CENTRAL INDIANA AEROMODELLERS

INFORMER

FREE FLIGHT NEWS OF THE MIDWEST

** The Weather **
Bubbles in the center of your coffee cup?
Expect fair weather!!

- Editor -
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Issue #4/02 July/August Price $7.50/yr.

Bitz 'n Pieces.....

Another difficult issue. No big 1st page 'showcase' article, this time. Been on vacation too long – it was great! Big computer crash about 10 days ago – that wasn't so great. But the system finally got fixed today, so here goes.....

Be lookin' for a NATS writeup in the next issue, but for now we'll have to be satisfied with the fact that *253 contestants from 35 states* participated in this year's FF NATS – and roasted their buns off! Very HOT!!

Still a ton of flying left to do this year. Just check out the plethora of the Contest flyers within! (I've gotta get off my duff and finish up the models I've started so's I can participate – before my throwing arm rots off....)

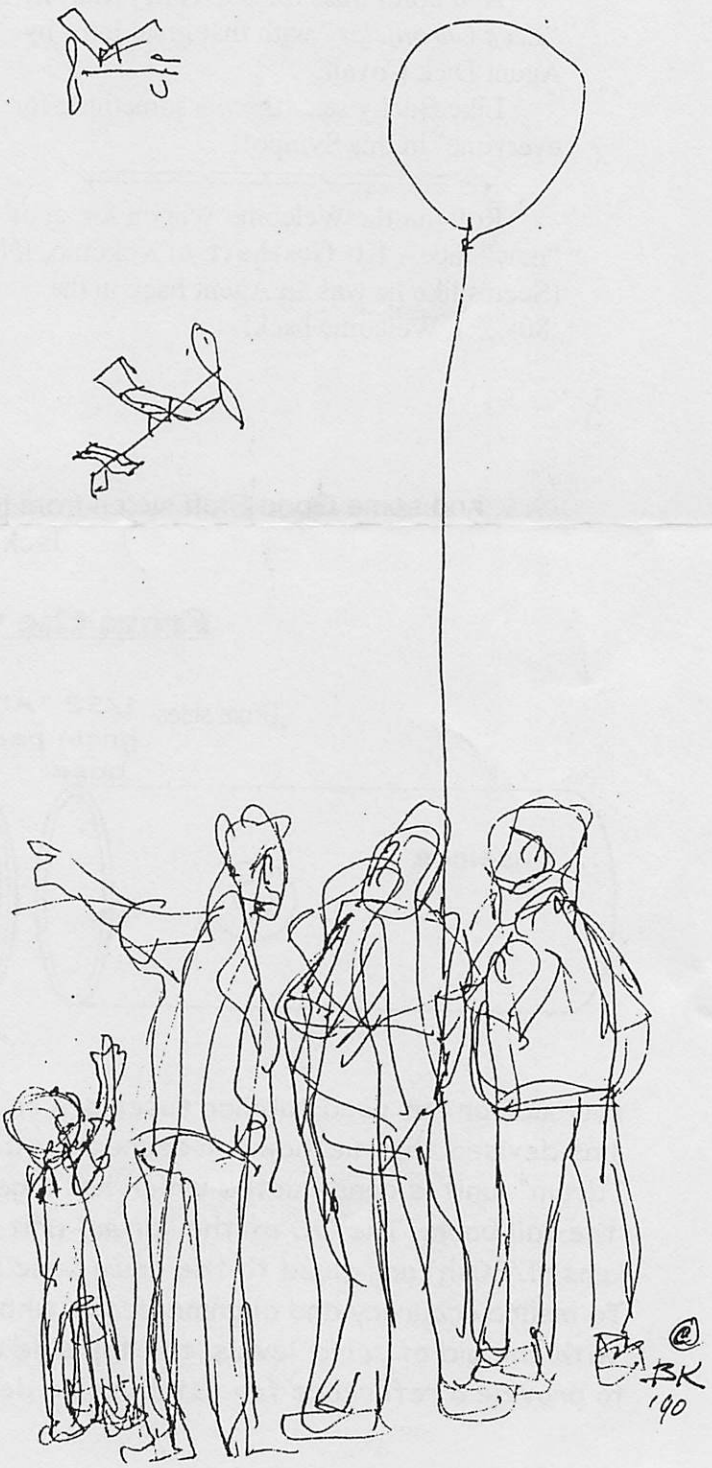
Agent **Bob Perkins** sent along this tip: "Joe Williams reminded me of a great item for spray-painting vivid colors on top of nitrate-doped Japanese tissue."

"*Design Master* paint comes in Red, Orange, Yellow, Black and White colors in an acetone/acetate base, and adds almost no weight to a structure! I believe it is sold primarily for color-spraying cut flowers."

"Multiple, fogged-on coats dry quickly. Be sure to read and follow the safe-handling procedures. I had an old can of flat-black, and purchased the other colors at a fabric/craft store (Jo-Ann Fabrics)."

"For masking the tissue, be sure to use *Scotch 3M Safe Release Painters Masking Tape #2080* (low tack) – also great stuff - available at paint stores."

"The combination of the vivid, fast-drying paint and the super masking tape is hard to beat! It may well be usable on other covering materials, and presumably would be stable under clear fuel-proofing epoxy."



Kudos to NFFS *Sympo35* Editor **Bucky Servaites** – for a job well done!! This issue is truly great. Get yourself a copy!!

If you're into aerodynamic theory, testing and it's successful application in the modeling game, be sure to check out Parry, Paulson & Bowman's low Reynolds numbers experiments – and Len Surtee's cutting-edge HL glider treatise.

And don't miss the late Harry Murphy's *"Zeek Chronicles"* with that great intro by Agent Dick Covalt.

Like Bucky sez, 'there's something for everyone' in this Sympo!!

Roll out the Welcome Wagon for an ol' "new" face – **Kit Gearhart**, of Kokomo, IN. (Seems like he was an Agent back in the '80s....) Welcome back!

Our heartfelt sympathies go out to the families of **Bruce Barnett** and **Dick Covalt.** Both recently lost their fathers: Mr. Donald Barnett passed away July 13th, and Mr. Raymond Covalt on July 12th – following extended illnesses.

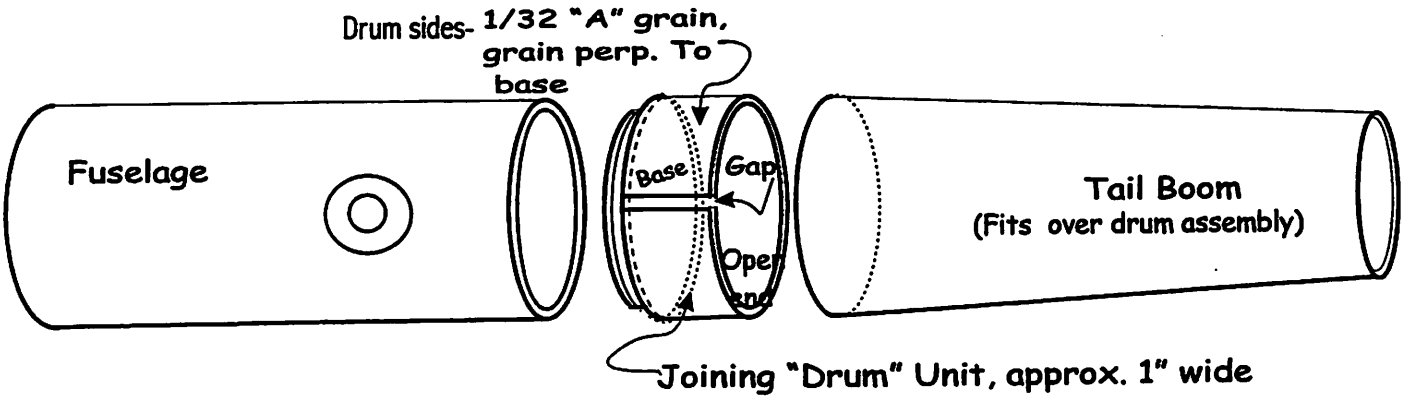
From Agent **Bob Larsh** comes the following offering....the Old-Timer plan on the facing page is ***"The Ascender"***. It was designed by Bill Fletcher back in 1941.

This plan is for the 46 ½" span, 320 sq" version. A 51" span, 380 sq" size is also legal. The design is eligible for both SAM and NFFS Nostalgia events. Either one or two-wheel landing gear are legal to use.

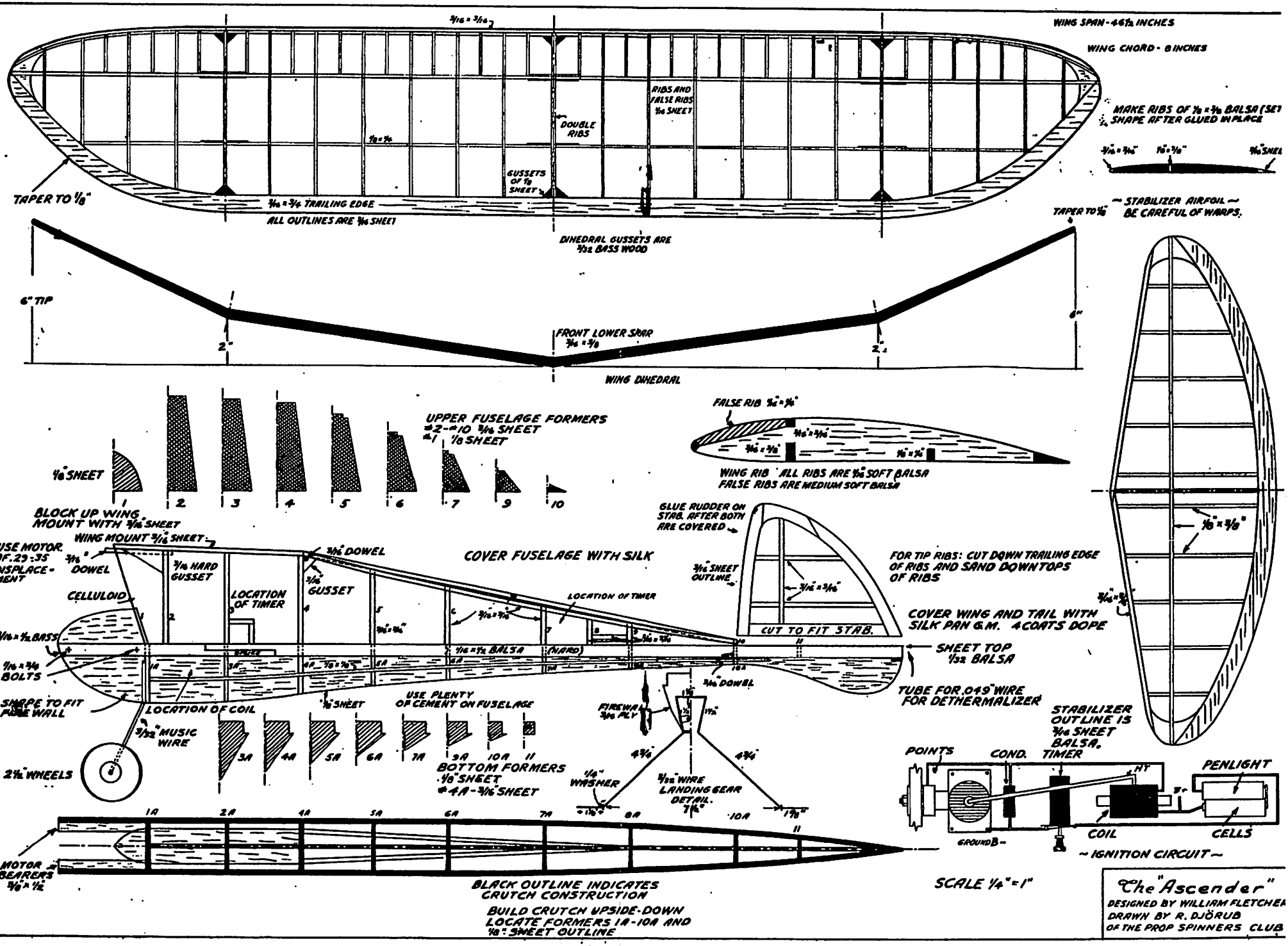
A slightly revised version of the model won 1st place at the 1947 AMA NATS in Class A, using an Arden 19. And the *Ascenders* have been doing well at recent SAM championships!

.....and some Good Stuff stolen from the July '02 edition of the Minneapolis Modeler, Jack O'Leary, Ed.

From the workbench:



Your editor has used tubular fuselages on rubber jobs (Mulvi, P-30, Coupe) for 20+ years and has devised this method for connecting a tapered tail boom to the fuselage. An open ended " drum" unit is constructed which has a gap in the "drum" side to accommodate the taper of the tail boom. The OD of the "drum" unit is the same as the ID of the tail boom. Two cross lams (1/20th) are glued to the drum base (1/16th "C" grain) and fit snugly into the fuse tube. To insure accuracy and alignment, the whole affair is cradled in some aluminum angle stock and with the aid of spirit levels, the top side of the total fuselage length is held at zero degrees to provide a reference for establishing decalages. J. O'Leary


WING SPAN - 46½ INCHES
WING CHORD - 8 INCHES
MAKE RIBS OF ⅛ x ⅜ BALSA (SET SHAPE AFTER GLUED IN PLACE
⅛" x ⅜"
⅛" x ⅛"
⅛" SHEET
STABILIZER AIRFOIL
BE CAREFUL OF WARPS.
TAPER TO ⅛"
⅛" x ¾" TRAILING EDGE
ALL OUTLINES ARE ⅛" SHEET
RIBS AND FALSE RIBS ⅛" SHEET
DOUBLE RIBS
GUSSETS OF ⅛" SHEET
DIHEDRAL GUSSETS ARE ⅛" BASS WOOD
6" TIP
2"
FRONT LOWER SPAR ¾" x ⅜"
WING DIHEDRAL
UPPER FUSELAGE FORMERS
#2-#10 ⅛" SHEET
#1 ⅛" SHEET
FALSE RIB ⅛" x ⅜"
WING RIB ALL RIBS ARE ⅛" SOFT BALSA
FALSE RIBS ARE MEDIUM SOFT BALSA
BLOCK UP WING
MOUNT WITH ⅛" SHEET
WING MOUNT ⅛" SHEET
USE MOTOR OF .29 - .35 DISPLACEMENT
⅛" DOWEL
⅛" HARD GUSSET
⅛" DOWEL
⅛" GUSSET
CELLULOID
LOCATION OF TIMER
COVER FUSELAGE WITH SILK
⅛" x ½" BASS
⅛" x ¾" BOLTS
⅛" x ½" BALSA (HARD)
SHAPE TO FIT FIRE WALL
LOCATION OF COIL
⅛" SHEET
USE PLENTY OF CEMENT ON FUSELAGE
FIREWALL ⅛" PLY
⅛" DOWEL
5/32" MUSIC WIRE
2½" WHEELS
BOTTOM FORMERS
⅛" SHEET
#4A - 3/16" SHEET
¼" WASHER
5/32" WIRE LANDING GEAR DETAIL.
4¾"
7⅛"
MOTOR BEARERS ⅜" x ½"
BLACK OUTLINE INDICATES CRUTCH CONSTRUCTION
BUILD CRUTCH UPSIDE-DOWN
LOCATE FORMERS 1A - 10A AND ⅛" SHEET OUTLINE
GLUE RUDDER ON STAB. AFTER BOTH ARE COVERED
⅛" SHEET OUTLINE
CUT TO FIT STAB.
FOR TIP RIBS: CUT DOWN TRAILING EDGE OF RIBS AND SAND DOWN TOPS OF RIBS
COVER WING AND TAIL WITH SILK PAN G.M. 4 COATS DOPE
SHEET TOP ⅛" BALSA
TUBE FOR .049" WIRE FOR DETHERMALIZER
STABILIZER OUTLINE IS ⅛" SHEET BALSA.
⅛" x ⅜"
POINTS
COND.
TIMER
HT
PENLIGHT
COIL
CELLS
GROUND
IGNITION CIRCUIT
SCALE ¼" = 1"
"The Ascender"
DESIGNED BY WILLIAM FLETCHER
DRAWN BY R. DJÖRUB
OF THE PROP SPINNERS CLUB

I thought our readers might enjoy the following article 'borrowed' from issue #162 of ***SAM 86 Speaks***, Dan O'Grady, Ed. Although Radio oriented, I believe the lightweight actuators described – with proper mods - might have general application in FF timers, etc. Food for thought for our tekkies, don 'cha know.... Enjoy!!

UPDATE ON ACTUATORS FOR TYCO RADIO SYSTEMS

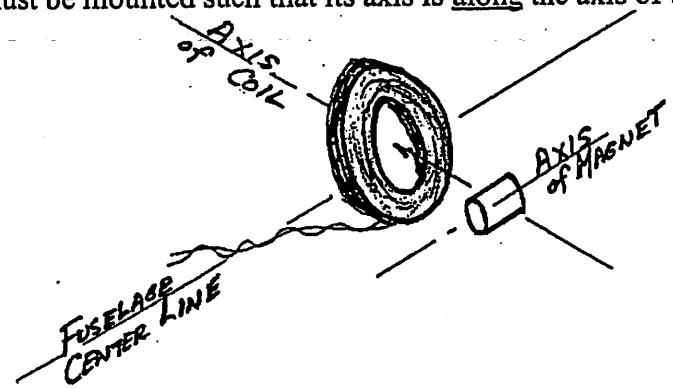
Markham Indoor Group

Reference is to the article I published a year ago entitled "Indoor Electric R/C for Cheapskates". Since that time, at the Markham Indoor Club we have been using the Tyco radio quite successfully to control indoor electric-powered aircraft. The aircraft have been of several types (scale, stick models, old timer, etc.), typically weigh in at less than 2 oz., mostly powered by the KP-00 motor with various gear combinations, and run on 3-cell 50 mAh nicad packs or on a single 3 volt Lithium rechargeable (Tadiran) 430 mAh cell.

In our year of experience, we have learned a few things about the system and about making actuators for it. Here is an update on some of our findings over the past year, which may help to answer some of the questions and problems that have arisen.

1. Orientation of the Magnet

There seems to be a lot of confusion among the modelers just starting out with making an actuator for this system, about the direction of the poles of the magnet in the coil. All of the various magnets we have been using are cylindrical, and the poles of these magnets are along the axis of the cylinder. Therefore if the coil is mounted flat on the fin or on the fuselage such that its axis is <u>across</u> the axis of the fuselage, then the magnet must be mounted such that its axis is <u>along</u> the axis of the fuselage (sketch).

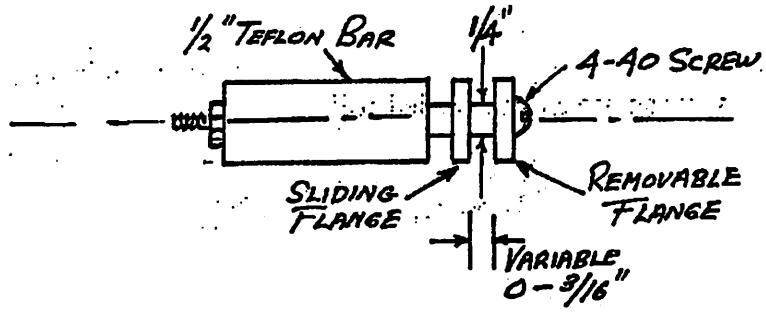


2. Source of Magnets

Several types of small magnets have been used with the system, but the original source of some of these magnets has not been stable, or in some cases, known. The coil has to be wound with sufficient clearance in the center hole to allow the magnet to swing freely, so the dimension of the magnet affects the design of the coil. Lately, in order to "standardize" on one magnet, we have been using a small magnet sold by Lee Valley Tools, a mail order company in Canada (www.leevalley.com). The magnets are 1/8" dia. and 1/8" long, and are sold in packages of 10 as Lee Valley's part no. 99K38.00 for $2.60 Canadian. With this magnet, the hole in the center of the coil needs to be about ¼" diameter.

3. Winding Coils

The coils we have been winding for the Tyco radio have been of #37 AWG magnet wire, with a resistance of about 16 ohms (not critical). I have been using a re-usable form turned from Teflon, ¼" in dia. (see drawing). There are, of course, other ways to make a coil form. One way is to roll some paper around a ¼" rod, and add some temporary flanges; the paper ends up becoming a permanent lining for the coil. Or simply add flanges to a polished piece of ¼" tubing, Etc. etc.



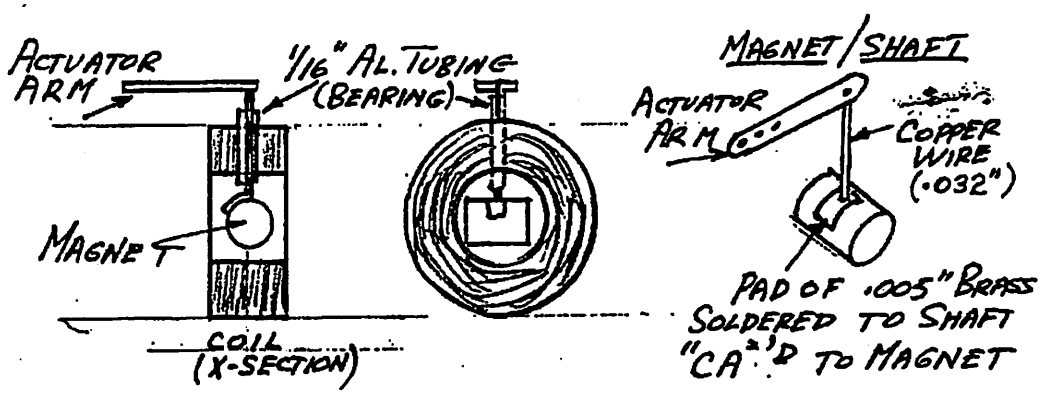
The easiest way to get consistency in resistance from one coil to the next is to lay out a length of wire and wind the entire length onto the form, rather than try to count turns. It takes about 30 ft. of #37 AWG wire to produce the 16 ohm coil. I wax the form, then add some epoxy thinned out with alcohol to the coil as it is being wound, and allow it to set overnight before removing the coil from the form. Typically the coils are about 0.1" thick, a little less than ½" in diameter, with a ¼" hole, and weigh about 1 gram.

4. **Source of Wire**
   Magnet wire can be obtained from most electronic supply houses, but quite often the price of new wire is rather high. We have found the best source to be the surplus stores that handle electronic parts. The problem here is that often the spools contain 5 or 6 pounds of wire, enough to make hundreds of coils, so look for as small a spool as possible. Three or four ounces are enough to experiment with for a lifetime!

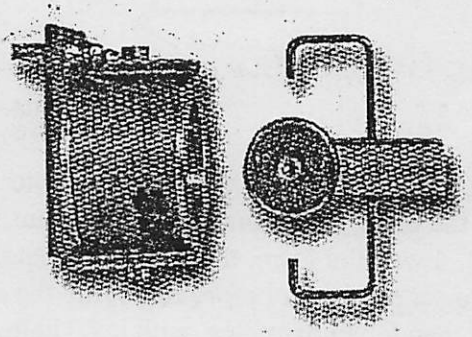
   If all else fails, and you can't find a cheap local source of magnet wire, Tom McCann of Skyhooks and Rigging (www.microrc.com or www.indoorrc.com) can supply small quantities.

5. **Making an Actuator**
   Most of the aircraft flying at Markham have been flying with the coil and magnet mounted on the fin/rudder assembly as described in my previous article. Lately we have been experimenting with actuators that have their own bearing for the magnet, and can be mounted on the fuselage closer to the center of gravity. Actuating the rudder is done by a pushrod (usually .015 music wire) from an arm on the actuator to a horn on the rudder, in the same configuration as with a servo. This makes the balancing of very light aircraft much easier.

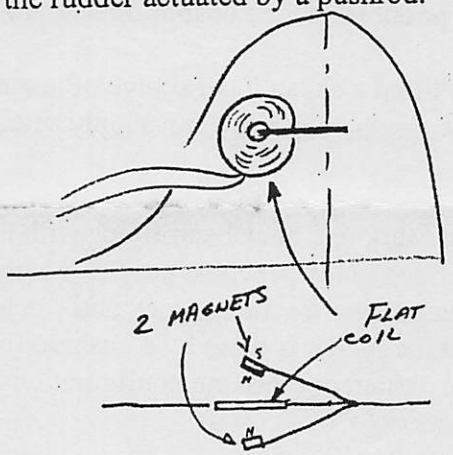
   One method of doing this is to bury a short piece of 1/16" OD aluminum tubing (K & S tubing) into one edge of the coil as you are winding. This tubing is then used as a bearing for a .032" shaft of copper or phosphor bronze, with the magnet cemented to it in the center of the coil. I solder a small pad of .005 brass sheet to the magnet end of this shaft, to improve the glue surface for attaching the magnet. An actuator arm is soldered to the other end of the copper shaft (see sketch). This actuator works very well, but is difficult to assemble because of the limited space in the hole in the coil.



Another idea for making the bearings separate from the coil comes from one of the British model magazines (see photo). This is an actuator built for a different radio system, but the idea could be applied to the coil for a Tyco system. Although I haven't made an actuator in this form yet, it promises to be an easy way to do it, and you can use an unmodified coil.



Yet another way to make an actuator is to wind a very flat coil, with only a small hole in the center, and use two magnets (see sketch). This system is normally used with the two magnets on their arms mounted to the rudder, and the coil mounted flat on the fin. However a similar arrangement could be built as a unit to mount on the fuselage, with the rudder actuated by a pushrod.



6. Tyco Receiver Weights

Tyco receivers are not all the same weight. Some are about 9 grams and some are about 7.5 grams. This difference of 1.5 grams can make quite a difference in a very light indoor airplane. We have found (so far!) that the Canned Heat "Durango" car has the lighter receiver. There may be others that also have the lighter receiver, and possibly not all of the "Durangos" have the lighter unit. Unfortunately, unless you take the car apart and remove the receiver, there seems to be no way of telling which receiver you have.

7. Radio Range

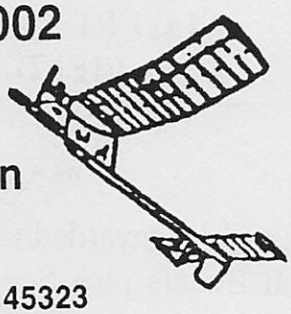
The Tyco system has a range of only about 50 feet with the small antenna in the car but this improves to about 100 ft. with a longer antenna in an airplane. (This is quite adequate for a gymnasium but not for outdoor flying unless you keep the aircraft close in.) A thin wire antenna 12" or more in length (the exact length is not important) works well, but sometimes takes a bit of experimenting as to position. Sometimes running the antenna out to a wing tip or along the bottom of the fuselage works, but try the range with the antenna in various configurations before fixing it into one position. Adding a longer antenna to the transmitter helps too.

'NOSTALGIA AT THE SAM CHAMPS'

Muncie, Indiana August 26 – August 30, 2002



NFFS NATIONAL CUP CONTEST



Sponsored by the Florida Modelers Association
AMA CHARTERED CLUB #3222

Contest Director: Bob Laybourne — 3034 Willow Run Circle Enon, OH 45323
Phone 937 864-2624

Nostalgia Event Director: Ron Sharpton — 1290 Country Road Daytona Beach, FL 32119
Phone 386 767-6138

Assistant Event Director: Gene Bowers — 811 Lakeshore Drive Columbus, OH 43235
Phone 614 436-4120

NOSTALGIA – NFFS CATEGORY 3

Rules: All Events Will Be Conducted According to the Most Current Edition Of The NFFS Nostalgia Rules. Flight Times Must Be Posted After Each Flight.

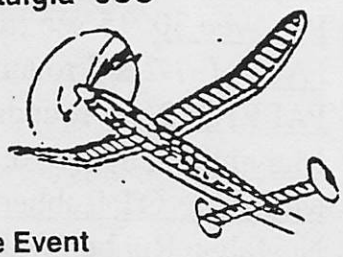
Monday 8/26 8:00 AM – 4:00 PM
1/4A Nostalgia JSO
C Nostalgia JSO

Tuesday 8/27 8:00 AM – 4:00 PM
A Nostalgia JSO
Nostalgia Mulvihill JSO

Wednesday 8/28 8:00 AM – 4:00 PM
B Nostalgia JSO
Large Ignition Nostalgia JSO

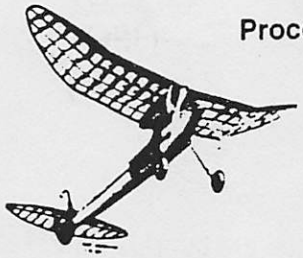
Thursday 8/29 8:00 AM – 4:00 PM
1/2A Nostalgia SO
1/2A Nostalgia Junior
Nostalgia Wakefield JSO

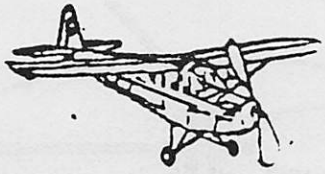
Friday 8/30 8:00 AM – 3:00 PM
Early 1/2A Nostalgia JSO
Small Ignition Nostalgia JSO

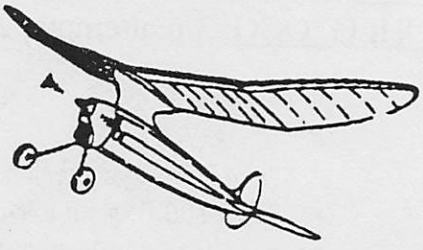


Registration Will Be At The Flying Site

Processing May Be From 4:30 PM – 5:30 PM The Day Before The Event
Or From 7:00 AM – 11:00 AM On The Day Of The Event







Entry Fees: Senior / Open $5.00 For 1st Event And $2.00 For Each Additional Event
Junior – No Entry Fee

Name_____ AMA#_____
Address_____ City/State/ZIP_____
Class JR_____ SR_____ OPEN_____ Total Entry Fees $_____

CENTRAL OHIO FREE FLIGHT CLUB ANNUAL MEET

A NFFS NATIONAL CUP CONTEST

AUGUST 31-SEPTEMBER 1, 2002
AMA FIELD, MUNCIE, INDIANA

SAT. 9:00 A.M. TO 5:00 P.M.
SUN. 8:00 A.M. TO 4:00 P.M.

AWARDS

Trophies awarded to 1st through 2nd places in all Events plus Special awards for the Junior age group.

ENTRY FEES

Open contestants: $15.00. Includes all events.
Jr & Sr contestants: $1.00. Includes all events.

AMA MEMBERSHIP

AMA Membership: Required for all flying.

*** CONTEST RULES ***

(See detailed list at CD's desk)

AMA Power: 7-2 x 3, 5-2 x 2, then 4-2.5
AMAClassicPower: 7-2 x 3, 5-2 x 2,then 4-2.5
Nostalgia Gas: 9-2 x 3, then 6-2
1/4A Nos/.020: 9-2 x 3, then 6-2
OT Gas: 16-2 x 3, 12-2 x 2, then 9-2
Pee Wee 30: 15 sec run or less for max pts
FAI F1J: 7-2 x 5 rounds,then 7-3, 7-4, 7-5 etc
FAI F1G: 2 x 5 rounds, then 3, 4, 5, etc
Mulvihill: 2, 3, 4, 5, 6, 7, 8, 9 etc
Moffett & OT Rubber: 2 x 3, then 3, 4, 5 etc
Nostalgia Rubber/Wake: 2 x 3, then 3, 4, 5 etc
P-30: 2 x 3, then 2.5, 3.0, 3.5, 4.0, 4.5 etc
OHLG, OCG: 3/6 attempts; 2 min maxes

SATURDAY EVENTS

Nostalgia 1/4 A	(JSO)
Nostalgia A	(JSO)
Nostalgia Rubber	(JSO)
OT A Gas Pylon/Cabin	(JSO)
OTRubber Cabin Large & Small	(JSO)
Pee Wee 30	(JSO)
AMA 1/2 A Gas	(J) (SO)
AMA A Gas	(JSO)
AMA C/D Classic Gas	(JSO)
AMA Mulvihill	(JSO)
AMA P-30	(J) (SO)
AMA Outdoor Catapult Glider	(J) (SO)

SUNDAY EVENTS

Nostalgia 1/2 A	(J) (SO)
Nostalgia B	(JSO)
Nostalgia Wakefield	(JSO)
020 Replica	(JSO)
OT B/C Gas Pylon/Cabin	(JSO)
OT Rubber Stick Large & Small	(JSO)
AMA 1/2 A Classic Gas	(JSO)
AMA A/B Classic Gas	(JSO)
AMA B Gas	(JSO)
AMA Moffett	(JSO)
AMA Outdoor HL Glider	(J) (SO)
FAI F1G	(JSO)
FAI F1J	(JSO)

CENTRAL OHIO
FREE FLIGHT CLUB

CD: Gil Morris 2810 Brackley Road, Columbus, OH 43220 614 451-2106
Alternate CD:Bob Perkins 2285 Pinebrook Road, Columbus, OH 43220 614 451-3558

C.I.A. 30th Annual FF Championships

Including all National Cup Events, Nite Flying, and AMA Events

Sponsored by the Central Indiana Aeromodellers

AMA Flying site in Muncie, IN - September 27, 28, and 29, 2002

This is an AMA "AAA" sanctioned Category III Contest. #02-0984

Friday, 9/27 – 8 to 5 EST	Saturday, 9/28 – 8 to 5 EST	Sunday, 9/29 – 8 to 4 EST
Nos Rubber	Dawn Unlimited	Jimmy Allen
OT Rubber	Moffett	P-30
D Gas	Mulvihill	1/2A Gas
AB Classic Gas	1/2A Classic Gas	CD Classic Gas
Super D	A Gas	B Gas
1/4A NosGas	C Gas	B NosGas
1/2A NosGas	A NosGas	C NosGas
1/2A T-Bird	Early ½ A NosGas	Pee Wee 30
020 Replica	Electric A and B combined	OHLG
	Catapult Glider	F1A
	F1H	Jr. ½ A Nos, P-30, OHLG
	Jr. ½ A, Cat. Glider	Nos Wake
	Nite Fly – Rubber, Gas, and Glider	Lil Dip/Ghost/Jetstream Towline

*All events are J-S-O combined except for the Junior National Cup Events.

Entry Fee: $20 Juniors $0 All contestants to receive a tee shirt with colorful logo of 30th CIA Annual.

Awards: Plaques and certificates. Awarded daily at 5:00 pm.
Hi-Point Trophies for the 3 categories – Power, Rubber, and Glider. (Day events only)

- Bob Larsh Perpetual Trophy for high time for a Junior or Senior in OHLG.
- Howlin Engines Perpetual Trophy for high time in ½ A Gas.

Rules: AMA Events as per AMA Rule Book. NFFS Events as per NFFS Nostalgia Rule Book.
Pee Wee 30 as per Orbiteer Rules.

Bean Feed after flying Saturday

CDs: Phil Sullivan (765)640-2921 Moe Whittemore, (317)861-4266 Meredith Chamberlain, (765)643-1885

Tri County Aero's 27th Annual

Mid America Free Flight Champs

National Cup points available

Oct. 5th & 6th

Mid America Air Center Lawrenceville IL.

Saturday, 9:00 AM – 5:00 PM **Sunday, 9:00 AM – 4:00 PM** Field available Friday for practice

1/2a Gas----A Gas----B Gas----C gas

1/2a Nostalgia---- A Nostalgia--- B Nostalgia--- C Nostalgia

HLG----Hand held Catapult glider---- A1/A2 Glider

OT Rubber stick---- OT Rubber Cabin---- Pre 50 Wakefield

Mulvihill--- Coupe---- P30 Rubber----Wakefield----Moffett Rubber

OT Gas combined

All events may be flown either day
However once you put up the first flight of an event either official or attempt you must complete the event on that day

Entry fee:
$10 first event ---- $3 all others----Max fee $30 ----**Juniors $2 per event**

Contact: Frank Roales (812) 882-4776 flroales@bestonline.net

▣ Wombat

Wombat, burrowing marsupial native to Australia and Tasmania. The teeth of wombats grow continuously, and, as in rodents, a single pair of chisel-like incisors is found in each jaw. The animals have long claws that are adapted for digging, and they live in burrows, from which they emerge at night to feed on grasses and other plants. The young are born singly once a year, and each is carried in the mother's pouch for about six months.

The common wombat of southern Australia is the largest, attaining a length of 70 to 120 cm (28 to 47 in). It is stocky; has a short, stubby tail; and its thick, coarse fur varies in color from yellow to black. It has a placid disposition and is easily domesticated. From the same area are the two species of hairy-nosed wombat, which differ from the common species in having longer, pointed ears; a hairy muzzle; and soft, silky fur.

Wombats have been nearly exterminated in some areas because it is thought that they damage crops and fences; that their burrows are a danger to livestock; and that rabbits, an introduced pest, may live in wombat burrows. One of the hairy-nosed wombats is considered an endangered species.

Scientific classification: Wombats make up the family Vombatidae. The common wombat is classified as *Vombatus ursinus.* The two species of hairy-nosed wombats are *Lasiorhinus latifrons* and *Lasiorhinus krefftii;* the latter is considered an endangered species.

Believe it or not, the **Wombat** has connections to the Muncie AMA site! (No, it's not the name of a yet-to-be-discovered NosGas model!) It was the name of a rock 'n roll band that was supposed to play a gig on the field a few years ago – but the spectacular never happened. Anyway, Phil Sullivan & I thought the readers might appreciate the following technical writeup…..



Couldn't resist this…..
Phil Sullivan fondling his lil' *Zeek,* somewhere in the beans at Muncie. Name? *"**Beam Me Up, Harry**"*! Flies great, but currently in need of repairs.

2002 AREA F.F. SCHEDULE

Aug	3-4	"Fly Me To The Moon" Indoor Event	West Baden, IN
	5-9	USOC/AMA NATS	AMA Site
	16-18	Empire State FF Champs	Geneseo, NY
	24-25	Aeronuts Midwestern Sts FF Champs	AMA Site
	26-30	SAM Champs	AMA Site
	31-Sep1	COFFC FF Contest	AMA Site
Sep	7-8	Flying Aces Midwest NATS	AMA Site
	21-24	FAI Team Selection Finals	Palm Bay, FL
	27-29	CIA Regional FF Champs	AMA Site
Oct	5-6	Tri-County Aero contest	Lawrenceville, IL
Dec	29-31	King Orange, International	Palm Bay, Fl

The **INFORMER**

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