CENTRAL INDIANA AEROMODELLERS

CIA INFORMER

FREE FLIGHT NEWS OF THE MIDWEST

** The Weather **
Cold and wilder now,
We fear ...

- Editor -
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More F.F. on the Internet ..... by Mo

It's surprising how many F.F. web sites have come alive since I did my last piece on Internet FF activity. The 'missing' site of *Donald Vetter* is great gateway to other free flight and aeronautic sites. (You can find him by using the Yahoo search engine.) I met Don for real at the last Cuckoo Challenge. Good guy! Flies A1 glider. Through Don's page, you'll find access to the *NFFS* web page, *Cuckoo* site activity stuff, *SAM, FAI, Phil Koopman's* home page (tons of 3-views of real aircraft), a couple of sites about paper airplanes, *Bill Warner's list of Cottage Industries* and the *FF Message Board*.

This Board offers tremendous opportunities to help new modelers or interested parties 'on the fence' by answering their many questions. All categories of FF seem to be represented! "The Board" is a must view for the various FF cottage industries, as many of the queries I saw were "where do I find a .....". The actual manufacturers of these goodies could answer the questions a whole lot better than my interpretation of them!

Thayer Symes (a West coast flyer) is putting together a list of modelers and their specialties - I signed on about a week ago. But be prepared for a helluva lotta mail - from all over the world. I got 40 hits in a 3-day period!

This new FF outlet is in its infancy, but it's exciting! Become a part of it!

By the way, if any of our Agents with email addresses want them published in the Informer, please contact me with the info, (and the permission)!

Dr. Selig (University of Illinois) has made the results of his **Low Speed Airfoil Tests** for model aircraft available on the web - it includes airfoil coordinates and performance data for over 1100 airfoils (including Mike Achterberg's standard & Gil Morris' flapped F1Cs) that you can download and peruse at your leisure!

The U of I page also offers *ProFoil-WWW V.I.O.* The user's guide shows how to design your own airfoils. It's an "inverse design" package that gives you the airfoil section, if you can describe the pressure distribution you're after (with their help!). I'm not sure over which NR range the program is valid, tho.

Analysis packages (you give the section, they give the resulting pressure distribution, etc.) such as Mark Drela's *XFOIL* (workstation version, only) and *EPPLER CODE* are also available for sale, with simplified demos available for viewing.

Prof. Kroo's Desktop Aeronautics web site offers a variety of software products for use in aerodynamic design and analysis, although a bit pricey (for all but the most intense modeler/competitor) at a couple hundred bucks a pop! Again, I don't know whether or not the calculations work down at "our" NR's.

I think I'll knock off, here ... gotta save some for the next issue! - MJW





New Faces! ..... Let's extend a big, CIA ham-handed handshake to lotsa new Agents: **Walter Tomasch** (Mishawaka, IN), **Jack Eskew** (Anderson, IN), **Craig Gunder** (Red Lion, PA), **Bob** and **Mike Abernathy** (Yorktown, IN), **Richard Wood** (Phoenix, AZ) and Mark Wood (Danville, IN). Phew! Hope I didn't forget anybody!

Lest We Forget ..... Agent **Bill Burgess** was Hi-point man (again) at this year's Nostalgia at the Nats! Seems like his *"Slick"* (approved last year) was instrumental in collecting the points!

Looks as though some indoor activity may be bubbling up again in the Indianapolis area! The IFFF bunch is in the process of scheduling a Kontest Sunday, March 2, 1997 at the Tyndall Armory (St. Clair & Pennsylvanis Sts.). Ceiling height is in the vicinity of 45ft., albeit a tad 'dirty'. The site has been secured, but start & finish times are still being worked out.

If you're an indoorsman, drop me a line at the address noted on the cover, or at **whitte@ix.netcom.com** for event requests and site info updates. (If you're a past participant of the activities at the Ben Davis site in Indy, you're on their list and will get a kontest flyer in adequate time.

IFFF will depend on past participants to pass the word about this resuming Indy area activity to indoor flyers who've come aboard since '92 ..)

Just A Question ..... Would any of you build a model that had a rudder as huge (re. wing & stab area) as a Boeing 737? Kinda short-coupled, too .... reminds me of a 1932 Wake!

The FAI Outdoor Team Selection Finals at Lost Hills CA, went thusly, according to Agent Gil Morris ...:

"The winds howled the day before competition was to start. But, as if by magic, the following morning was nearly calm and remained that way for the three day duration. The air was solid in the early morning but very flaky midday to about 5pm when again it began solid. Midday air picking was as you would expect in a desert - almost futile. Thermistor readings didn't mean much and streamers could be misleading.

Nordic, Wakefield and Power each flew 14 rounds (7 each of two days) of 3 min maxes with the first round of each day an extended max (5 min. for Power). Wakefield ended with three contestants maxed-out; no need for a flyoff.

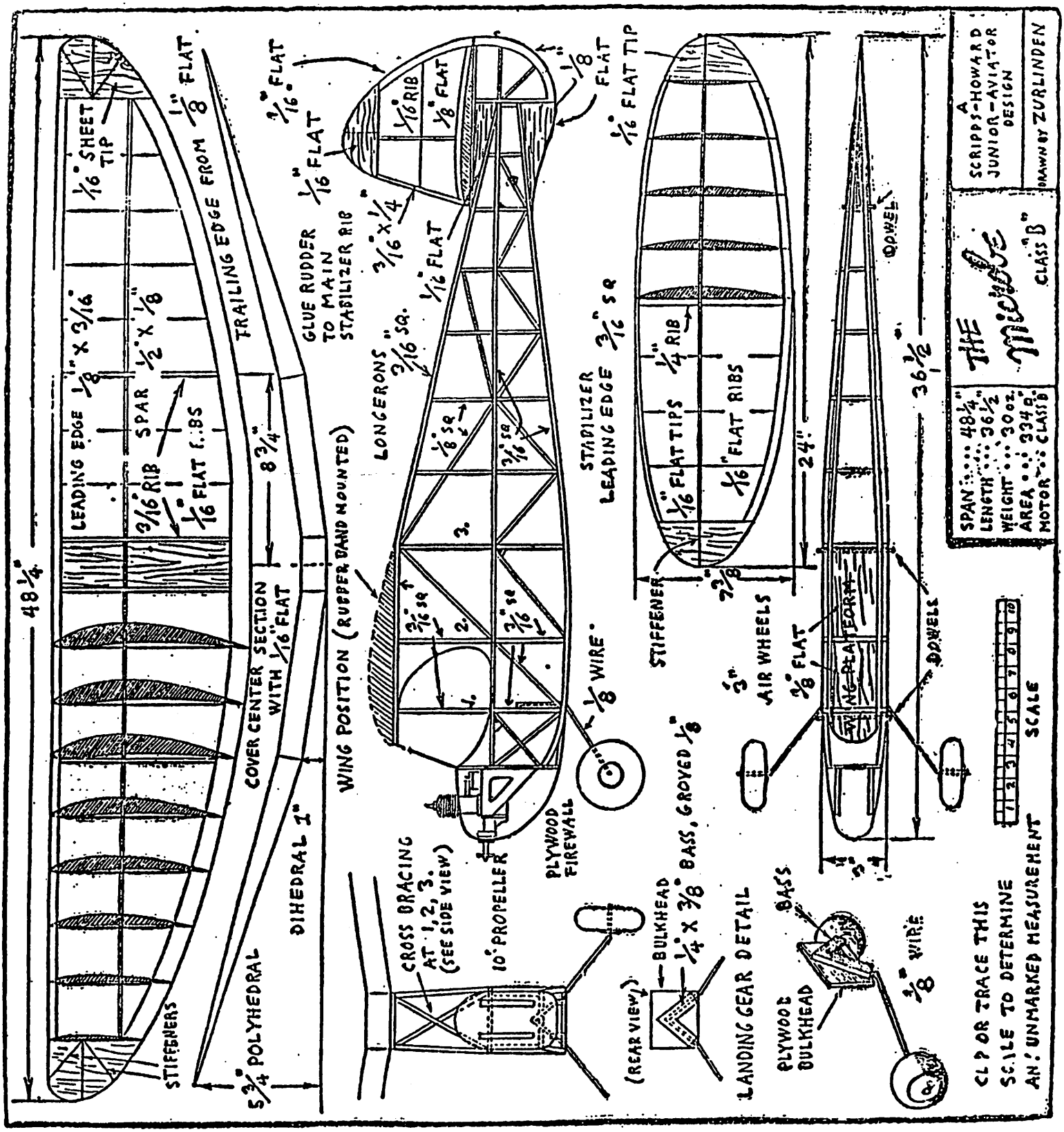
Incredible to me was that there were several who maxed-out in Nordic and a flyoff was required. Seven maxed-out in Power. The field narrowed to five for the 7 min flyoff at sunset in which Ed Keck had high time of 6 min 45 sec (engine runs were 5 sec for the flyoffs). Yours truly shot himself in the foot on the very first flight to DT at 2 min, instead of 5 min. Went on to max the next 13 rounds to no avail!

The quality of flying was excellent in all three events. The Finals did its job and selected an outstanding group. Representing USA in the 1997 World Championship Contest in the Czech Republic are:

```
Nordic:  Martin Cowley
         Don Zink
         Randy Weiler
Wakefield: Blake Jensen
         Roger Morrell
         Fred Pearce
Power:   Randy Archer
         Bob Gutai
         Ed Keck
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More New Oldies - from Murph

Here's the 2nd of two model three-views that showed up in a 1940 Evansville, IN newspaper. (The first one -*"The Bug"*- was presented in the last issue of the Informer.)



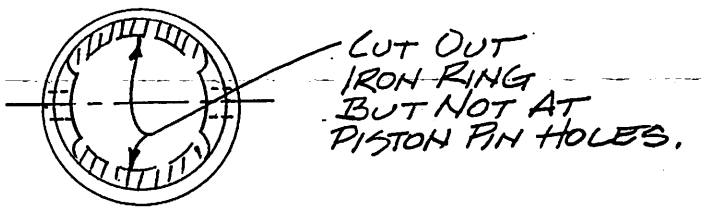
Agent Gil Morris comes through once again, with the following engine rework gem!

BANTAM REWORK

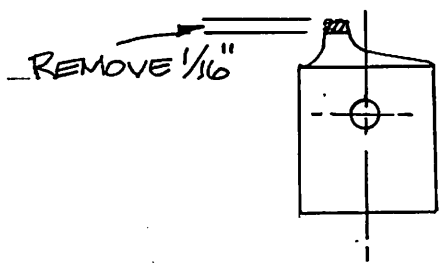
In the early 1940's I had a Bantam that I remember ran very strong except when I got to a contest and then it would invariably drag down in RPM as if it wasn't broken-in. I don't recall a particular problem with vibration. In fact, everyone I ask about their experience with Bantam say it ran like a Singer sewing machine. Somehow todays reality doesn't seem to correspond with old time remembrance.

I again have a Bantam of early 1940 vintage with magnesium case which, before reworking it as follows, vibrated like todays experts say they really did. Then, Bill Hale returned from Florida with news of how Bo Clinton down there reworked his Bantams and got them to run smooth and really turn-up (10,500 RPM with 9 X 4 Rev-Up prop). I talked with Bo and he coached me on what to do with mine. Here is what he prescribed and which I followed to the letter:

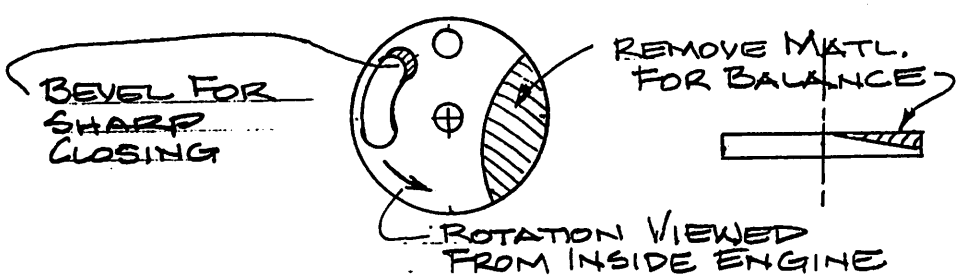
1. With carbide burr in Dremel tool, cut out excess weight inside the piston.



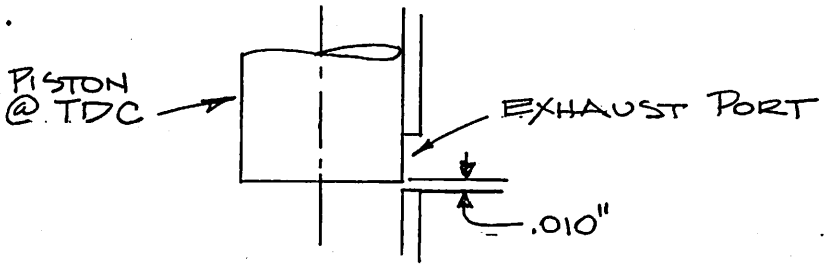
2. Remove 1/16" from top of piston baffle. Word is that the Bantam was over compressed.



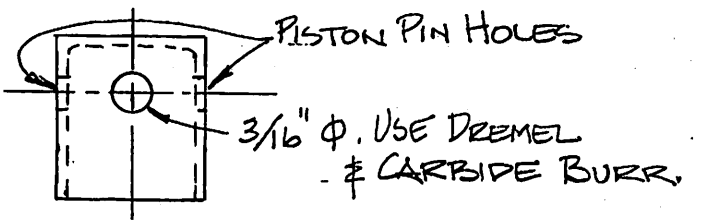
3. Open the kidney hole opening in the rotating timing disc to open at 45 deg. ABDC and close 40 deg. ATDC. I had to remove about an 1/8" of material from the trailing edge of my disc to meet this requirement. Balance disc by grinding material off side opposite kidney hole.



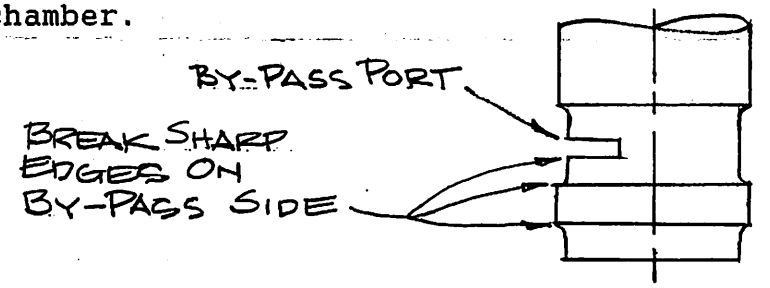
4. Assemble motor and with piston at TDC reach into exhaust and put a scratch on the piston at the lower edge of the exhaust port. Remove piston, put in lathe and machine off bottom of piston skirt to .010" above scratch so that piston will open crankcase to atmosphere when at TDC by .010".



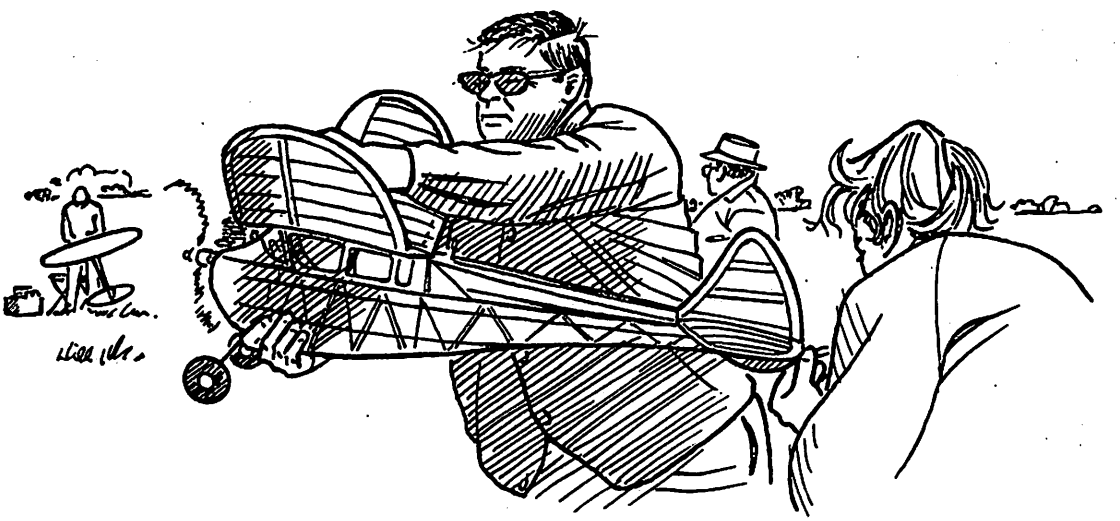
5. Put a 3/16" dia. hole through side of the piston on the by-pass side at the same level as the piston pin holes. My piston which started out weighing 11 grams now weighed 7.5 grams. Bo said he got his down to 7 grams. It took him two tries to do it though. The first one ended up with a hole through the top of the piston. So be careful!



6. Round sharp edges of cylinder at bypass port for free movement of fuel mixture from crankcase to combustion chamber.



I did all these things and have to admit it made a BIG improvement both in vibration and in RPM. Like Bill Hale's, mine also runs 10,500 RPM with 9 X 4 Rev-Up, starts easily and needles well. Bo Clinton for President!



Single Surface 'Foils - by Mo

There's nothing new under the sun! While browsing thru a stack of old Zaic Yearbooks, I paused when I got to the 1934 edition - the year I was born. It's foreword was written in September - my month! Flipping the pages, I was surprised to find a writeup of wind tunnel test data dealing with single-surface (indoor style) airfoils at very low airspeeds - *7ft/sec* - the lowest I've ever seen published by anyone!

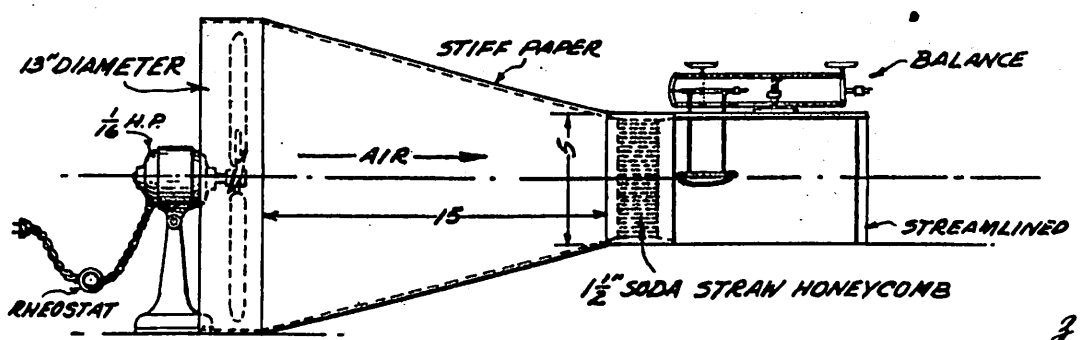
The tests were performed in Canada by McBride (of "McBride B-7" fame). The 3.4" chord test specimens yielded NR's of about 10,000, higher than modern indoor NR's, but if extrapolated, provide insight to today's lower values with very valuable "points on the curve"!

If you do any model "cipherin'" at all, this Zaic yearbook issue is a must. None of the info seems dated - even after 60 years! I bet very few modelers (& aerodynamicists) know about the existence of this wealth of low-speed/low-Reynolds-number data. I can't say for sure sure whether the airflow conditions for the tests back then were laminar or turbulent, but what the hell - no medium is perfect! I'm including McBride's sketches of the tunnel so you can draw your own conclusions.

I've taken the liberty to compile the following table from the various performance plots. The most surprising thing about this low-speed stuff is that very small changes in airfoil shape and attack angles could cause such large variations in the Cl & Cd parameters! No wonder certain supposedly similar models with similar motors and identical weights perform so much better than others!

The Table is next, followed by copies of the various performance curves. Dig in and enjoy! And thanks again, Frank ... - MJW

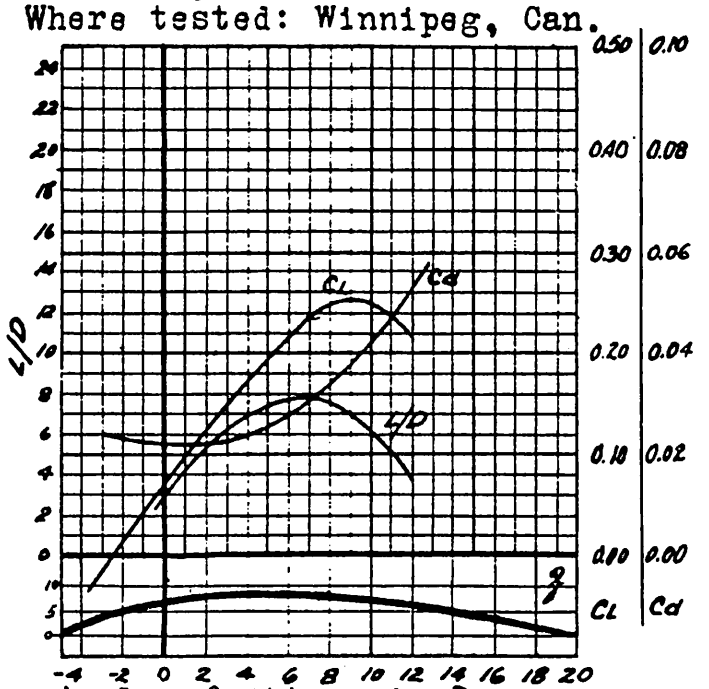
'Foil #	Thk.	@	L/D Max.	&	CL	@	Alpha
1. (Thompson)	7.8%	40%	8.0		.24		7.0deg
2. (Goldberg)	8.4	40	11.3		.33		7.0
3. (Stroud)	8.2	40	16.3		.26		5.0
4. (Hankammer)	8.0	30	19.3		.32		8.0
5. (Fisher)	9.2	40	9.7		.38		7.5
6. (McCoy)	8.1	40	14.7		.20		6.5
7. (McBride B6)	8.2	30	21.7		.21		5.5
8. (McBride B7)	8.3%	40%	21.7		.27		4.5deg



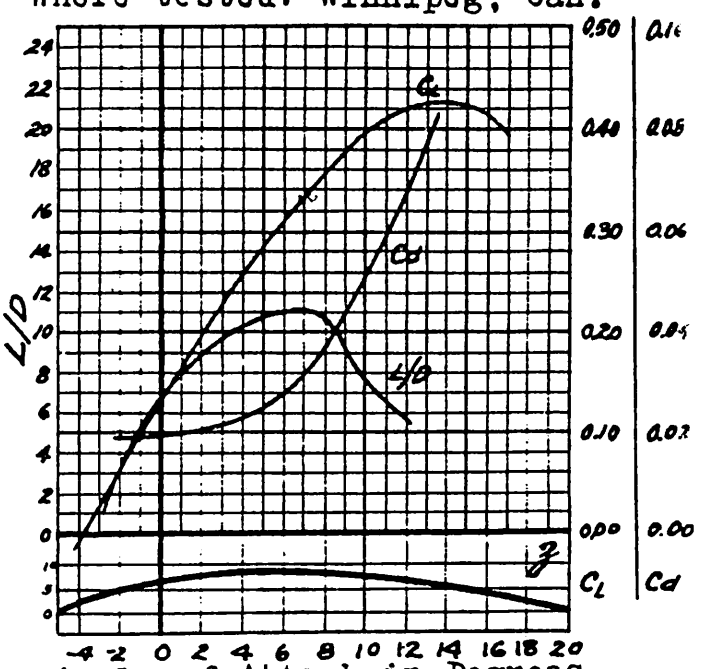
WINDTUNNEL LAYOUT

AERODYNAMIC CHARACTERISTICS OF SINGLE SURFACE AIRFOILS

Name of section: Ray Thompson
Wind velocity: 7 f.p.s.
A.R. test section: 3.44
Tested by; McBride, March 1932
Where tested: Winnipeg, Can.

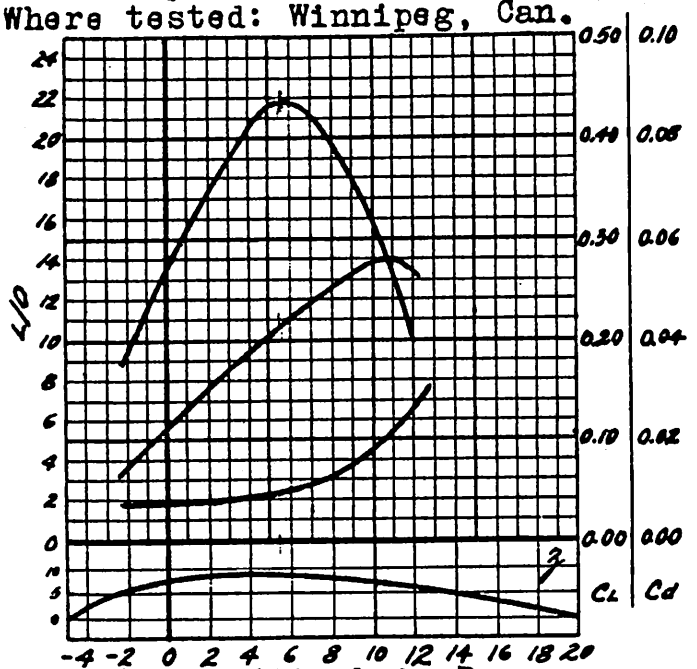


Name of section: Carl Goldberg
Wind velocity; 7 f.p.s.
A.R. test section: 3.44
Tested by: McBride, March 1932
Where tested: Winnipeg, Can.

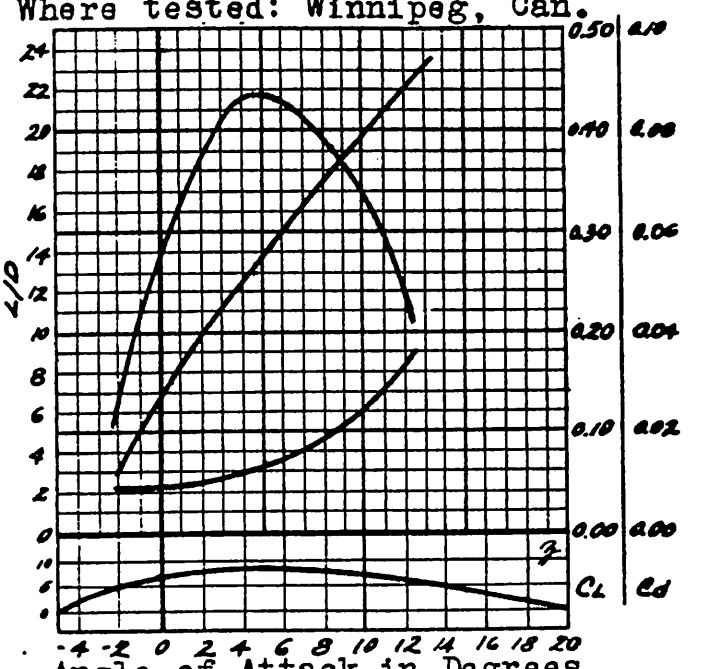


Coefficients are Absolute

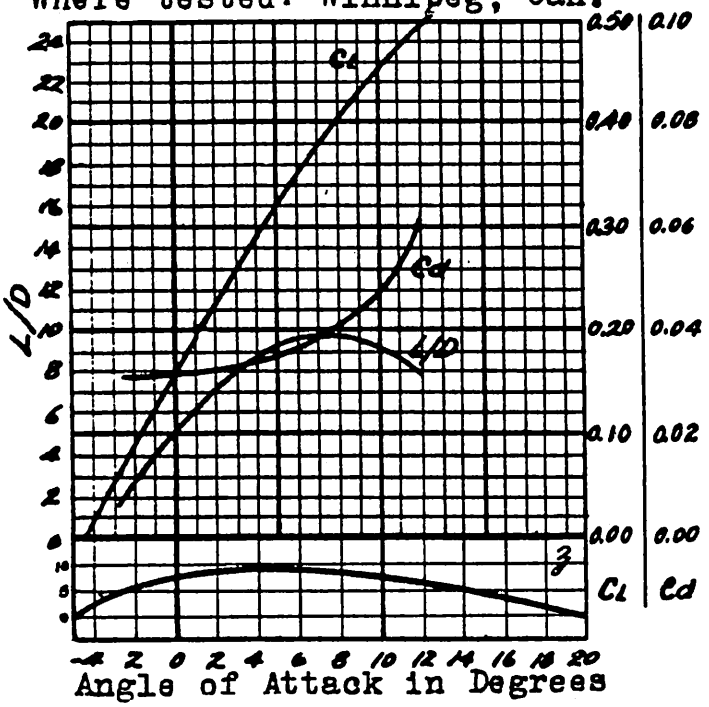
Name of section: McBride B-6
Wind velocity: 7 f.p.s.
A.R. test section: 3.44
Tested by: McBride, March 1932
Where tested: Winnipeg, Can.



Name of section: McBride B-7
Wind velocity: 7 f.p.s.
A.R. test section: 3.44
Tested by: McBride, March 1932
Where tested: Winnipeg, Can.

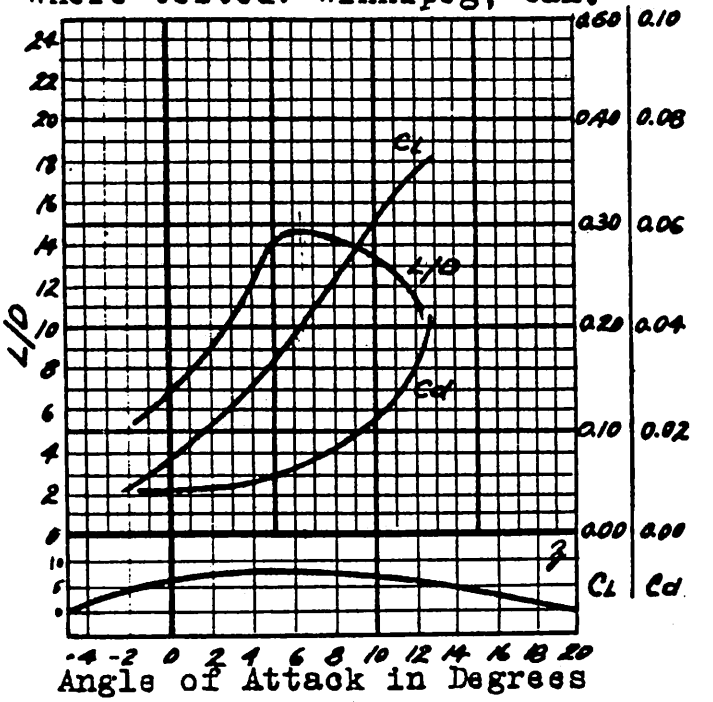


Name of section: Jack Fisher
Wind velocity: 7 f.p.s.
A.R. test section; 3.44
Tested by: McBride, March 1932
Where tested: Winnipeg, Can.



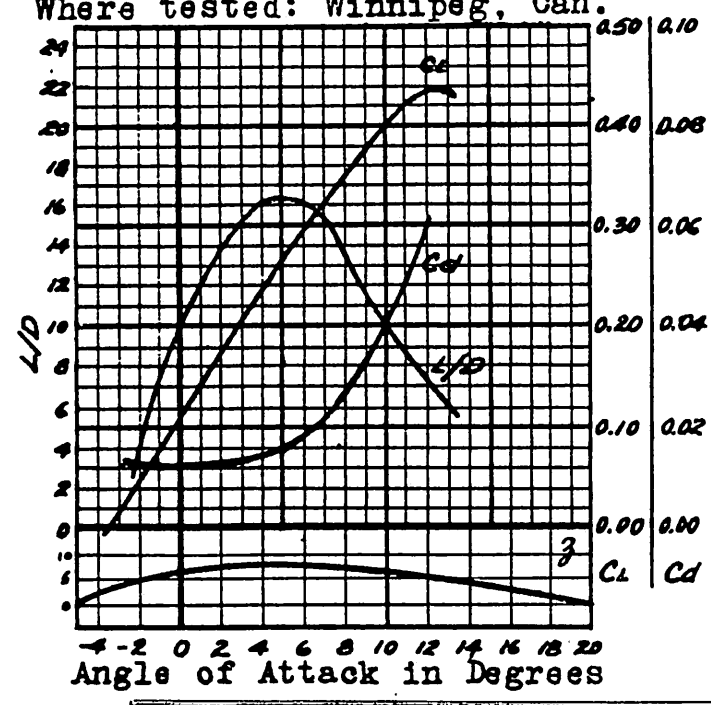
Angle of Attack in Degrees

Name of section: Ernie McCoy
Wind velocity: 7 f.p.s.
A.R. test section: 3.44
Tested by: McBride, March 1932
Where tested: Winnipeg, Can.



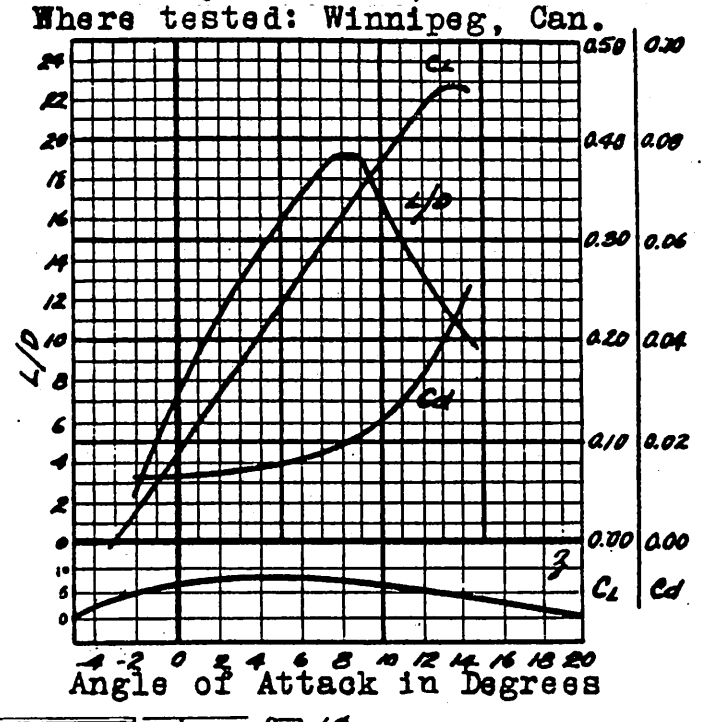
Angle of Attack in Degrees

Name of section: Fay Stroud
Wind velocity: 7 f.p.s.
A.R. test section: 3.44
Tested by: McBride, March 1932
Where tested: Winnipeg, Can.

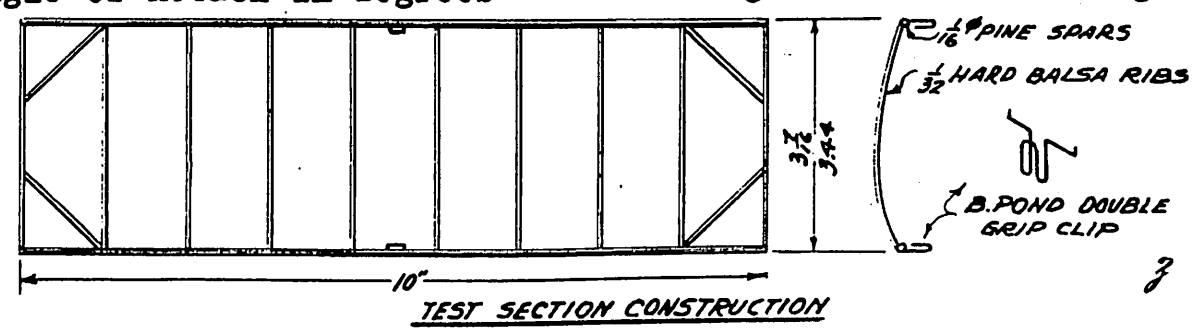


Angle of Attack in Degrees

Name of section: L. Hankammer
Wind velocity: 7 f.p.s.
A.R. test section: 3.44
Tested by: McBride, March 1932
Where tested: Winnipeg, Can.



Angle of Attack in Degrees



TEST SECTION CONSTRUCTION

Seems like agent **Dick Covalt's** CIA Classic Gas Event proposal stirred up some of our readers! The first commentary is by agent **Bob Johannes**:

Bob doesn't believe there's a problem with "the marathon power flyoff situation". If you look at the winning scores of most any contest you'll find that 7 or 8 maxes is usually enough to win. 5 maxes will always put you in the top 10 and most often in the top 5.

Secondly, modern airplanes are easier to build and fly successfully. With a bunter, you don't have to build in any warps and the independence of power trim and glide trim allow contest trim in 5 to 6 flights for a new airplane. Trimming of fixed surface airplane is very complex, involving wing warps, decalage and rudder tab adjustments and CG shifts. It takes years to learn how to do it properly. How many fixed surface models have been totally destroyed during the first few test flights?

As far as "expensive engines, exotic materials and complex gadgetry" are concerned, let's consider them one at a time:

1.) When you consider that in the 1960 time frame, K&B Green Head and Fox .35s were selling for $11 - $12, the price of competitive FF engines is not that far out of line. $100 will buy you a good used K&B 3.5, $150 - $200 will buy you a reworked Nova Rossi .21, and finally, a new Nelson will run $250. If you think of inflation over the last 36 years, you'll see that the prices of modern are "right in the ball park" with the good old days.

2.) The use of "exotic" carbon fibre consists of gluing a strip, or strips, to balsa for reinforcement. If you don't want to use carbon you can go to larger wood sizes, or switch to spruce, but the structure will be heavier.

3.) The "complex gadgetry" is not all that complex. To make a bunter, you need a couple of plastic levers, some cables, springs, and a multifunction timer. Anyone who has the ability build a free flight model has the skills to build a bunt system. The "how to do it" information is out there in the form of 2 articles that appeared in the NFFS Digest earlier this year.

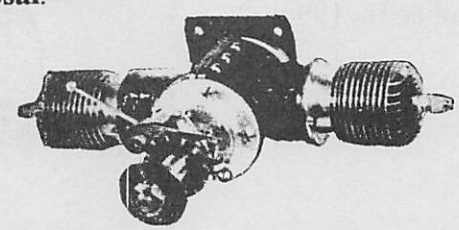
I do have serious concern about the elimination of pressure fuel systems that is proposed. Pressure systems make engine operation more safe, reliable and consistent. It's safer for the model because there is no engine sag at launch. It's far saferfor the modeler because a starter is required. This keeps hands and fingers behind the prop. Every time I see someone holding a plane in his left hand and flipping the engine with his right, it gives me the shivers. We should be advocating the use of mounted starters for safety reasons. The leveling of the "engine playing field" can be achieved other ways if it's necessary. A couple of thoughts come to mind: one is requiring the use of the stock venturi; another is prescribing maximum venturi size for each engine class.

In summary, while I'm not totally opposed to the idea of a classic gas event, I can't endorse it, either. I feel there are already too many "niche" events on the books. If you want to fly fixed surface airplanes there is NosGas out there. As far as encouraging more participation, I think we ought to be encouraging people to build bunters. Based on my experience, it is much easier to field a successful model if it bunts, than if it's fixed surface. Success brings excitement and enthusiasm. A crashed model brings discouragement. - Bob Johannes

And kudos from agent **Bob Sylvester** .....

"Hooray! I've long given up free flight power because of an engine power race, exotic materials and sophisticated control systems. With agent Dick Covalt's proposal for a really laid back and fun event -- please give him my support!"

And there you have it! **Check the following page for Dick Covalt's revised Classic Gas Proposal.**



CIA CLASSIC GAS POWERED FREE FLIGHT

PURPOSE

Classic Gas Powered Free Flight is intended to provide a competitive event without the complexity of auto surface functions, exotic composite materials and very expensive limited production engines. In addition, it provides an entry event for individuals trying to get a start in competition free flight.

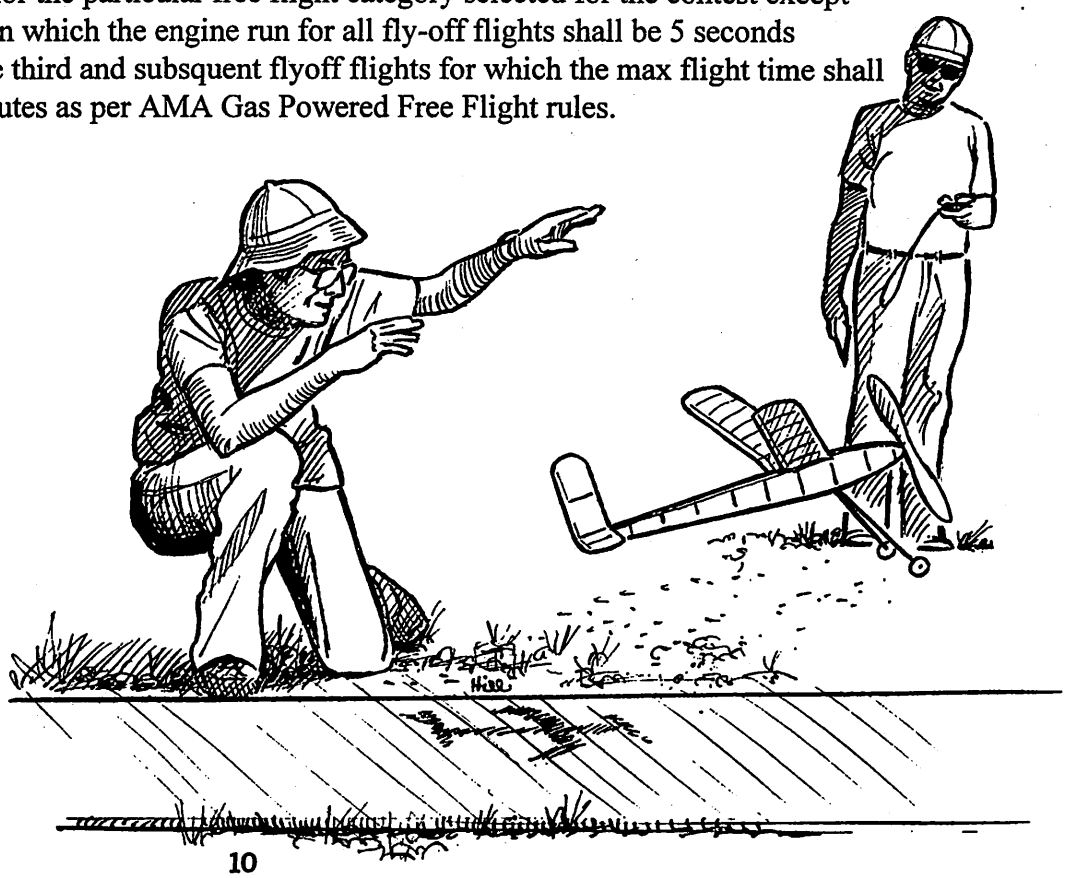
RULES

All AMA Gas Powered Free Flight rules apply in addition to the following. In the case of a rule conflict the following will supersede the AMA rules for this event.

1. CIA Classic Gas Powered Free Flight shall be classed by engines sizes which shall be the same as AMA Gas Powered Freeflight events. Allowable engines shall be any Nostalgia Gas legal engine or any other engine in which the crankshaft runs on "plain bearings". Classes may be combined to meet individual contest needs.

2. The aircraft may be of any design, but the only controllable functions or surfaces allowed shall be "engine shutoff" and "dethermalizer" (DT).

3. Official flights, and scoring shall be in accordance with AMA Gas Powered Free Flight rules for the particular free flight category selected for the contest except for Cat. III, in which the engine run for all fly-off flights shall be 5 seconds including the third and subsquent flyoff flights for which the max flight time shall be 2 1/2 minutes as per AMA Gas Powered Free Flight rules.

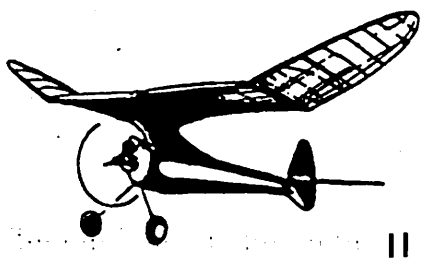


Richard Covalt
October 16, 1996

I'm not sure where this table originated, but it sure looks useful! Whoever did this, thanks!

I received an OHAUSE Triple beam balance for Christmas and have been using it to weigh various covering materials mostly related to Old Timer R/C models. These data may be helpful in estimating the weight of your finished model. The results are shown below:

NAME OF MATERIAL	COLOR	OZ/FT^2
Silk (Raw, No Dope)	RED	0.0364
Silk (8 coats Nitrate Dope)	RED	0.292
Trans. Monokote	RED	0.261
Monokote	RED	0.302
Monokote	BLACK	0.199
Monokote	CHROME	0.203
Monokote	SILVER	0.203
Monokote	WHITE	0.253
Coverite, Standard	YELLOW	0.428
Coverite, Silk Spun (unpainted)	RED	0.279
Coverite, Silk Spun (unpainted)	YELLOW	0.334
Coverite, Silk Spun (unpainted)	WHITE	0.294
Trans. Solarfilm	BLUE	0.219
Solarfilm	RED	0.233
Solarfilm	BLACK	0.209
Solartex	RED	0.279
Solartex	YELLOW	0.345
Mica Film	RED	0.124
Mica Film	YELLOW	0.144
Flite Kote	ORANGE	0.177
Fabra Kote-Lite	YELLOW	0.249



1996 CIA Area FF Contest Calendar

Nov 3 Columbus, OH MECA Collecto

The **INFORMER**

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