LATEST INDOOR NEWS!

ONE AND ONLY!

THE HANGAR PILOT

MIAMI, FLORIDA USA

ISSUE #55
MAY 1979
AMA CLUB 986

THE MIAMI INDOOR AIRCRAFT MODEL ASSOC. MIAMA

ONLY INDOOR CLUB BULLETIN

OPENING MEETING OF NEXT SEASON:

MR. TOM TOWLE

DESIGNER OF THE FORD TRIMOTOR-TIN GOOSE

"FROM WRIGHTS TO JETS"



AWARDS BANQUET JUNE 10

DETAILS NEXT ISSUE

INSIDE:

THE RAFTER BAT

THE HELE-FLEX

MEET #7 (LAST ONE) NOW!

ONE WEEK EARLY - MAY 20

(NOT MAY 27)

COMING EVENTS:

THIS SUNDAY MAY 20 - LAST MEET

MAY 26-27 REBEL RALLY - JAX

JUNE 3 - ARAK'S OUTDOOR MEET - FIU

☆ JUNE 10 - (ONE WEEK EARLY) - AWARD BANQUET

JUNE 16-17 5 FLAGS FF MEET - PENSACOLA

JUNE 21, 22, 23, 24 - FNART

☆ DETAILS ON BANQUET - NEXT ISSUE

THE HANGAR PILOT Is published 8 times a season by Miami Indoor Aircraft Model Association, AMA Club 986, the only active all indoor club in USA, and also the only indoor club publication. For $5.00 a year you will get all 8 publications, and for $10.00 a year you get both the PILOT, and a membership in MIAMA, providing you are already an AMA member. For $1,000,000 we will send you the Blimp, ready to be inflated. We currently sponsor 8 monthly indoor meets at which members earn points toward annual awards. We also have fly-ins for learning, comraderie, and low pressure fun. We have a youth committee of ERNIE CLARK, MIKE ARAK, and DAVE LINSTRUM et. al. who run Delta Dart, and associated tyro events to encourage young builders in developing indoor skills. MIAMA and NIMAS (National Indoor Model Airplane Society) co-sponsor the annual time trials in Northwood Institute in West Baden, Ind. We are indebted to the GOODYEAR TIRE & RUBBER CO. for letting us use their hangar at Opa Locka for our meets....So next time...BUY GOODYEAR!! MIAMA also sponsors the unofficial Manhattan event at the NATS each year, and has in the past sponsored both peanut scale, and Navy scale at the Nats since 1973.

EDITOR/PRES. John Martin ARTIST/ILLUSTRATOR/SECY Dave Linstrum
CHIEF SCRUTINEER Dan Kilgore ARCHIVEIST Terry Rimert
PROPERTIES & RETRIEVAL Jim Stewart PEANUTEER: CARL HEDLEY
Kindly send all comments, letters, contributions, and money to MIAMA, 3227 Darwin St. Coconut Grove, Miami, Fla 33133

MEET SIX - APRIL 29 1979 (2)

What a great flying year the 1978/79 season was even though it is almost over. Nearly 40 different contestants flew well over 200 events in seven meets and one fly in. This includes about a dozen new flyers in Ernie Clarks Delta Dart program. We owe Ernie and his fellow helpers Mike Arak and Dave Linstrum many thanksfor all the time they spent introducing the kids to indoor, instructing them, running the meets, promoting the prizes,etc. It was time well spent. Also thanks for all their time to JOE & MAXINE NICK, Goodyear's hosts,who were always the first to arrive, and the last to leave. We particularly thank them for the last meet when they showed up at 8:00, and didn't leave until well after 7:00...Eleven Hours!" While we're throwing boquets,here's one for all those out of town Hangar Pilots who added to the competition, drove vast distances to the meets, and made indoor truly a Florida State comp.

As you know, this was a double meet. The morning was the qualifying trails for the Southeast Region FAI indoor WC Team. Only three showed up but that is enough for an official meet. As a reminder..our region was just established last year, and we do not abound in F1D builders. RAY HARLAN brought his craft down from Boston, and made it look easy! On his first flight he set the new Fla. State record for FAI stick at 23:34, breaking Roman's old record by over three min. ANY twenty min. flight in that hangar is GREAT flying, and lucky too, because of the tight ceiling and all the rigging ropes on the side. Ray found that out too 'cause the best back-up flight he could manage was 18:27which equalled the best time of ROMAN SZYMuLA . DAVE LINSTRUM'S best flight was 14:43, and if you don't think that is GOOD, just try it sometime...Congrats, men.

At 2:00 the regular indoor flyers, who were waiting anxiously on the sidelines for the flimseys to pack up, got roaring into the glider event where disaster was waiting for JOHN ARTHUR. His gliders all blasted apart on the girders. No one, but NO ONE seemed to be able to get his glider going right. I never saw so many balsa parts showering down, or heard so many groans. Bill Smead, who always seemed to be able to manage a 50 sec. flight, struggled to a 43, and a 45. Ron Sharpton won the event, and here's a surprise... he also won all but one evnt of those he entered. With all those points Ron moved past Martin to within 2 points ofBill Smead in 2nd place.. Bill did not close the gap on JIM STEWART in 1st place, and with but one meet remaining remains 14 points behind.

Martin's new Farman Jabiru, an ugly French 1920's airliner peanut showed a lot of promise at 48 sec. ROG first time out. MIKE ARAK proved that a little documentation goes a long way by winning Peanut with his Bristol F1-C that came in 5th last meet sans 3-views. WALT EVERSON bested DAN KILGORE by a few seconds in their Manhattan duel. All could change on the last meet on MAY 20. DON'T FORGET IT IS JUST A FEW DAYS OFF:::EARLY!!!

RESULTS, MEET SIX: 4/29/79

PEANUT:
1. Mike Arak 5 pts. (Bristol 22.8) 1 looks, 4 flite (32.2)(33.8)
2. John Martin 5 pts. (Ford 2 AT 22.0) 3 looks, 2 flite (46.0)(48.2)
3. Carl Hedley 7 pts. (Widgeon 22.8) 1 looks, 6 flite (17.0)(20.2)
4. Jim Stewart 8 Pts. (Church 22.0) 3 looks, 5 flite (19.0)(20.0)
5. John Martin 8 pts. (Jabiru 21.5) 5 looks 3 flite (33.5)(47.8)
6. Carl Hedley 8 pts. (Moustique20) 7 looks, 1 flite (66.2)(66.4)
7. Bill Smead 12 pts. (Pietenpol 21.5) 5 looks, 7 flite (24.4)

GLIDER:

1. Ron Sharpton	(46.5)(48.5)
2. Bill Smead	(43.0)(45.0)
3. Jim Smead	(32.8)(34.9)
4. Terry Rimert	(37.0)(27.5)
5. John Arthur	(38.3)(21.4)

Junior:
John Arthur, Jr. (35.7)(36.8)

PENNY PLANE:

1. Ron Sharpton	5:15.4
2. Jim Stewart	4:54
3. Bill Smead	3:43.6

Junior 1. Jeff Everson 6:09
2. Carl Linstrum 3:58.9

EASY B:

1. Ron Sharpton	8:15.4
2. Bill Smead	6:03
3. Jim Stewart	5:54.7
4. Carl Hedley	4:50.8

PAPER STICK:

1. Ron Sharpton	10:05.4
2. Jim Stewart	7:00.2
3. Bill Smead	3:13.2

Manhattan:

1. Walt Everson	4:51.2
2. Dan Kilgore	4:33.5
3. Ron Sharpton	:10

RESULTS - SE. REG. FAI TRIALS

4/29/79

1. Ray Harlan (23:34) (18:27.5)
2. ROman Szymula (13:27) (16:54.4)
3. Dave Linstrum (14:43) (9:42)

★ DONT MISS THE AWARDS BANQUET JUNE 10

MIAMA OUTDOOR MEET - JUNE 3

TAMIAMI PARK, FIU GROUNDS 8:30 AM TO 4:00

DELTA DART (JR. ONLY) PECK R.O.G. EMBRYO

AMA SCALE · PEANUT - HL GLIDER

MIKE ARAK CD 666-9479 1.00 PER EVENT

MAMA ANNUAL POINTS

OVERALL POINT STANDINGS

1. Jim Srewart	75
2. Bill Smead	61
3. Ron Sharpton	59
4. John Martin	48
5. Roman Szymula	43
6. Jim Smead	39
7. Carl Hedley	30
8. John Arthur	27
9. Mike Arak	25
10. Terry Rimert	18
11. Walt Everson	15
12. Jeff Everson(Jr.)	10
13. Dave Linstrum	8
14. Dick Kelso	7
15. Nick DeCarlis	7
16. Dan Kilgore	7
17. Blaine Miller	6
18. Dave Hagen	5
19. Dale Elder	5
20. Heather Arak(JR)	3
21. Ray Harlan	3
22. Nathan Miller	2
23. Lang Hiscock(JR)	2
24. Harry Grogan	2
25. Scott Willis	2
26. Charles Slater	2
27. Carl Linstrum(Jr)	1
28. Kevin Smith	1

Manhattan Cabin:

1. Walt Everson	9
2. Dan Kilgore	7
3. John Martin	5
2 more	

Junior Penny

1. Jeff Everson	6
2. Heather Arak	3
3. Carl Linstrum	2
3. Lang Hiscock	2

ANNUAL POINTS BY CLASS:

Peanut:

1. John Martin	31
2. Jim Stewart	26
3. Carl Hedley	24
4. Mike Arak	19
5. Bill Smead	16
4 more.....	

Scale:

1. John Martin	12
2. Dick Kelso	4
4 more.....	

Glider:

1. Bill Smead	30
2. John Arthur	27
3. Jim Stewart	17
3. Jim Smead	17
5. Terry Rimert	15
6 more.....	

EASY B:

1. Roman Szymula	20
2. Jim Stewart	19
3. Ron Sharpton	17
4. Jim Smead	11
6 more.....	

Penny Plane:

1. Roman Szymula	16
2. Jim Stewart	10
3. Ron Sharpton	9
4. Bill Smead	7
5. Dave Linstrum	6
3 more.....	

HL Stick:

1. Roman Szymula	4
2. Rav Harlan	3
3. Dave Linstrum	2

Paper Stick:

1. Ron Sharpton	11
2. Jim Smead	8
3. Bill Smead	5
4 Roman Szymula	4
2 more	

LAST MEET - THIS SUN. MAY 20

AWARDS BANQUET - JUNE 10

FROM THE HORSES MOUTH AND OTHER ORIFICES

(OR THE LATEST POOP FROM THE HORSES PATOOT)

SAY; PODNER, WHO WAS THAT MASKED MICROFILM MODELLER? In 1974, month of April, a mysterious, young (28?), stranger arrived at the Blimp Hangar. From a neat model box he produced two beautifully built HL Stick models with wrinkle free irridescent covering , and a very light paper stick model, and proceeded to set the State record--apparently he had flown these things many times before. He appeared twice more in 1974- in May, and October, spoke very little, and then disappeared forever. Letters to his home in Naples were returned "Address Unknown". No one seems to know or have any information on ALAN SZABO who "worked for the airlines". Anyone out there who can finger the mysterious masked modeller??

ANOTHER YARN: Now that we are settled in front of the roaring fire telling model airplane tails (Ugh)...: I was on Central High's track team as a lousey miler (Never broke 5:00) in Phila. in 1944. At a dual meet with West Phila. High I discovered that their star broad jumper was also an ardent modeller. JAMES IVAN and I met once in a while in Philadelphia's Convention Hall where he was flying mike models and I was in indoor scale. I haven't seen him since 1945. RAY HARLAN of Boston came down to the last meet to fly in our Trials. I learned that he was an ex Yeadon resident, and Episcopal Acadamy graduate. Although I have at least ten years on Ray, I chanced the query"Did you know a James Ivan?" "Who do you think taught me to build indoor models?" was the reply. Small world? What ever happened to James--now about 51 yrs. old? Anyone out there with a story like this?

NAME DROPPING: The same Ray Harlan of the above story, who won our Trials, , was the Team Manager for the USA FAI indoor team that finished 2nd to UK at their home in Cardington last August. Ray hopes to gain a berth on the 1980 US team which will fly at,as yet, an undeterminate venue...we hope WEST BADEN. Also present at the meet, as an interested spectator was world C/L aerobatic champion LES McDONALD, and a whole crew from ORANGE BLOSSOM HOBBIES. Any chance you're gonna try Easy B, LES?

DATE FOR LAST MEET AND FOR BANQUET CHANGED: In case the blatant notices in this issue have escaped your attention we mention that the last meet will be held one week early (May 20, not 27)in order to have all our outdoor FF friends make the Rebel Rally in Jaxonville on May 26 & 27. JUNE 3 is MIKE ARAK'S MIAMA outdoor meet at FIU campus, the following Sun. June 10 is our awards banquet. This was moved up a week 'cause the 5 FLAGS meet will be on the Father's Day week end of June 16 & 17. FOUR DAYS LATER IS THE FNART IN WEST BADEN..... How's that for a crowded schedule?

CONTRIBUTORS TO THE OLD HANGAR: BILL HANNAN sent a weird trike geared tandem light plane from MILAN KACHA in Czechoslovakia. He suggests it would be a good "new ruler" peanut. 3-views are on the last page..the Frebel F-5. Any nuts want to give it a try? All dimensions are in metric Czech.

NEXT PAGE →

(CONT) HORSES ORIFICES

OTHER CONTRIBUTORS: We want to thank all authors..Carl Hedleys many Peanuts,Dave Hagen's material,Dave Linstrums art work, Dick Kelso's Acro Duster plans, Nick DeCarlis's embryo model,Jim Black's paper planes, and Charles Slater for his helicopter. All this material is far from the run of the mill stuff...THANKS:.

SOME THOUGHTS ON INDOOR: There is a healthy advanced interest in the FNART but many bodies do not a good meet make. I got over that idea many years ago when I quit counting noses and worrying if it was more or less than last year. Indoor isn't the wave of the future, indoor is not growing, indoor isn't trendy, not "with it", not "In". Like archery, ballooning, soaring,sailing, Falconry,fencing,court tennis,chess,and handball..., indoor IS. Jogging, R/C and some other pursuits may go the way of the hula hoops and the trampolines, the go-carts and slot racing, but indoor is here to stay. Those who like it are not going to find other interests. The search for the better indoor model is a life long pursuit, and the perfect indoor model has never been made, nor will it. Hence the intrigue. Indoor has, I guess, about 1,000 people in the whole wide world ..many of them in Eastern Europe...who give a damn. If you throw in the indoor scale, and Peanut Scale crowd I believe the number would still be less than 2,000 people who care. Bud Tenny's list is under 400, and we reach about 100, with a lot of overlapping..get the picture? Because of this, those who enjoy these goings on sooner or later get to know each other. It is really GREAT to have friends and correspondants in Poland, England Czechelslovakia,Japan,Australia,Romania,Hungary,France,Germany,Italy, Sweden, Switzerland,and USA who are enthusiastic indoor buffs, and who will meet you "at the airport" in any time of year or day. So here's to the "thin red line of heros" who appreciate the discipline, and who endeavor to improve the standards--Skol, Nesdrovia, Cheers, etc. We who love this hobby are grateful for you others who do too. It would be nice if all the world was indoor oriented, or would it? There's a tear in my eye.

THREE HORSES CHEERS FOR MIAMI METRO GOVERNMENT!!:We got a fine letter from former Dade County Park and Recreation director BOB FANKHAUSER: Bob went to bat for MIAMA many times, and the clout of the P&R Dept. led to our little club obtaining flying sites such as The Youth Fair Exhibition Hall, and JFK Gym at MD North college. In addition, the P&R Dept. published the HANGAR PILOT for three years. In an odd series of events the county proceeded to (1) Drop the publication of the Hangar Pilot, thus saving the tax payers of Dade $80.00 PER YEAR.It seems this expenditure was too high for too few benificiaries..100 copies!per month. (2)Youth Fair found its schedule too crowded to accomodate any model meets. It seems the building was needed for volley ball, flower shows, dog shows, and my favorite..DOLPHIN DOLL PRACTICE!! Now where else can you twirl your baton in a worthy endeavor I ask you. No more Youth Fair.

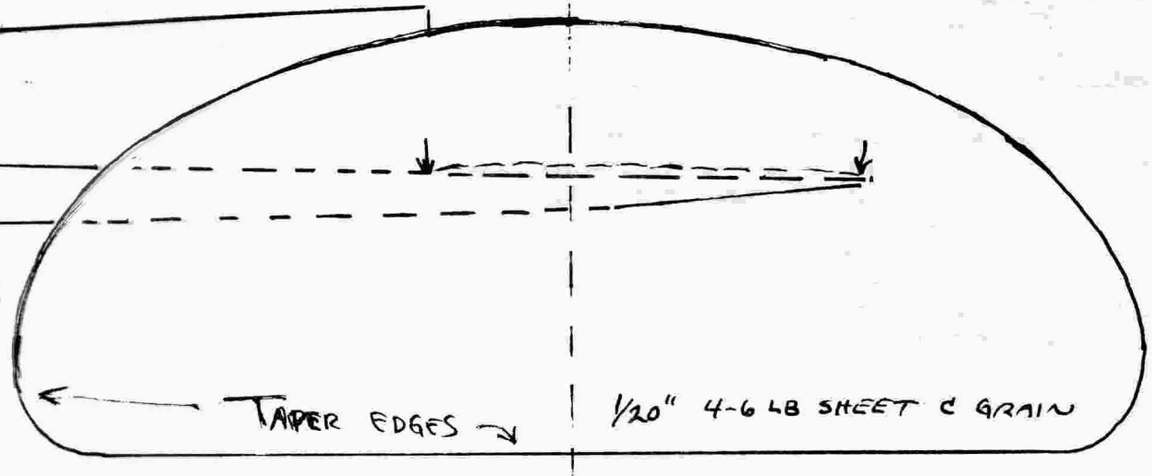
CONT. ON P. 10

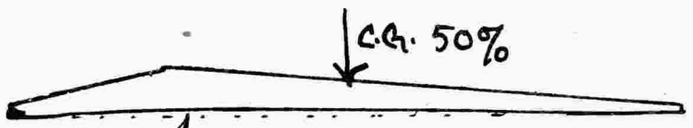
3/16" x 3/4" x 20 1/2 MED.

THE "RAFTER BAT"

By Bill Snead
Holly Hill FLA.

HOLDS FLA. STATE RECORD CAT II (52.4) (50.2)
GOODYEAR HANGAR 68'





LEADING EDGE 1/16" x 1/8" SPRUCE

WING STOCK - 1/4" x 4" x 20" 4-6 LB.

NOTE: CENTER LINE OF WING IS OFFSET ON FUSELAGE

1/8" HIGH POINT

SPECIALLY DESIGNED FOR 68 FOOT BLIMP HANGAR WITH ALL ITS ROPES AND GIRDERS.

2 3/4" FROM TABLE HERE

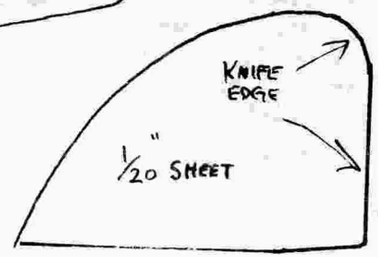
WING TAPERS FROM 1/4" AT ROOT TO 3/16" here, TO 1/16" here.

1/2" DIHEDRAL HERE

TRIM: STAB TILT ABOUT EQUAL TO INBOARD PANEL DIHEDRAL. SLIGHT LEFT RUDDER. OFFSET WING ABOUT 3/32 TO LEFT. SMALL AMOUNT OF INBOARD WING TIP WEIGHT. WASH IN IN BOARD CENTER PANEL ABOUT 1/16". ALL OTHER SURFACES STRAIGHT.

WEIGHT - 17 GRAMS + LAUNCH TO RIGHT. SNAPS OUT IN 3/4 TURN & GLIDES TO LEFT.

1/16" WASH IN INBOARD PANEL



3/16" HARD BALSA FINGER REST

(3) Mr. Manero of JFK Gym decided that MIAMA would have to come up with $60.00 for a half day there on Sundays to pay for whatever it was that should cost an empty gym $60.00 to operate...presumably the electric light bulbs and the current. Result- No more JFK gym and the monthly fly-ins. Who came to our rescue? The private enterprise of GOODYEAR TIRE AND RUBBER COMPANY out of Akron Ohio lets our club use their Hangar monthly GRATIS, although it pays the County about $70,000 a year in rental. Remember this dear hearts. The Goodyear Co. can let us fly for nothing, but the fine old institution of the METROPOLITAN DADE COUNTY GOVERNMENT finds no place for our recreation club to use, even though these taxpayer funded facilities stand idle almost every Sunday, and dispite the fact that we provide our own insurance, our own officials, our own janitorial service, our own instructors, our own awards, and have a seven year record of impeccable performance for young and old, boys and girls REMEMBER THESE THINGS THE NEXT TIME YOU ARE INVITED TO PARTICIPATE IN SOME COUNTY ACTIVITY. Also remember this the next time you need a set of tires, or a tune-up. GO GOODYEAR!! (Up Metro) Back to Bob Fankhauser and off the soap box: Bob was a little annoyed at the orientation of his P&R Dept., and I quote"I wasn't happy with the way things were going- it seemed to me that the main projects were NOT people oriented-Keep up the fight with the red tape spreaders." How do you like that,Pilots? It's gotten worse since Bob left. Bob was so annoyed that he pulled out of Miami, and we lost a true friend. He moved to a tiny town in Ohio called ROCKBRIDGE(Near Columbus), and did a "back to the soil" thing with (Get this)..a tree farm! Maybe the next Christmas the tree you get will be grown by Bob. It was a little touching that his envelope had a sticker on it that read "I LIKE MIAMI". Good luck,Bob! May your trees grow fast and tall. We will man the ramparts back here at MIAMA Headquarters, and promise to fight the Red Tape that Bob warns us about.

INDOOR NEWS FROM CHICAGO: CHUCK MARKOS; whosays he'll be at the FNART, sent results from the 6th Midwestern States Indoor Champs held in Chi. on April 21,1979. Dave Lindley, who did so well at the SNIRT, cleaned up in Junior, Mike Hulbert in Senior, and Rick Doig in Open. A total of 49 contestants from 7 states flew. Chuck noted that the Scale scores were teriffic with Charlie Sotich 1st and Jim Gerz 2nd. I've got an uneasy feeling that Charlie is still flying that ratty old Volksplane. I hope I'm wrong. Jim Gerz won peanut with Bob Siedentopf 2nd. Stan Stoy set a new Cat II glider record of 2:26.8. Not satisfied he intends to BETTER this at West Baden.

A REMINDER TO THOSE HANGAR PILOT READERS FROM AREAS WITH NO INDOOR FLYING: We repeat the idea for an indoor demo team for half time entertainment at basketball games. Mass launch of Delta Darts, a couple of Easy Bs or Penny Planes, then some Manhattans or Scale models, and then some tricky stuff that flap, or rotate. Get their interest! If nothing else you may get permission to use the gym, and you May get one or two interested people from the crowd.

THE FNART

4TH NIMAS ANNUAL RECORD TRIALS (11)
JUNE 21,22,23,24, '79

NORTHWOOD INSTITUTE ,WEST BADEN INDIANA 812-936-9971

By now the entire indoor fraternity has been well informed of this annual gathering of the National Indoor Model Airplane Society sponsored by Miami Indoor Aircraft Model Association. I'll spare you all the verbage about the first three meets except to say I'm glad I was there. The fun, the fellowship, the flying, and the memories are the finest.

THE NIMAS RECORD TRIALS: Every type of indoor model is flown and recognised. This is 15 classes (12 AMA and 3 provisional or unofficial). This is an AMA catagory II site and a FAI catagory III site. MIAMA will have the necessary forms for AMA records.Flyers planning to go for FAI records should come prepared with the proper forms.. consult your AMA rule book. Beautiful pewter mugs (Trophies) will be awarded from 1st to 10th overall based on Index of Performance. This index is how well the best flight your model makes compares with the national record. In addition to Index of Performance mugs there will also be trophies for Easy B, Manhattaan, Scale, and Peanut Scale. There are no limits on the number of classes you enter, and no limits on the number of flights you make. AMA rules apply to all classes except Manhattan. Peanut is flown to the MIAMA rules and can be built to 13" span, or a 9" overall length. Easy B includes the same restrictions as flown at the Nats.

NORTHWOOD INSTITUTE: The Atrium is a domed room 98' high and over 200' in diameter. The rooms surround the Atrium, and meals are served in the ajoining dining room.These are dormatory rooms in an old college and not plush or air-conditioned. There is plenty of activity for the entire family at nearby French Lick.

OFFICIAL FNART ENTRY- SUBMIT BY JUNE 3, 1979

NAME:_____ AMA No._____

STREET ADDRESS_____

CITY_____STATE_____ ZIP_____

CLASSES I WILL ENTER:_____

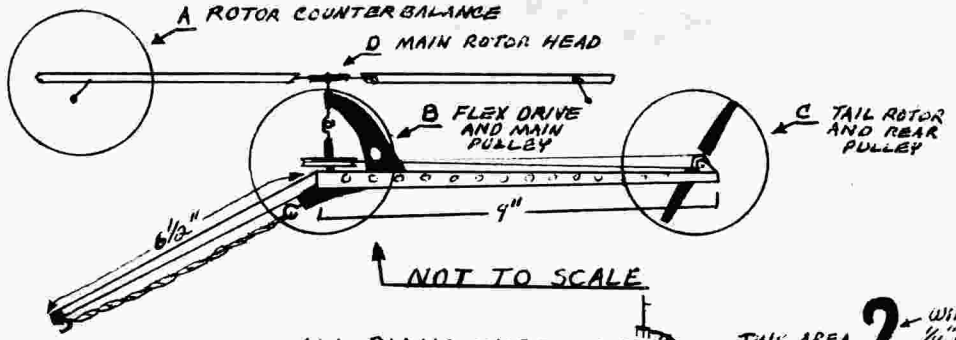
NUMBER OF PERSONS IN MY PARTY_____EXPECTED TIME/ARRIVAL_____

STAYING HOW MANY NIGHTS?_____: NUMBER ATTENDING BANQUET_____

TOTAL NUMBER OF BREAKFASTS WE WILL EAT_____

TOTAL LUNCHES_____ TOTAL DINNERS_____

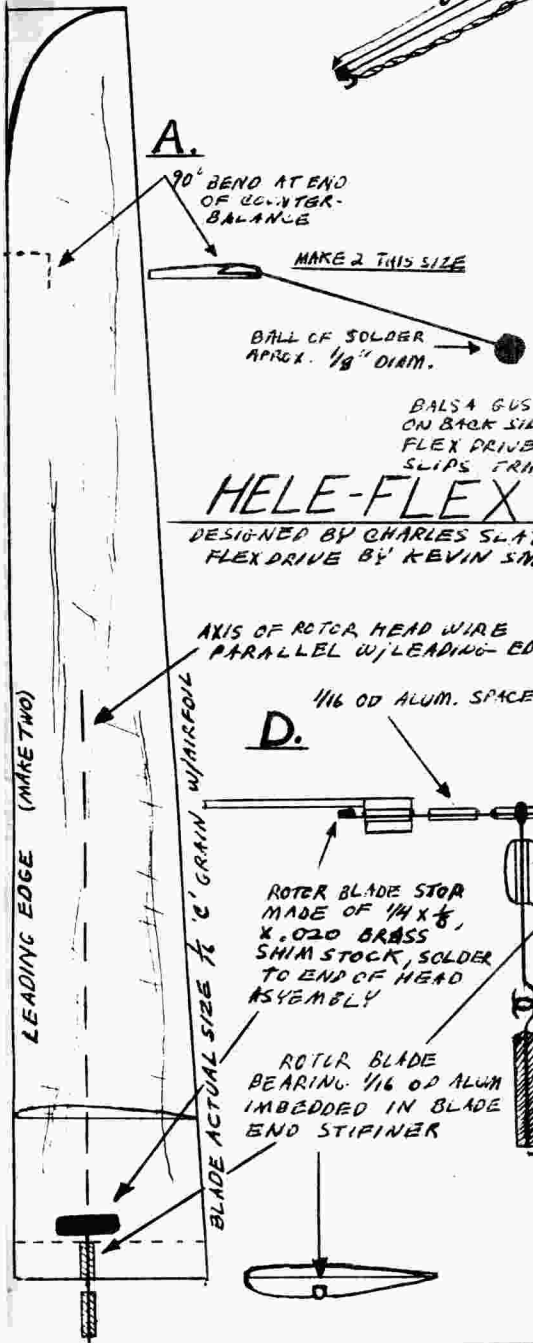
TO FIGURE COSTS SEE ~~OTHER SIDE~~ BACK PAGE TOTAL AMOUNT_____ (OVER)



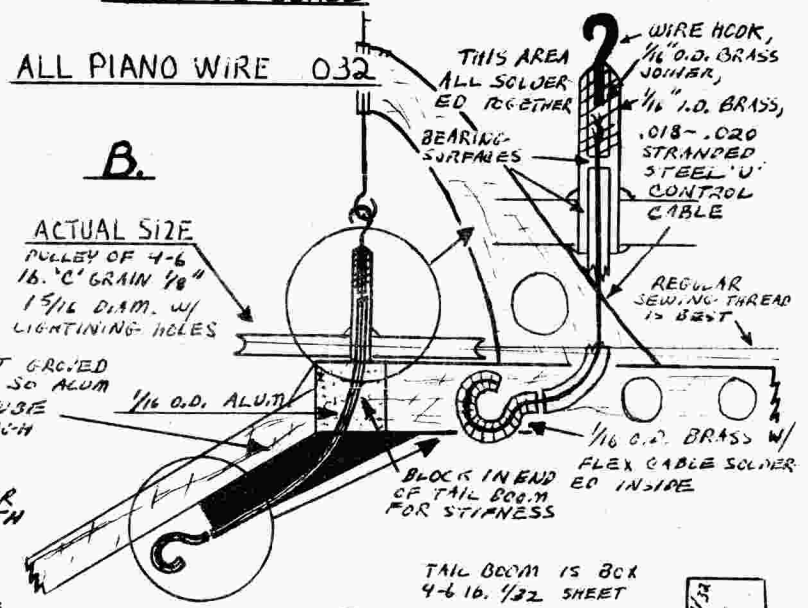
HELE-FLEX

DESIGNED BY CHARLES SLATER
FLEX DRIVE BY KEVIN SMITH

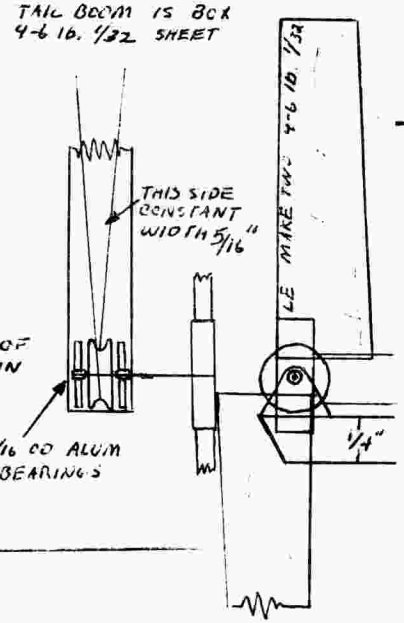
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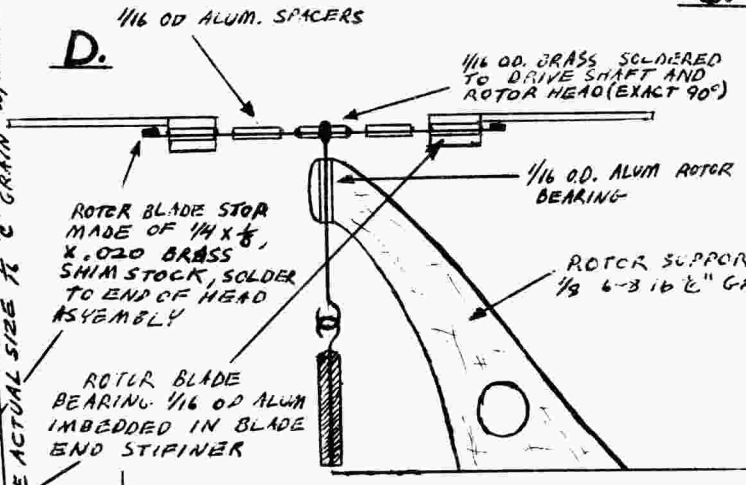
B.



C.



D.



HELE-FLEX by Charles Slater NOT FOR THE TYRO

(13)

After one month of experimenting with rubber powered helicopters, (Tail rotor type), the 6th model flew off the board.

Special credit must be given to Kevin Smithfor helping design the flexible drive shaft system which operates very smoothly. This flex drive kills a lot of birds at once. First it puts the rubber weight out in front to help balance the tail boom. Then it enables a light scale body with a decent length motor stick, to be added. Actually it shows that indoor builders are the most ingenious in the modelling community for even fooling around with this sort of thing. Indoor is NOT for everyone.

CONSTRUCTION: From front to rear: The front rubber hook is 1/16" O.D. alum. tube. This stuff is really great because it's light and much easier on rubber motors than music wire. The motor stick should be of light 'AB' grain and strong, because it takes a hefty amount of power.

I must stress that it is VERY important that everything be at the correct angle called for because precision is the criterion for a good flying helicopter.

The flex drive should be built next. Be sure the pulley end of the drive housing (1/16 OD Alum.Tube) be straight so that the brass outer tube that the pulley is glued to rotates freely. Make a small hook of .032" piano wire approx. 3/8" from end to end and solder about1/8" of the end into a 1/4" piece of brass tube-1/16 OD. Into the remaining 1/8" of the tube solder a 4" length of .018-.020 stranded steel U-Control cable. When doing this fray the end of the cable so it will be firmly imbedded in the solder, otherwise rubber tension will break the joint. Also make sure the twist of the cable is in the direction of the torque. Next slide a piece of 1/16 OD brass tube (9/16")over the hook cable assembly, and solder in place. Do this with care so that other pieces don't come unsoldered.

Next make the front pulley from 4-6 lb. "C" grain wood making sure the hole is centered. Run some Hot Stuff along the edge of the wheel to make the wood very hard, but add little weight. Take a flat jewlers file 1/16" on edge, and file the groove in the wheel. Slide the finished pulley onto the outer brass tube, and glue in place with Hot Stuff. Be sure the pulley spins true. Slide this unit onto the end of (slightly oiled) a length of 1/16,OD alum.tube. Bend the tube as shown on the plan. Slide a 1/2" piece of 1/16 OD brass over the extruding cable and solder...leaving about 1/32" play in the drive unit.

The rotor head assembly is very simple and should be exactly true (90 degrees) to the drive shaft. Make the whole thing first. Don't forget to slide a 5/16 piece of alum. tube on the drive shaft before bending the bottom hook...i.e.main rotor bearing. Draw an alignment diagram and lay the head assembly down onto the rotor blades. Put a drop of Hot Stuff on the blade bearings..careful not to freeze the bearing with the H:S:...and the blade end stiffner.

CONT. NEXT PAGE

Rotor blades should be light "AC" grain wood and fairly stiff. Counter weights should be made as shown on plan. A 90 degree bend should be put on each end..and a little one inside the solder ball and one on the blade side so the weight won't turn. On the bottom of the blades, where the blade stop touches, coat the wood with a couple of drops of Hot Stuff to prevent the stop from digging into the wood.

Make the tail boom of very light "C" grain with the exception of the top side. Make this a little stiffer up where the rotor support is glued on. Lighting holes lessen the tail weight and look great, but aren't necessary. Push a solid block of light balsa into the front end of the boom and groove the whole thing 1/16" to accept the alum. flex.

Make the tail rotor assembly with pulley Hot Stuffed to the rotor wire. This wire spins very freely in two very small pieces of 1/16 OD alum. tube. These are Hot Stuffed into two triangle shaped supportts which are ,in turn, glued to the top of the tail boom. The small pulley should be made with the same method as the front pulley.

Now slide the drive assemblyonto the front end of the boomand get the plane of the front pulley parallel with the top surface of the tail boom. At the same time the vertical axis of the front pulley must be at right angles to the horizontal axis of the rear pulley. Tack in place with a drop of Hot Stuff. Tack the motor stick onto the front of the boom so it is parallel with the end of the drive unit. Slide the grooved balsa gusset from between and underneath the motor stick and the drive housing, and tack. Now check over everything to assure proper alignment and glue, usingHot Stuff and balsa dust filler. Now glue the rotor head support bearing onto the end of the support piece. Make sure the drive wire is right angles to the bottom edge of the support (where thw support is glued to the tail boom). Hook the hooks up and tack the support to the boom(both shAFTS SHOULD BE ALIGNED) and check everything once again. When satisfied be liberal with the Hot Stuff and filler.

Now take a length of thread and wrap around pulleys so that both blades turn counterclockwise (looking down from above). Have someone hold the thread tight while you Hot Stuff the loop.

After everything is oiled up, and the top rotors balance up, make a motor of 1/4" Pirelli about 71/2" long and hook it up. When winding NEVER turn the rotor blades with your finger backwards..It breaks! Have your assistant pinch the flex drive hook and rubber while you stretch and wind . The pitch in the rotor blades is self adjusting but both blades must have the same angle (No more than 5, nor less than2 degrees). IF THE BLADE HAS TOO MUCH PITCH,BEND THE COUNTERWEIGHT UP SLIGHTLY until the pitch of both blades are equal.

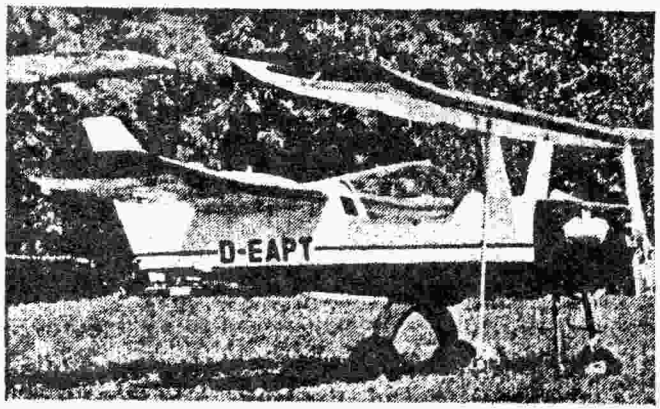
FLYING: Put a few winds in and release. Watch and see if the model needs more or less tail rotor pitch and adjust blades. If the flight is erratic check the main rotor blades for pitch equality. Also check the balance point..should be within 1/2" of the main rotor shaft.

CONCL. ON 15

Although this model is a lot of extra work it is a real eye opener at any meet and a lot of fun to fly. Mine makes a realistic whirring sound from the rotors. I've had some outdoor flights of over 75' and 1 minute duration. It has no counterrotation ability, butthe model usually comes down under power. With careful wood selection the model can weigh about 7 grams. Mine is old and dirty and weighs &8 grams. The ultimate would be this platform with a scale body such as a Hughes 300 or similar. Good luck with your HELE-FLEX.

HLAVNÍ TECHNICKÉ ÚDAJE

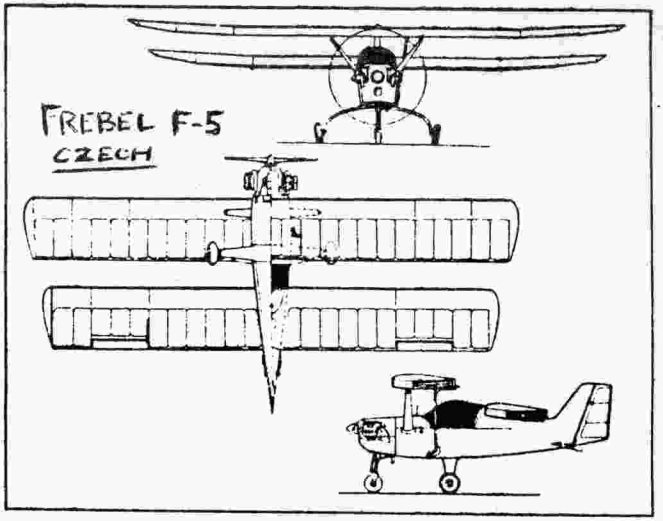
Rozpětí před. křídla	8,00 m
Rozpětí zad. křídla	7,70 m
Délka	4,40 m
Výška	1,90 m
Celková nosná plocha	14,70 m^2
Hmotnost prázdného letounu	300 kg
Max. vzletová hmotnost	425 kg
Max. rychlost	160 $km.h^{-1}$
Cestovní rychlost	145 $km.h^{-1}$
Dolet	500 km
Dostup	3000 m



The Sporting Life



"Somebody really should have a long talk with Otto . . ."



THINK FNART