box.

-----News of Other Projects-----

At Oshkosh '92, a builder from Quebec reported that Paul Pontois (issue 13,18) has begun work on a Hi-Max. It will be interesting to hear how it compares with his Sky Pup. Also, I have a note that Al Clements of Sechelt, B.C. (issue no. 17,18,21,23) has started building a second Pup to replace the "Green Machine" which was destroyed in a weather related accident.

-----Sky Pup Plans Needed in Brazil-----

Sky Pup News received a plea from Luis Fortado of Rio Claro, Brazil asking for help locating a set of plans for the Sky Pup. There is growing interest in homebuilt aircraft in Brazil. If you can help start a new litter of Pups in South America, please write to...

International Designers Club Engineer Luis R. Fortes Fortad AV. 2 #1718 -Rio Claro, S ZC 1350 Brazil, South America

CONSTRUCTION TIPS

-----Bonding and Cutting Wing Spar Foam-----

Arthur Hall of Garner, NC wrote in July '92 about a method for bonding and cutting 2 inch sheets of foam together to get the 4 inch thickness required for the main spar. Most builders can find the 2 inch or less sheets of foam locally, but the main spar often requires a special order and shipping costs. Splicing foam components is permitted anywhere in the airframe though it will add weight. The hotwire however will not cut through the bond line. Arthur has found that a carbide tipped blade on his bench saw will cut through the foam and epoxy bond line. He cuts just outside the line and then uses a sanding block with 80 grit to smooth the surface. He also reports that epoxy will hold rib caps on 100% but Titebond glue can be pulled off. Sport Flight Engineering announced in an early newsletter that epoxy is recommended for all the different bond types, wood to wood, wood to foam, foam to foam.

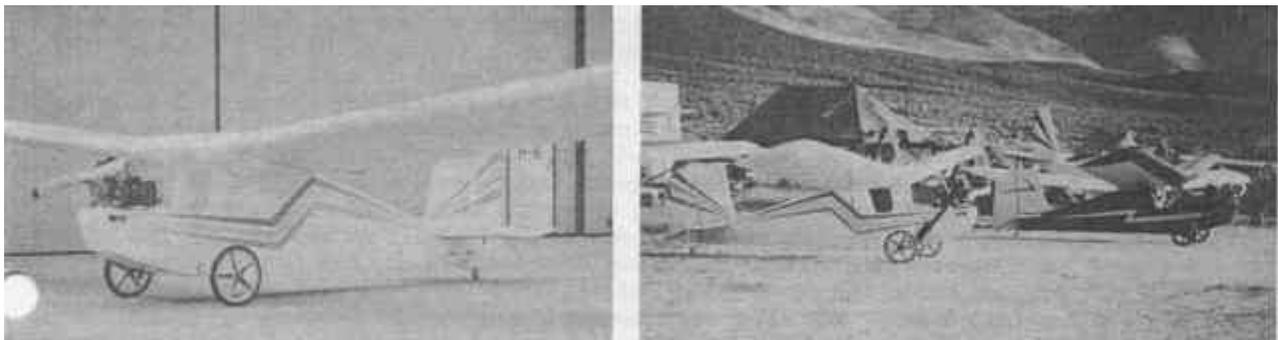
-----Idea for Sealing and Protecting Foam-----

Paul Kolemainen of Lake Oswego, MI called with a question about sealing and protecting foam parts on the Pup. The plans call for polyurethane on fuselage foam (under the fabric) to protect from fuel. Latex paint has been suggested for interior foam in the wing and tail to reduce ultraviolet degradation. Paul says why not use oil based enamel throughout the airframe instead. He tested latex paint versus enamel and found much better protection against solvents. He plans to cover his Pup with conventional aircraft fabric and methods so the foam must be protected from the fabric cement. He will use a fast dry oil based enamel primer on the entire airframe instead of latex on the foam and polyurethane on the wood. 4-26-92

-----Full Size Rib Templates Available-----

Builder Guenther Schmidt of Seattle, was sent several sets of rib templates. He carefully plotted out the airfoil and then duplicated it with an oversize copy machine. Write to me or to him if you would like to use them. He says he can make more copies (these are new plots, not copies of the templates that were once available from Sport Flight). Guenther reported he came to be the guest of builder Harry Grape at a local EAA meeting. The club president reported he saw Bob Schaefer and his Pup at the Alvard Desert and was quite impressed.

NEW PUP COMPLETED IN THE NORTHWEST



Included here are a couple photos from Bob Schaefer of Boise, ID. This white Pup with tri stripes belongs to Dave Scott and Larry Reidenaur and was built with advice and help from Bob. No details are available but the engine appears to be a Rotax. The photo on right shows the ne Pup with Bob's (now) 600 hour bird.

SKY PUP NEWS SUPPLEMENT TO ISSUE NO. 29

THE TERRY ROCKWELL STORY



On the occasion of the 10th anniversary of the Sky Pup design, Terry Rockwell, of Susquehanna, PA, one of the early builders (see issue no. 4, 12) sent the following letter summarizing his experiences with his Sky Pup. Terry was a model airplane enthusiast (U-control and RC) and had the help of his father who flew Cubs in his younger days. He saw the ad for the Sky Pup in Ultralight Flying magazine and sent off for the info package and later the plans. Here's his story in his own words.

We began actual building in October 1983 and completed it in May 1984.

Several times during the project I called Steve Wood and he was always very pleasant and helpful.

My Dad dropped out of the project about 2/3 of the way through when he realized I was actually serious about flying the little bird. The guys down at McKinney's' field paid me periodic visits during the building of the Pup and I think they had a few doubts about any positive flight ever happening, but not me! I knew, just knew it would be OK. The ultralights of choice those days as you know were mostly rag and tube and most people looked at the Pup with amusement and commented, you're not really going to fly that thing are you?". To which I'd reply "oh yes, I don't see why it shouldn't fly just great, I built it all myself and completely trust the design and my workmanship". Usually at this point they'd shake their heads and ask my wife Wanda how much life insurance she had on me. She never seemed overly concerned so I guess the coverage was adequate.

The great moment finally arrived when we transported the Pup to McKinney's Field via my brother Poppy's Chevy Pickup. We got a few startled looks as we passed through town on our way to the strip. Naturally it started to sprinkle and I felt a little uneasy as the Pup wasn't covered. We got it unloaded and bolted on the wings as I was anxious to do some taxiing up and down the grass strip. On the third trip down the runway, the left axle tube slid off the maple gear beam and down she went, breaking my nice new prop. I was devastated. Reluctantly we took the wings off and put the Pup in the hangar alongside Tom's Kolb Flyer and Mel's Skyseekers.

While waiting for the new prop, I did an engineering change to the gear so the axle tubes could never again slide off no matter how great the side forces. I felt confident about flying the Pup for a variety of reasons. I knew my model airplane experience had taught me a lot and I knew my building techniques were good. I was also working at Link Aviation and spent line hours "flying" simulators ranging from F-4's to the F-14's, and even the F-117A. Lastly, Mel had been given a little dual in a Cessna 150 flying around the area using rudder only for turns in preparation for the first Pup flight.

Finally, the new prop came in and I was back taxiing up and down the strip. holding forward pressure on the stick and keeping the tail up as the Pup tracked straight as an arrow. Sometimes it seemed like the reduction belt was slipping and I'd stop and tighten it and it would be OK again. I was getting used to the rudder bar and the cockpit felt natural after a while. I learned to grab a wheel for a tighter turns. The time had finally arrived when I felt it was now or never. Wanda was cooking hamburgers and had prepared a picnic real for the gang assembled. We all gathered around enjoying the fellowship of ultralight flyers, family and friends. I keep in thinking about the PLAN. The PLAN was to go full throttle, lift off, climb to 50 ft. or so, throttle back and land. The weather was perfect--, a warm June evening, no wind, just right. I taxied down, turned around, and executed the first part of the plan.

The Pup climbed quicker than I anticipated, and for the first time in my life I was flying alone at least 50 ft in the air. I didn't panic, but decided to skip the part about throttling back and landing. I was going to go for it! My wife and friends were astonished to say the least. I felt OK as the Pup cruised along past the end of the runway and out over the Susquehanna River. Something didn't seem right though-. I was no longer climbing and seemed to be losing airspeed. The Cuyuna was maxed out but I wasn't getting full thrust.... The belt drive was slipping badly. No time to lose my wits now. I had read Stick and Rudder several times and everything about stalls and glide technique was running through my mind like a freight train. I remember Mel pointing out power lines passing across the river just ahead. I breathed a sigh of relief as I spotted them ahead and above me.

I lowered the nose and set up a glide, looking down at the river below through the hole in the floor. With tall trees on my left and a steep bank on my right, I was committed to a water landing. By this time I'm not getting any thrust so I pull the power back. The river took a bend to the left up ahead and we had no rain recently. I could see the bottom on the left side. There were willow-type bushes, flat rocks and gravel on the bottom and the water was about a foot deep. The Pup touched down and was rolling along quite well with those large diameter wheels and I thought "so far, so good".

The next thing I knew we were on our nose and I got a bath! A mini tidal wave washed over the engine and me as the Pup stopped and went up on its nose and then back down. I quickly got out and surveyed the situation. We had landed on the only shallow spot around. The prop was scuffed but not damaged and there was no apparent damage to my beloved Sky Pup. I heard a noise and looked up to see Mel and Mike circling in the Cessna 150, flaps down and waving madly I waved back standing in the water next to the Pup.

Mel landed back at the field and assured everyone that everything was fine. My brother Stan located an aluminum rowboat and was working his way upstream while everyone else was trying to bust through the thick riverbank vegetation in an effort to reach the landing site. When they got there they broke out in laughter as they saw me standing there soaking wet next to the beleaguered Sky Pup. We gently lifted the Pup onto the boat, setting it onto cushions, and proceeded to float it back down the river. The whole thing looked like something out of Indiana Jones" as the Pup came down the river on the rowboat.

We did sort out the problem with the reprove belt and my first successful solo flight on June 30, 1984. I lifted off, flew down the valley, did a 180, came back and landed. As I taxied back to the hangar I killed my engine. My daughter after ran up to me and I took her in my arms, savoring the moment as Mel and Eddie began ripping my shirt tail off. It's a feeling I'll never forget as long as I live.

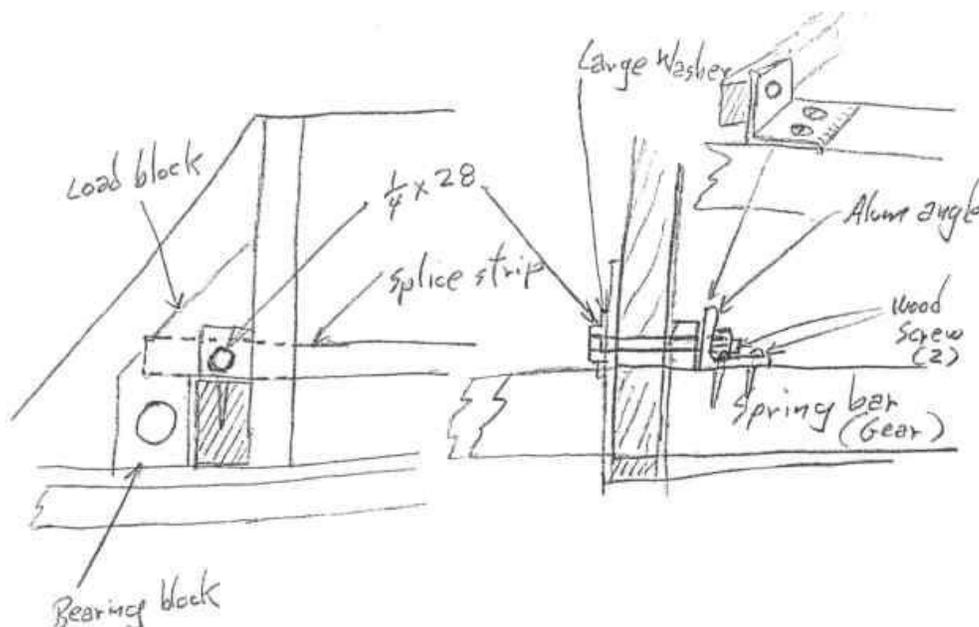
On July 28, 1984 Ron Jones and Tom Wood from Norwich, NY (see issue No.16) trailered down their Sky Pup and flew with us. As far as I know , that was the first time two Pups had ever flown together. Tom also flew along with his twin-engine Kolb Flyer. The Sky Pup was my faithful companion for the next two summers as we flew around most of Susquehanna County and even getting into New York at times. In early 1986, I began construction of a Kolb Firestar and as it neared completion around August, began to get a funny queasy feeling in my stomach realizing that my Sky Pup days were numbered. I had a buyer for it and the Firestar was waiting to be flown. I wondered how I would handle a plane with ailerons for the first time.

On September 25, 1986, I flew the Pup for the last time. It was a cloudy grey day of about 65 degrees with hardly any wind. The dark grey skies matched my feelings as I motored around the area, the little Cuyuna humming along. I felt as if I was losing a member of the family, my best friend. As I taxied up to the hangar for the last time, I slowly reached up and shut off the engine and just sat there not wanting to get out.... thinking about the last three summers and all the wonderful and sometimes scary times we'd been through together. I finally climbed out telling myself that all things must come to an end even when we don't like them to. Driving home my eyes watered over as reality set in and I thought about the little plane sitting in the hangar and what the future held for it. As I parked the car in the driveway and entered the workshop, I gazed at the finished Firestar and began to feel a little better. A whole new adventure lay ahead that's for sure I thought.

But I knew I'd never forget where it all began.... seeing an ad for a little ultralight from Sport Flight called the Sky Pup.

LETTER FROM NEWTON BORDEN

Newton Borden of S. Weymouth, MA sent an update back in December of 1991 that didn't make it into issue no. 28 so here it is 1 1/2 years later.



I still have my Pup but didn't get much time on this summer due to lousy weather. I did take advantage of the good days and maybe got 25 hours. After many one-wheel crosswind landings the gear spring broke through the bottom of the fuselage. This was due to landing on my right wheel most of the time and the free floating spring bar acting as a leverage finally broke through, no other damage was done and I still managed to taxi back with it.

I wood screwed an aluminum angle bracket to the gear spring on the inside of the fuselage on each side and then went through the hard spot that supports the gear with a 1/4 x 28 and through the aluminum angle (see drawing). This supports the spring bar on each side and prevents that lever action.

I towed my Pup down to the "flight Farm" in Monterey, N.Y. again this year. Again I had the only sky Pup but met and talked with many other builders. My Pup always gets lots of attention and I spend a good part of the time answering questions. I had a bad experience on my first takeoff at Monterey. At about 300ft. with no runway left, I developed a bad vibration and loss of 3/4 of my normal RPM. I managed to hold what altitude I had and tried to get into downwind position for a landing, but with 10-15 other planes in the pattern and no way to communicate, it took me three tries. On the last attempt the engine quit and I cut off a couple of planes, hoping they saw my dead prop and got it back down on the runway with no damage. I found my adjustable pitch prop was to blame. One of the blades had loosened up and went into high pitch. The announcer and spectators, not knowing the trouble I was having, thought I was making the low passes for their benefit.

Did you happen to see the picture of my Pup and article in Kitplanes magazine? I am still receiving mail and getting calls from all over, even a builder in Malaysia. I have received over 50 letters and calls and have managed to answer all of them. It's cost me plenty in photos, copies and postage but I met a lot of nice people so it's been all worthwhile.

I have a Mitchell U-2 SuperWing in my shop that was built by a friend who is hesitant to fly it. He has gotten off the ground and flown the length of the runway, but that's as far as he goes. He has a Zenoah engine in it but it was always overheating or the reduction belt was slipping etc. I suggested he let me put my Konig engine in it and we both fly it. He bought the idea so I'm in the process right now. I had a buyer for my Pup less engine and instruments but I haven't heard from him in a while. I would rather keep it but have no place to store it and don't want to leave it outside. It's still in good shape and is now painted in the mid 30's Air Force colors, orange wings and stabilizer with the early stars, blue fuselage and fin with vertical red, white and blue stripes on the rudder. A dummy gatling gun sticks out the nose like the A-10 Warthogs. It gets much attention at the shows. I got invited to show the my Pup at Otis AFB at their annual show but had to pass as I already had plans to attend the Maunder event. I sure would have liked to get a video of it parked alongside the F-15's and Thunderbirds. Maybe next year. As you know, there's never a dull moment owning and flying a Sky Pup.

- - - from Al Mays, in a card to announce the birth of his son, Lucas.



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Original Newsletters edited by Dan Grunloh, electronic edition compiled by Edwin Lelieveld and Roger Ford.