



RULE BOOK

2023-2024

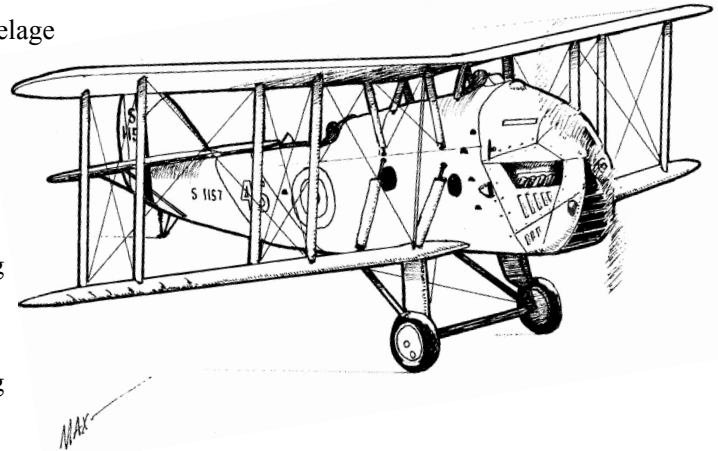
Effective 1/1/23-12/31/24

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The Flying Aces Club is a society of unique individuals with a common interest that at times borders on a passion. It is our intent to preserve and promote the traditional building and flying of free flight stick and tissue model aircraft. Although competitive at times, the sharing of innovations, assistance and camaraderie is second nature to all who believe in the unique spirit of **The FLYING ACES CLUB.**

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FAC RULES - OBJECTIVE

The ideals of the FAC are founded in friendly competition that promotes improvements to the appearance and flights of our models. The following rules are designed to help the competitor prepare for and participate in events of the Flying Aces Club. *Proof of eligibility and compliance with the text and intent of these rules is the total responsibility of the contestant.* Final decisions on rules compliance for ALL EVENTS rests with the CD and designated assistants.

I. OFFICIAL FAC CONTEST EVENTS / EVENT NUMBER

FAC Scale judged / timed events:

- #1 FAC Peanut Scale
- #2 FAC Rubber Scale
- #3 FAC Jumbo Scale
- #4 FAC Giant Scale
- #5 FAC Pioneer Scale
- #6 FAC Power Scale

TOTF Scale events:

- #11 Low-Wing Military Trainer (LWMT)
- #12 Golden Age Multi-wing
- #13 Golden Age Monoplane
- #14 Modern Civilian
- #15 Modern Military

TOTF Non-Scale events:

- #21 Old Time Rubber Stick
- #22 Old Time Rubber Fuselage **
- #23 2-Bit +1 O.T.R. Fuselage**
- #24 Jimmy Allen **
- #25 Old Time Gas Replica
- #26 1/2 Wakefield

Miscellaneous Timed Events:

- #30 FAC Scale Glider
- #31 Simplified Scale
- #32 Dime Scale
- #33 No-Cal Profile
- #34 Phantom Flash **
- #35 Embryo Endurance **
- #36 Jet Catapult
- #37 Fiction Flyer
- #38 FAC-GHQ Peanut
- #39 Blue Ridge Special

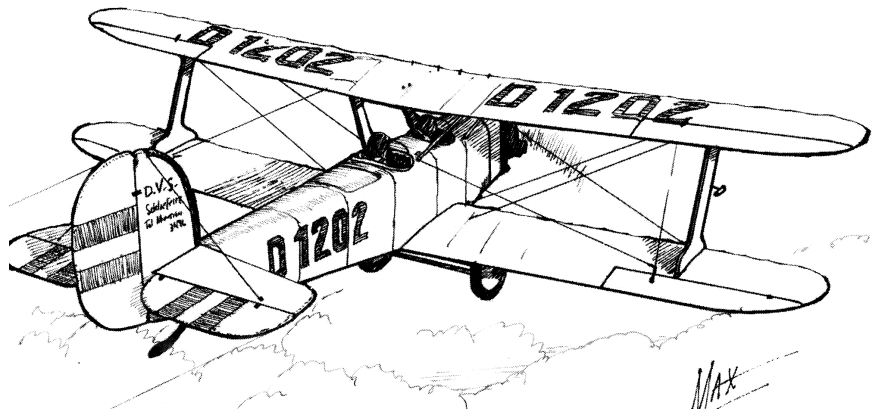
Mass Launch Events:

- #40 National Air Races (NAR)*
- #41 Thompson Race*
- #42 Greve Race *
- #43 Goodyear / Formula Race *
- #44 WWI Combat *
- #45 WWII Combat *

Special-Misc

- #51 B.L.U.R.

*Denotes Mandatory Mass Launch Event. **Denotes Mandatory ROG Event.



II. PRIMARY RULES

PRIMARY RULES apply to ALL MODELS in ALL FAC events, unless specified otherwise in the rules for a specific event.

- A. Proof of a model's eligibility for any event is the sole responsibility of the competitor.
- B. Wing span is PROJECTED, i.e. physically measured wingtip to wingtip on the model.
- C. All models must be constructed primarily of balsa wood, and covered with Japanese or domestic tissue paper, or equivalent. Silk, silkspan and polyspan are OK. Condenser paper is prohibited, as are plastic films unless surfaced with tissue afterwards.
- D. Flying surfaces must be covered on both sides ("double covered"), *unless event rules specify otherwise*, or on the full-size aircraft they were covered on one side only ("single covered").
- E. On Scale models (all classes):
 - 1. Non-scale airfoils may be used; under-cambered airfoils may be used only when found on the full size aircraft.
 - 2. Tail surface areas may be adjusted moderately, but not to the point that the scale appearance of the model is destroyed.
- F. Foam and other non-balsa materials may be used to construct:
 - 1. "Add on" parts such as air scoops, radiators, guns, tail cones and the like.
 - 2. Engine cowls up to the firewall.
- G. All exterior surfaces and details except props must be colored, painted, or tissue covered.
EXCEPTIONS: Simplified Scale, Dime Scale, No Cal, Phantom Flash, and Blue Ridge Special models.
- H. Scale models: metal silver / gray finishes must be represented by silver / gray colored tissue and /or paint. White tissue alone is not acceptable.
- I. All windscreens, canopies, and windows must be of a clear material, *unless event rules specify otherwise*.
- J. Aircraft with retractable landing gear may be modeled gear up or down, *unless event rules specify otherwise*.
- K. All events are for rubber powered models except:
6 FAC Power Scale #30 FAC Scale Glider #36 Jet Catapult # 25 Old Time Gas Replica
- L. Props that fold or feather before the model lands are prohibited in ALL FAC EVENTS. There are no other prop material, size, or type restrictions, *unless specified otherwise for a given event*.
- M. Entrant must be the builder of the model they enter. Proxy entries / launchers in all events are allowed at the CD's discretion, in order to encourage builders who are physically unable to compete to remain engaged in FAC activities.
- N. Number of model considerations:
 - 1. Each builder is permitted only one example of a specific design for a specific event.
 - 2. No "back-up" models permitted *unless specified otherwise for a given event*.
 - 3. A contestant may enter two *distinct and different* model designs in any FAC event.
 - a. The higher scoring model will be used to determine the contestant's standing.
 - b. The lower scoring model does not qualify (DNQ) for inclusion in the standings.
 - 4. In general, a model built for one class of event may also be entered into a different class for which it would otherwise qualify. Check specific event rules though, as some restrictions apply.
- O. All events are hand launch *unless event rules specify otherwise*. Ducted Fan models may be launched by bungee / catapult.
- P. Where events are launched by Rise Off Ground, ROG must be unassisted--no pushing or "springing" the model from the table.
- Q. All timed flights are in seconds and rounded down to the last full second, including "averaged" times.
- R. An official timed flight, unless specified otherwise within specific event rules, shall be:
 - 1. 20 seconds MINIMUM.
 - 2. 120 seconds MAXIMUM.
- S. Three different contestants must each make an official flight for the winner to receive a "Kanone".
- T. An official timed flight score recorded in one event cannot be used as an official time score for another event.
- U. Binoculars may be used in all events to track models in the air.
- V. Contestants are solely responsible for **clearly, correctly and fully** filling out their time slips; **promptly** turning in their time slips after a flight for posting; and **keeping track** of his or her qualifying models and flights. Holding time slips until the end of the contest places an undue burden on the event staff, and is **STRONGLY DISCOURAGED**.
- W. The CD is solely responsible for posting flight times promptly.
- X. The use of any R/C device during FAC competition is forbidden.
- Y. In any matter of rules interpretation, the CD's decision is final.

III. FAC SCALE EVENTS (Scale Judged & Timed)

FAC SCALE events offer the scale modeler the opportunity to exercise his / her skill in producing a good flying model, which retains the appearance of the full scale aircraft without being burdened by excessive requirements such as scale rib spacing, scale stab area and the like. The FAC Scale class is broadly divided into two main groups: **FAC Rubber Power Scale (RPS)** and **FAC Power Scale**.

All FAC SCALE event models are **scale-judged**: *scale points* are awarded for a variety of qualities as outlined below. *Bonus points* are given according to an airplane's configuration and complexity. Scale points and bonus points are then added together to form the **Judge's Score** for a given model.

FAC SCALE event models' flights are timed, and the times are then factored. For most events, this **Factored Flight Score** is then added to the **Judge's Score** to come up with a **Total Score**. However, note that methods of tallying points may vary according to the event. Be sure to read and understand the rules for your particular event!

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III-1.0 FAC RUBBER POWERED SCALE

Competition for scale-judged & timed rubber powered models, which includes the following events:

FAC Peanut Scale FAC Rubber Scale FAC Jumbo Scale FAC Giant Scale FAC Pioneer Scale

- A. FAC Rubber Powered Scale Events #1-4 are classified by wing span, as follows:
1. FAC Peanut Scale: 13 inches maximum.
 2. FAC Rubber Scale:
 - a. Multi-wing: Greater than 13 inches, up to a maximum of 30 inches.
 - b. Monoplane: Greater than 13 inches, up to a maximum of 36 inches.
 3. FAC Jumbo Scale:
 - a. Multi-wing: Greater than 30 inches
 - b. Monoplane: Greater than 36 inches
 4. FAC Giant Scale:
 - a. Multi-wing: Greater than 36 inches
 - b. Monoplane: Greater than 42 inches
 5. FAC Pioneer Scale (Event #5) has no wing span restriction. Limited to aircraft that were produced before 1914.
 - a. When no Pioneer Scale event is listed, Pioneer models will compete in FAC Rubber Scale events #1-4.
- B. A single FAC Rubber Powered Scale model can't be entered into more than one FAC Rubber Powered Scale event #1-5.
- C. Models built for a specific FAC Rubber Powered Scale event may not be entered into an alternate, yet qualified FAC Rubber Powered Scale event if the original event is an official event in that contest.
Example: A Peanut may not be entered into Rubber Scale if there is a Peanut event in the contest.
- D. An FAC Rubber Powered Scale model (events #1-5) may also be entered into a TOTF Scale event (#11-15), Mass Launch event (#41-45) or Simplified Scale (#31) if it qualifies by wing span and other event specific criteria.
Example: A 24" span Fokker Dr1 may be entered in FAC Rubber Scale and the WW I Combat event.
- E. Models may be built from original plans, published plans or kit plans of any heavier than air, **man-carrying**, full size prop driven aircraft, jet, or rocket, built or proposed.
- F. Models must closely resemble the full-scale aircraft with respect to outline and proportions. The general outline of all surfaces and fuselage cross sections must be retained. The opinion of the judges is final!
- G. Model plans, kit or published, may be modified to make the model more closely resemble the full-scale aircraft.
- H. If a model is built from original plans, builder must present source material used in creating the plan (3-view, photos, etc).
- I. When a model is designed and built of a proposed aircraft and the full scale prototype was never built, documentation and execution of its details, colors and markings should reflect the prototype's likely mechanical details, designed purpose and era of its creation.
Example: A proposed WWII German piston engined combat aircraft must have appropriate exhaust outlets and armament, even if concept drawings show none, and must carry markings appropriate to that nation, era and purpose.
- J. PROOF OF SCALE:
1. Documentation must include a Three-View. Building plan is optional.
 2. Documentation should aid the judges in verifying **color, markings, and details**.
 3. Photos are optional, but will supersede any 3-view if they show a difference of any particular detail.
 4. The location of documentation material in publications MUST be clearly indicated.
- K. Rubber powered props will not be considered for any scale points.
- L. Motor sticks may be used on multi-engine models without penalty, but props must be in their scale location.
- M. No extra points will be awarded for exact rib spacing, tail area or the like.
- N. Dihedral may be increased to a maximum of 1" per tip, per foot of wingspan, or in the case of low wingers, to the bottom of the canopy--*whichever is higher*. Models built from kits may be built to plan even if the specified dihedral exceeds these standards. (See Appendix F: Pilot's Pre Launch Checklist for a graphic illustration of the 1" per tip / per foot rule).
- O. Tail surface area may be increased moderately, but not to the point that the scale appearance of the model is destroyed.
- P. Mechanical prop-gearing considerations:
1. Gearing may be used when thrust lines from prop shaft to rear motor peg are blocked by structure.
 2. ONLY gear arrangements with a 1:1 ratio may be used.
 3. Gear driven props may not be powered by more than one motor.

III-1.1 SCALE POINTS: FAC Rubber Powered Scale

A. CONSTRUCTION AND DETAILS

A maximum of 30 points will be given for general accuracy and the extent of detail such as struts, rigging, engine cowl, exhausts, armament, etc. No cockpit or cabin interiors will be considered, except for windscreen and instrument panel, unless a full panel is impossible due to a high thrust line.

NOT MUCH...	0 TO 10
SOME OF IT...	11 TO 20
MOST OF IT...	21 TO 29
ALL THERE!	30

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B. COLORING AND MARKINGS

A maximum of 20 points will be given for accuracy and extent of coloring and markings. Judging will consider items such as insignia, numbering, large, wide stripes, major panel lines, etc., for a particular subject modeled. Where a model is built of a proposed design, the full scale prototype never having been built, then its color and markings should reflect its designed purpose and era of its creation. Silver colored tissue may be used to represent polished aluminum. There will not be any difference in scoring between the proper colored tissue and painted surfaces.

C. WORKMANSHIP

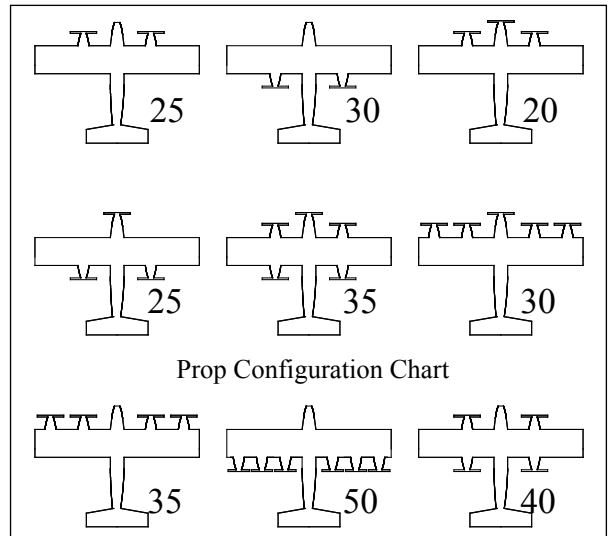
A maximum of 12.5 points will be given for workmanship, such as good covering, alignment, neatness, etc. Wear and tear should not be a negative factor in determining workmanship points. Models do not have to be in pristine condition to get maximum workmanship points.

III-1.2 BONUS POINTS: FAC Rubber Powered Scale

The following bonus points will be awarded according to complexity of configuration. Total bonus points are the sum of all applicable characteristics and prop combinations listed below.

A. BASIC BONUS POINTS: GENERAL CONFIGURATION

- 0 High-Wing Cabin and Shoulder-Wing Monoplanes
- 3 Parasol Wing
- 5 Mid-Wing (see Appendix A: Determining Mid-Wing Status)
- 5 Canard or Tandem Wing
- 10 Low Wing
- 15 Biplane or Sesquiplane
- +5 Each additional wing > 2 (triplane = 20, quadraplane =25, etc.)
- 10 Seaplane with multiple floats of proportional scale dimensions
- 10 Flying boat or Amphibian
- 15 Unorthodox design (whatever is NOT listed above i.e. flying wing, autogyro, etc.)
- 3 Skis of scale width and length
- 2 Each non-powered scale size / diameter prop
- 1 Each housing for a "static" jet engine(s) attached to a wing or the fuselage via an appendage.



B. ADDITIONAL BONUS POINTS: NUMBER and LOCATION OF "POWERED PROPS" (see Prop Configuration Chart)

Number	Pts	Location
Single Prop	5	If the prop is a pusher prop in scale location
Two Props	10	Center line tandem props, if both props are powered in such a way as to contribute generously to the thrust and duration of motor run needed for flight---i.e. Fokker D-XXIII
	25	Off center line twin...
	+5	...If ANY prop is a pusher in a scale location (excluding the above tandem)
Three Props	20	... provided the off-center props contribute significant power...
	+5	...if ANY prop is a pusher in a scale location
Additional Pairs	10	EACH additional pair provided all props are equally powered...
	+5If ANY prop is a pusher in a scale location.
Rubber Ducted Fans	15	First RDF unit
	+7	...EACH additional RDF unit
Contra Prop	5	First FREEWHEEL tractor contra-prop unit...
	10	First FREEWHEEL pusher contra-prop unit; AND / OR any additional freewheel units, tractor or pusher, after the first.
	7	First NON FREEWHEEL tractor contra-prop unit...
	14	First NON FREEWHEEL pusher contra-prop unit; AND / OR any additional non freewheel units, tractor or pusher, after the first.
Contra Prop example:		Two freewheel tractor units, or, a freewheel tractor plus a freewheel pusher, receives 15pts. Each additional freewheel unit would add 10 points, whether tractor or pusher.

- C. RUBBER POWERED JETS / MANNED ROCKETS: Special Considerations
1. A single-jet or manned rocket propelled aircraft may have a rubber powered prop located on the nose OR tail section of the fuselage.
 - a. "Pusher" bonus points awarded if prop is on the tail.
 - b. Tandem props are prohibited.
 - 1) Exception: If full scale aircraft had a prop on the nose and a jet engine in the rear of the fuselage, then tandem rubber powered props are allowed with pusher bonus points awarded. **Example:** Ryan Fireball FR-1.
 2. Jets with multiple engines will be considered for bonus point purposes as multi-engine aircraft.
 - a. Aircraft with multiple jet engines on wing nacelles:
 - 1) May have powered props located in the front OR rear of each nacelle.
 - 2) Powered props on the rear of each nacelle qualify the model for the "pusher" bonus points.
 - b. Aircraft with more than one jet engine "buried within the fuselage" will be considered for bonus point purposes as a "single engine aircraft." **Example:** McDonnell F-4 Phantom.

III-1.3 FLIGHT POINTS: all FAC Rubber Powered Scale events

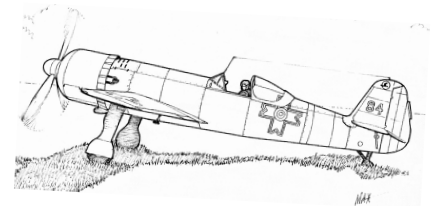
- A. FLIGHT TIME SCORING: An official flight is 20 seconds minimum, 120 seconds max. Three official flights are allowed per FAC Scale event. There are two options for flight scoring: "Best of Three" (Standard) and "Three Flight Average" (Optional).
1. STANDARD FLIGHT SCORING: "BEST OF THREE"
 - a. Highest single official flight out of three determines the flight points.
 - b. An official flight must be made before scale points can be awarded.
 - c. In the case of a large number of entries in any one event, the CD may require that an official flight be recorded before the model is judged for scale points.
 2. OPTIONAL FLIGHT SCORING: "THREE FLIGHT AVERAGE SYSTEM"
 - a. May be used at the discretion of the C.D. for FAC rubber scale events; must be pre-publicized.
 - b. Each official flight time is factored; flights are then totaled and divided by 3 for the average time.
 - c. When only one or two official flights are made, total flight times will still be divided by 3 for the average time.
- B. FLIGHT TIME FACTORING: after recording, all FAC Rubber Powered Scale Flight Times are *factored*. (See pg. 19, "Appendix B: FAC Scale Factoring Charts"). There are two options for flight time factoring: **Traditional** and **Inverted**. CDs must advertise in advance which options will be used.

1. **TRADITIONAL:** A maximum of 82.5 flight points will be awarded for each flight as follows:
 20 to 60 seconds: each second = 1 point
 61 to 90 seconds: each second = 1/2 point
 91 to 120 seconds: each second = 1/4 point
 Over 120 seconds: no additional points--boasting rights only!
2. **INVERTED:** A maximum of 72 flight points will be awarded for each flight as follows:
 20 to 44 seconds: each second = 1/4 point
 45 to 74 seconds: each second = 1/2 point
 75 to 120 seconds: each second = 1 point
 Over 120 seconds: no additional points--boasting rights only!
3. Inverted Flight Time Factoring is most effective when paired with "Three Flight Average" Flight Time Scoring.
4. Inverted Flight Time Factoring may be used for the following FAC Rubber Powered Scale Events ONLY:

#1 FAC Peanut Scale #2 FAC Rubber Scale #3 FAC Jumbo Scale #4 FAC Giant Scale

III-1.4 TOTAL SCORE: FAC Rubber Powered Scale

- A. **FAC Peanut Scale, FAC Rubber Scale, FAC Jumbo Scale, FAC Giant Scale:**
1. Scale points + Bonus Points + Factored Flight Points = Total Score
- B. **FAC Pioneer Scale:**
1. Flight points: as in FAC Rubber Powered Scale, except Bonus Points are added, as seconds, to the highest flight time **before** factoring is done on that time. This applies whether event is flown to "Best of Three" or "Three Flight Average."
 2. Scale Points + Factored Flight Points = Total Score



III-2.0 FAC POWER SCALE

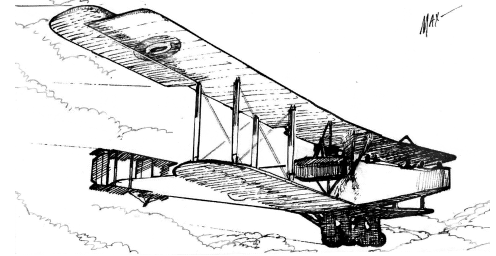
- A. Power must be other than rubber i.e., glo, diesel, gas, CO2, electric, Rapier or Jetex, etc.
- B. Different modes of power may not be mixed unless the full scale ship had mixed power modes.
- C. Wing span: No limitations.

III-2.1 SCALE POINTS: FAC Power Scale As per FAC Rubber Power Scale (See pgs. 5-6, section III-1.1)

III-2.2 BONUS POINTS: FAC Power Scale

Total bonus points are the sum of all applicable characteristics and prop combinations listed below.

- A. BASIC BONUS POINTS: General Configuration
 - 0 High-Wing Cabin and Shoulder-Wing Monoplanes
 - 3 Parasol Wing
 - 5 Mid-Wing (see Appendix A: Determining Mid-Wing Status)
 - 5 Canard or Tandem Wing
 - 10 Low Wing
 - 15 Biplane or Sesquiplane
 - +5 Each additional wing > 2 (triplane=20, quadraplane=25, etc.)
 - 10 Seaplane with multiple floats of proportional scale dimensions
 - 10 Flying boat or Amphibian
 - 15 Unorthodox design (whatever is NOT listed above i.e. flying wing, autogyro, etc.)
 - 3 Skis of scale width and length
 - 2 Each non-powered scale size / diameter prop
 - 1 Each housing for a "static" jet engine or multiple jet engines attached to a wing or the fuselage via an appendage



B. ADDITIONAL BONUS POINTS: TYPE and LOCATION

Type	Pts	Location
Electric driven props	0	First driven tractor prop
	5	First driven pusher prop
	5	EACH additional driven prop, regardless of how driven or where located
Electric Ducted Fan Models	10	Single Ducted Fan
	5	EACH additional ducted fan unit
Non-Electric driven props / fans / rocket / jet units	15	First driven tractor prop
	20	First driven pusher prop, ducted fan or rocket / jet unit
	25	EACH additional driven prop, ducted fan or rocket / jet unit of equal power to the first, regardless of how driven or where located
	10	EACH additional rocket / jet unit of a power rating LESS than the first unit
Contra-Rotating Props	5	First tractor Contra-prop
	10	First pusher Contra-prop
	+10	...Each additional CP unit, tractor or pusher

III-2.3 FLIGHT POINTS: FAC Power Scale ONLY

- A. Official flight: 20 sec. minimum, 120 sec. max.
- B. Maximum flight time may be reduced at the discretion of the C.D.
- C. Three official flights are allowed per scale event.
- D. FLIGHT TIME SCORING: Best of Three OR Three Flight Average, as per rule III-1.3-A, above
- E. FLIGHT POINTS: 1 point per second with NO FACTORING.

III-2.4 TOTAL SCORE: FAC Power Scale

- A. Scale points +Bonus points +Flight Points = Total Score

IV. TOTAL OF THREE FLIGHT (TOTF) SCALE

Four scale events which involve no applied bonus points or factored flight scores, but do require that a model meet certain scale standards. Models may be field reviewed for compliance; builder should be prepared with a three view in case of questions.

IV-1.0 COMMON RULES

- A. All models must be in period correct colors and markings
- B. Models must meet basic scale standards outlined in the PPLC (See pg. 21, Appendix F).
- C. For all TOTF Scale events, “produced” means **built and flown**; one-offs and experimental types are allowed.
- D. Wing Span: No limitations
- E. Flight Score: Combined Total of three official flights.
 - 1. Events may be flown as mass-launch if advance notice is provided.
 - 2. At CD’s discretion, any TOTF event may be flown as best three of six flights with NO MAX.

IV-2.0 LOW-WING MILITARY TRAINER (LWMT) For low-wing military training aircraft of any nation or era, including dual-control fighter conversion aircraft.

- A. LWMT models are NOT ELIGIBLE for Golden Age or Modern Military events when there is a LWMT event at the contest.

IV-3.0 GOLDEN AGE MULTI-WING Military multi-wings produced 1920-1939; civilian multi-wings produced 1920-1945.

- A. Retractable gear MUST be in the down position for both civilian and military aircraft.

IV-4.0 GOLDEN AGE MONOPLANE Civilian monoplanes and military high-wing cabin aircraft produced 1920-1945; Military low-wing monoplanes produced 1920-1939.

- A. Retractable gear MUST be in the down position for both civilian and military aircraft.
- B. For purposes of this event ONLY, tandem wings shall be considered monoplanes.
- C. Golden Age LWMTs may compete in Golden Age Monoplane if there is no LWMT event at the contest.

IV-5.0 MODERN CIVILIAN For civilian aircraft produced post-WWII, and post-WWII military high-wing cabin aircraft. Prewar designs, including those with post-WWII “upgrades”, are excluded.

IV-6.0 MODERN MILITARY For military aircraft produced post-WWII to the present.

- A. Aircraft that were produced during late WWII but primarily served post-WWII are eligible for Modern Military Scale IF their mark and markings are appropriate to the period.
- B. Modern Military aircraft later modified for and operated as racing, fire bomber, executive transport, testbed or other working aircraft are eligible for the event. Markings and configuration must be representative of the specific aircraft modeled.
- C. High-wing cabin types are excluded. Modern Military high wing cabin aircraft compete in Modern Civilian.
- D. Modern LWMTs may compete in Modern Military if there is no LWMT event at the contest.

V. TOTAL OF THREE FLIGHT (TOTF) NON-SCALE

Five events that celebrate non-scale designs from the Golden Age of Free-Flight modeling. NOTE! The following rules are for FAC events only. Society of Antique Modelers (SAM) and /or National Free Flight Society (NFFS) rules *may* be different for similarly named events. It’s the contestant’s responsibility to ensure their model complies with the rules for the FAC event being flown.

V-1.0 COMMON RULES

- A. Construction:
 - 1. Fuselages must be built up maintaining original cross sections.
 - 2. Structural changes may be made to incorporate a dethermalizer, removable wing, tail, or landing gear.
 - 3. Original structure, including wing spars, may be “beefed up” but not lightened. This includes adding wing spars, but original spars must remain in correct position
 - 4. Dihedral as per plan.
 - 5. Airfoils as per plan.
 - 6. Laminated or sheet balsa may be used where plan shows bamboo for wing or tail tips.
 - 7. Rear motor anchor may be moved and aluminum tube used.
 - 8. Front thrust bearing, wire size, and free wheeler may be changed.
 - 9. Spinners are optional, even if a spinner is shown on the original plan.
 - 10. Original rolled-tube fuselages are permitted.
 - 11. Take off /Landing Gear: as per plan, **if applicable**.
 - a. Folding or retractable gear must be in the down position during flight.
 - b. Model must have at least one wheel; wheel(s) must be diameter and thickness on plan, and must rotate freely.

- B. Prop / prop diameter:
 1. MAXIMUM diameter as per plan or one-third of flat wingspan, whichever is greater.
NOTE: Maximum diameter for the Gollywock is 13.5"
 2. Props that fold or feather during flight are not permitted.
 3. Single-bladed or three-bladed props shown on original plans may be replaced by a two-bladed prop, either wood or plastic; the resulting prop arc diameter must follow rule B.1, above.
- C. There is no limit on rubber motor size or model weight.
- D. Scoring: Combined total of three flights, unless otherwise indicated (See FAC Old Time Gas Replica)
 1. At CD's discretion, any TOTF Non Scale event may be flown as best three of six flights with NO MAX.
 2. Where there are not enough contestants to allow the running of multiple events, TOTF Non Scale events (excepting OT Gas Replica) may be combined at the CD's discretion. In such cases, events will be hand-launch.

V-2.0 OLD TIME RUBBER STICK & OLD TIME RUBBER FUSELAGE

FAC style competition for Old Time endurance and sport models designed, kitted, or plan published before January 1, 1946.

- A. OLD TIME RUBBER STICK
 1. Model design must NOT show takeoff or landing gear (including retractable or drop-off-gear) and motor must be enclosed within the fuselage.
 2. Launch technique: hand.
- B. OLD TIME RUBBER FUSELAGE
 1. Model design MUST show takeoff or landing gear, and motor must be enclosed within the fuselage.
 2. Launch technique: Unassisted ROG.
- C. Wing Span / Area (both events)
 1. Maximum wing span is 36" projected OR maximum wing area is 150 sq. in.
 2. If original model had wing span greater than 36" projected or area greater than 150 sq. in, the design may be reduced to fit this requirement; the structure must stay the same, but wood sizes may be reduced proportionally.
 3. Where a design's wingspan is less than 36" projected but wing area is greater than 150 sq. in., the design will be allowed unmodified; such designs may NOT be scaled up to 36" wingspan, however.

V-3.0 2 BIT +1 OLD TIME RUBBER FUSELAGE

- A. For OT Rubber Fuselage models originally designed, kitted, or published with a wingspan not exceeding 26 inches.
 1. Scaling-down of longer-wingspan Old Time Rubber Fuselage designs is NOT permitted.
- B. Launch technique: Unassisted ROG
- C. If a contest has both 2 Bit +1 OT Rubber events and OT Fuselage, and you have a model that qualifies for both, you must declare in advance which event you are entering. The model cannot compete in both.

V-4.0 JIMMIE ALLEN

- A. Entry must be a recognized Jimmie Allen Design.
- B. Construction:
 1. Must be built to original size; no scaling.
- C. Allowable prop diameter: See chart, pg.11
- D. Launch technique: Unassisted ROG--no pushing or "springing" the model from the table.
- E. If a contest has both Jimmy Allen and 2-Bit +1 Fuselage events and you have a model that qualifies for both, you must declare in advance which event you are entering. The model cannot compete in both.

V-5.0 1/2 WAKEFIELD Event open to any 4-oz or 8-oz Wakefield designed, kitted or published from 1934 through Dec. 31,1950.

- A. Must be half size, i.e.:
 1. Wing Area : 50 square inches, +/- a bit.
 2. Fuselage cross section: Length squared /100 Example: 18" length would equal 3.24 sq. in. cross section
- B. No messing with plan! Must use the construction and layout as used on the full sized model. Exceptions:
 1. The number of wing ribs may be decreased to keep the construction reasonable. Some Wakefields had a lot of wing ribs of thin balsa; such a model may have half the ribs but of the original 1/32" thickness.
 2. Fuselage construction: 1/16" sq.
- C. Minimum weight: 1 oz. finished model, empty, without rubber
- D. Launch: Unassisted ROG from a three (3) point stance.

JIMMIE ALLEN ALLOWABLE PROP SIZES	
Model	Max. Prop Dia.
B-A Parasol (aka Racer)	9.5"
B-A Cabin (aka Skokie)	10"
Bluebird	12"
Bluebird Racer (aka Scarlet Tanager)	8"
Blue Flash	10"
Silver Streak	11.5"
Sky Chief	11"
Skyraider	10"
Spartan Bomber	10"
Special	7"
Thunderbolt -1935 22" ws Hickock Oil	7.33"
Thunderbolt -1934 24" ws Skelly Oil	10"
Yellow Jacket	10"

V-6.0 OLD TIME GAS REPLICA For non-scale gas powered models built from a kit / plan published before Jan. 1, 1946.

- A. Any power source other than rubber may be used.
- B. Profile fuselages allowed if on original plan.
- C. Wing span:
 - 1. Span shall not exceed 36 inches.
 - 2. Original published plans may be enlarged to 36 inches.
 - 3. Original published plans may be reduced to 36 inches or less.
- D. Launch technique: Hand.
- E. Scoring: Three rounds of flights must be made; each round will have a posted target time. Deviation from the target time (plus or minus) for each flight will be recorded. Lowest total deviation for three flights wins.
- F. Determining target times:
 - 1. Method "A": Before the event begins, event director designates a target time not to exceed 120 seconds. The target time will take into consideration the field and weather conditions. This target time will be used for three official flights and any tie breaking fly offs.
 - 2. Method "B": Before the event begins, event director designates a target time for the first flight. At specified times during the day, target times for the second and third flights will be designated. If fly offs are needed, a new target time will be designated. In no case will the target time exceed 120 seconds; field / weather conditions will be considered.

VI. SIMPLIFIED SCALE Simplified Scale brings together models built from the great old plans and kits of yesterday with the great new plans and kits of today.

VI-1.0 SIMPLIFIED SCALE: BASIC RULES

- A. Wing span: no minimum; no maximum.
- B. Simplified Scale models can be built from any plans or kits, old or new- both are encouraged. Outside of the Primary Rules, there are no construction restrictions. Note however that building from old plans may be rewarding...keep reading!
- C. Model must be presented to the CD prior to first flight for awarding of bonus points as described below. Plans and /or three views are not required to enter Simplified Scale, UNLESS you are attempting to earn 10 extra bonus points for building to an old-time plan. See rule VI-2.0-C (below).
- D. Simplified Scale models may be entered into FAC Scale or TOTF Scale or Mass Launch events if desired, but must meet qualifications required for those events (check appropriate event rules).
- E. Simplified Scale models with 16" or less wingspan may not ALSO be entered into a Dime Scale event at the same contest.
- F. It is the CDs call as to when a 16" or less wingspan model qualifies as a Simplified Scale model or a Dime Scale model. Dime Scale models have restrictions that do not apply to Simplified Scale.

VI-2.0 DESIGN AND CONSTRUCTION

- A. The plan or kit used should build into a recognizable scale model of a full scale airplane of any era, nationality or purpose.
- B. Markings and colors should be appropriate to the era of the aircraft and its purpose, but need not represent any particular actual aircraft.
- C. Kits / plans of any era can be modified structurally. Tail surface area may be increased moderately.
 - 1. Exception: Qualifying for Old Time Plan / Kit 10 EXTRA bonus points:
 - a. Model must be built from old-time kit plans / published plans appearing before December 31, 1949.
 - b. Model must be built per the original plan in ALL RESPECTS, with ONLY these exceptions:
 - 1) Nose may be altered to accommodate thrust bearing and removable nose plug.
 - 2) Prop type and diameter may differ from plan.
 - 3) Rear motor peg may be located anywhere within fuselage or nacelles.
 - 4) Markings do not have to follow the markings shown on the plan.
 - 5) Model and plan must be presented to the CD / judges for review of construction and awarding of extra bonus pts.

DIME SCALE / SIMPLIFIED SCALE BONUS POINTS CHART	
Pts	CRITERIA
0	High Wing Cabin and Shoulder Wing Monoplanes
1	Landing Gear Down and Dirty (INCLUDES Fixed Gear)
2	Compound curved / bubble canopy from clear flat sheet material
3	Parasol
5	Mid-Wing (see Appendix A)
5	Canard or Tandem Wng
10	Low-Wing
10	Float Plane
15	Biplane
15	Triplane*
15	Multiengine*
+10	Old Time Plan / Kit (Xtra Bonus-Simplified Scale ONLY)
*Bonus points are cumulative, up to a max of 15 pts.	

VI-3.0 BONUS POINTS / SCORING

- A. Simplified Scale models are not “scale judged”, per se; judging is strictly pass / fail in accord with the event rules. Models must be reviewed for awarding of Bonus points.
- B. Bonus Points: See “Dime Scale / Simplified Scale Bonus Points” chart, pg.11. **Bonus points are cumulative if model meets multiple criteria.** However, there is a maximum of 15 bonus points for any model.
Exception: Models built from old-time plans meeting the criteria of rule VI-2.0-C are awarded **10 extra bonus points** for up to a **maximum of 25 bonus points.**
- C. Flight score: Total of three flights.
- D. Total Score: bonus points added once to total flight score.

VII. DIME SCALE *Traditional Dimers* are built from plans produced during the “golden age” of modeling; *Pseudo-Dimers* are built from contemporary plans that honor the methods, structural simplicity, and details typical of those early plans.

VII-1.0 DIME SCALE: BASIC RULES

- A. Dime Scale models are to be of simple design and easy construction, such as those built from the old-time 10 cent kits or plans, representing full scale airplanes built prior to December 31, 1949.
- B. Wing span: Up to 16” maximum.
- C. When a Pseudo plan is created, the plan size is limited to one side of one sheet of 11” X 17” paper plus one side of one 8.5” X 11” parts page, with engineering and details in the spirit of the original era.
 - 1. Pseudo Dime plans must appear in a recognized publication such as a local club newsletter, NFFS Journal, FAC Newsletter, etc. to be approved as an Official Dimer for FAC events.
 - 2. Modern manufactured kits created from approved Dime Scale plans will be grandfathered in, even where the plans provided in the kit may exceed the dimensional specs noted above. Example: Easy Built Beech Staggerwing.
- D. Props must be one piece wood or molded plastic.
- E. Model and plan must be presented to the CD prior to first flight for static pass/fail judging and awarding of bonus points.
- F. Approved Dime Scale models may not ALSO be entered into a Simplified Scale event at the same contest.

VII-2.0 DESIGN AND CONSTRUCTION

- A. General construction:
 - 1. Minimum wood size:
 - a. Greater than 14” wingspan: 1/16" thick sheet or square sticks.
 - b. 14" or less wingspan: 1/32" thick sheet and 1/20" square sticks.
 - c. Stiff paper called for on some plans may be replaced by 1/32" sheet or stringers with tissue.
 - 2. Butt joints on plans, and landing gear struts may be reinforced with wire, sheet balsa or 1/32" ply.
 - 3. No use of foam.
 - 4. No vacuum formed /plunge molded parts EXCEPT canopies (see “Dime Scale Points / Criteria” chart, below)
 - 5. Dethermalizers (DTs) are not allowed on Dime Scale Models. Existing DTs must be disabled for competition.
- B. Fuselage:
 - 1. Pseudo Dimers must be engineered with box girder fuselage with formers.
 - 2. The nose on Traditional dimers may be altered to accommodate improved thrust bearings and removable nose plugs.
 - 3. Rear motor peg may be located anywhere within fuselage or nacelles.
- C. Wings and tail feathers:
 - 1. Wings may be one piece, with spars added or moved. One piece stabs and rudders are permitted.
 - 2. Stab and rudder may be reduced or enlarged moderately.
 - 3. No laminated, wet / hot bent square **balsa** strip or otherwise "formed" curved **balsa** tips.
 - 4. Wet / hot bent or “formed” **bamboo** tips are O.K.
 - 5. Sheet wood may be substituted for bamboo tips called for on some traditional dimer plans.
 - 6. No sliced or cracked ribs.
 - 7. No under cambered wings unless shown on original era plan.
- D. Dihedral (Traditional and Pseudo):
 - 1. 1" max per side for models with less than 14" W/S.
 - 2. 1.5" max per side for models with 14" to 16" W/S.
- E. Coverings:
 - 1. Double covering required **unless** original era plan specifically states "single covering."
 - 2. Single covering OK if original era kit supplied just one set of wing insignias or markings.
- F. Any color and markings on an original era plan may be changed to another era-appropriate combination.

VII-3.0 STATIC JUDGING / BONUS POINTS / SCORING

- A. Models will be “judged” solely for fidelity to plan, both in construction and scale detail. If a detail is on the plan, it must be on the model. “Judging” is strictly pass/fail, in accord with the event rules.
- B. Dimers are not held to the standards of scale fidelity or craftsmanship as FAC Scale models. No scale points are awarded.
- C. Bonus points: See “Dime Scale / Simplified Scale Bonus Points” chart below. Bonus Points are **cumulative if model meets multiple criteria.** However, there is a maximum of 15 bonus points per model.
- D. Flight Score: Combined total of 3 official flights.
- E. Total Score: bonus points added once to total flight score.

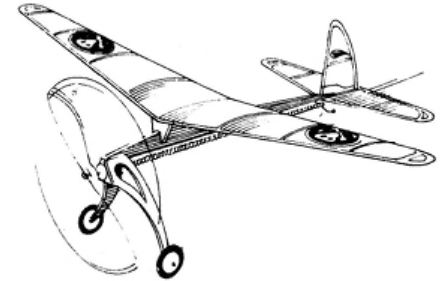
VIII. MISCELLANEOUS TIMED EVENTS

VIII-1.0 NO-CAL PROFILE An event for recognizable profile **Semi-Scale** models.

- A. Design considerations:
 - 1. Wing span: 16 inches maximum.
 - 2. Aircraft with fixed landing gear must have each landing gear represented as per the original subject.
 - 3. All wing struts must be on the model.
 - 4. Motor sticks shall not exceed fuselage length, however, the prop may be positioned at the tip of a scale profile spinner if the real aircraft featured one.
 - 5. Surfaces may be single covered.
 - 6. Canopies and windows may be represented with tissue or paper; clear material is not required
 - 7. Model must be in correct color scheme, and have control outlines, registration numbers, etc.
 - 8. Have proof of scale. Judges decisions are final.
- B. Official flight: 20 second minimum; NO MAX!
- C. Scoring: Total of three flights.

VIII-2.0 PHANTOM FLASH Competition fun with a classic 1930s sport rubber model.

- A. Build as per kit or plan, including landing gear; wheels must turn freely. Color and decorate as you wish!
- B. Wingspan: 16 inches as per plan.
- C. Prop MUST be one-piece molded plastic, but may be scraped, shaved or painted. Prop diameter as per kit or plan.
- D. Minimum weight for standard competition: 5g.
 - 1. At CDs discretion, Phantom Flash “Master Class” events may also be held with no minimum weight requirements. Such events must be advertised in advance. CDs are encouraged in such cases to ALSO run a standard event for newcomers.
 - 2. **“Master Class” models must follow the plan including all material dimensions, and all standard Phantom Flash rules, but may use composite materials such as carbon fiber for additional reinforcement. These materials must be applied to the exterior surfaces of the balsa structure.**
- E. Launch technique:
 - 1. INDOOR: ROG unassisted from floor.
 - 2. OUTDOOR: ROG unassisted from official Embryo table.
- F. Official flight: 20 sec. minimum, 120 sec. MAX
- G. Scoring:
 - 1. Total of best three of six flights.
 - 2. Back-up models are permitted if needed to obtain six flights.
 - 3. May be flown as a mass launch if advertised in advance.



VIII-3.0 EMBRYO ENDURANCE Competition for non-scale FAC endurance type sport models.

- A. Design considerations:
 - 1. Wing Area (WA) is measured off of the flat plan.
 - 2. MONOPLANES not to exceed 50 sq. inches WA.
 - 3. BIPLANES not to exceed 70 sq. inches of WA, with 45 sq. inches WA maximum for the larger wing.
 - 4. Stab area not to exceed 50% of the WA.
 - 5. Any part of any wing that sits on top of or passes (physically or projected) through the fuselage is considered wing area.
 - 6. Fuselage volume to enclose a space 1.25 x 1.50 x 3.00 inches or larger.
 - 7. The wing and tail must be built up and covered on both sides (“double covered”) with Japanese tissue or equivalent.
- B. Wing span: No limits, but refer to wing area rules above.
- C. Landing gear:
 - 1. Landing gear legs must be conventional configuration.
Example: two wheels on a single landing gear leg are prohibited.
 - 2. Wheels must be 3/4 inches or larger in diameter, and must rotate freely on their axles.
- D. Launch technique: unassisted ROG from a three-point stance.
- E. Bonus points: Cumulative; added just once to the total flight points. Maximum bonus points—9
PTS. CRITERIA
 - 1 3-dimensional exhaust pipes
 - 3 3-dimensional wheel pants
 - 5 Open cockpit with windscreen and headrest—OR
 - 5 Full bubble canopy containing head rest and (at a minimum) a pilot's head silhouette—OR
 - 5 Raised cabin with no less than a 30-degree windshield slant, referenced from the bottom of the wing (low wing on bipes).
- F. Flight scoring: Total of three flights
- G. Official flight: Official flight: 20 sec. minimum, 120 sec. MAX
- H. Total Score: Flight score + bonus points.
- I. Embryo Endurance may NOT be combined with any other events.

VII-4.0 BLUE RIDGE SPECIAL A one-design competition for the popular 1970's sport model.

- A. Build as per kit/plan. NO modifications. Surfaces must be covered on both sides with tissue.
 - 1. Wing may be glued to motor stick, if desired.
- B. Prop Assembly as per kit / plan. There are two acceptable assemblies:
 - 1. Original: North Pacific 5.5" prop with hanger
 - 2. Current: SIG 5.5" prop with hanger.
 - 3. No scraping, shaving, painting, or any other modifications to prop. Balancing is permitted by the addition of weight only.
- C. Official flight: 20 sec. minimum, 120 sec. max
 - 1. Max. may be adjusted at CD's discretion.
- D. Scoring:
 - 1. Total of three official flights.
 - 2. Back-up models are permitted, if needed to obtain three flights.
 - 3. Fly-off per FAC rules (CD's Discretion).
 - 4. Event may be flown as a mass launch if advertised in advance.

VIII-5.0 JET CATAPULT For semi-scale glider models of any full-size man carrying jet or rocket propelled aircraft.

- A. Profile fuselages are permitted. **Models must closely resemble the full-scale aircraft with respect to outline and proportions.**
- B. Canopies and windows may be represented with tissue, paper or paint; clear material is not required.
- C. Undercambered airfoils are permitted.
- D. Wing span: No limits.
- E. Launch technique: Stretched rubber catapult.
 - 1. Catapult dowel may be of any diameter.
 - 2. Dowel may not exceed six inches in length.
 - 3. Rubber not to exceed 1/2" total cross section. Example: Two strands of 1/4" or four strands of 1/8".
 - 4. Finished rubber loops may not exceed nine inches.
- F. Scale points:
 - 1. Coloring and markings 0 - 8 points
 - 2. Details 0 - 8 points
 - 3. Workmanship 0 - 4 points
- G. Bonus points: Cumulative; added just once to the total flight points.

<u>POINTS</u>	<u>CRITERIA</u>
5	Flying wing or Canard
1	Each scale engine, pod or tank in profile not contained within the contours of the airframe.
- H. Official flight: No minimum, no maximum.
- I. Flight scoring: Total, best 3 of 6 flights.
- J. TOTAL SCORE = Scale points + bonus points + Flight Points.

VIII-6.0 GHQ PEANUT A unique scoring system promotes competition between highly-detailed models (presumably heavier and less flight-worthy) and less detailed models (presumably lighter and more flight worthy).

- A. Open to any Scale model of not more than 13 inches wingspan.
- B. Planes with retractable gear may be built with the gear represented in the up position with no penalty.
- C. Proof of scale documentation must be presented for scale points.
- D. Scoring:
 - 5. **Flight Score:** Total of three official flights. NO MAX TIME!
 - 6. **Scale Judging Points:** Total of the following:
 - a. COLOR—Reasonable effort to use tissue and /or paint to simulate realistic coloring: **up to 3 points**
 - b. MARKINGS— Civil registration, striping, insignias, serial numbers, squadron markings, etc: **up to 3 points**
 - c. DETAILS—Struts, cowls, cylinders, pilots, rigging, armament, steps, windshields, exhausts, control surface outlines and other outstanding details:

STARK:	<u>-3 points</u>
LAX:	<u>0 points</u>
GOOD:	<u>3 points</u>
GREAT:	<u>6 points</u>
 - 7. **Scale Score:** *Scale Judging Points* multiplied by the first two digits of the best GHQ Peanut flight score of the day—the *Event Multiplier*. Example: If the best three flight total is 279 seconds, *everyone's* scale judged point total is multiplied by "27." If only 2 digits comprise the top score (i.e. 97 seconds) then only the first digit will be used as the multiplier and everyone's scale judged point total will be multiplied by "9".
- E. TOTAL SCORE = Flight score + (Scale Judging Points x Event Multiplier). Highest total score wins.
- F. Tiebreaker: Single fly-off, timed. Highest time establishes the *Event Multiplier*. Multiply flight times by 3 to arrive at the *Flight Score*. Using the *Scale Judged Points* awarded earlier, proceed as in "D. Scoring" above to determine the Total Score for each tiebreaker contestant.

VIII-7.0 FICTION FLYER For models of fictional aircraft as depicted by original artwork on covers and in stories of published fiction magazines or books such as Flying Aces, as well as in children’s books and fantasy novels. Scale airplanes used in fiction stories are not eligible (Example: the Grumman Skyrocket used in Blackhawk comics).

- A. Fiction Flyer models may not compete in any other FAC events.
- B. Wingspan limit: Single engine: 22” Multi-engine: 25”
- C. Minimum documentation shall be a published illustration of the aircraft. Color and markings may be changed, but should reflect the era and spirit of the original illustration. Contestants are encouraged to flesh out their source documentation with “scale docs” of their own creation, especially where this contributes to the judging of “Construction and Detail” scores.
- D. All scoring (Scale, Bonus Points, Flight Points, Total Score) as per **FAC Rubber Scale** (See pgs. 5-7 sections III-1.1 to III-1.4).
 - 1. Scale points: Pertinent scale details typically found on real aircraft must be included, such as exhaust stacks, landing gear outlines, etc. even if these details are not obvious in the reference artwork.

VIII 8.0 SCALE GLIDER A Scale-Judged event for models of full-size, man-carrying, unpowered gliders.

III-5.1 BASIC RULES

- A. Maximum 36” projected wingspan.
- B. Full fuselage cross-section required
- C. Two position auto-rudders are allowed.
- D. Flying wing type gliders may use an auxiliary rudder for towing only.

III-5.2 LAUNCH PROCESS Flyers may choose **Hi Start** or **Towline Reel** for launch, and may mix methods within the same event.

A. Hi Start

- 1. Hi Start flyers must use the same line, to be supplied and / or approved by the CD.
- 2. Hi Start line to be 25g of 1/16” rubber—approx. 25’ long—joined to a length of lightweight, high visibility line up to 125’ long. Day-Glo braided fly-fishing backing line is recommended.
- 3. Free end of the rubber attaches to the top of a well marked, 3’ to 4’ tall fixed post / pylon.
- 4. Aircraft end of the Hi Start line must include a lightweight, high visibility resistance / time start flag of approx. 20 sq. in, attached no more than 2’ below the model attachment ring..

B. Towline Reel

- 1. Towline fliers may use their own reels, or share.
- 2. Towline Reel line length shall not exceed 164’ (50 meters) of lightweight, high-visibility line.
- 3. Aircraft end of the tow line must include a lightweight, high visibility resistance / time start flag of approx. 20 sq. in, attached no more than 2’ below the model attachment ring..
- 4. Pilot must fly their model from a more or less fixed position, by reeling line in. No walking about or running.

III-5.3 SCALE POINTS As per FAC Rubber Powered Scale. (See pgs. 5-6, Sec. III-1.1)

III-5.4 BONUS POINTS - See chart at right

III-5.5 FLIGHT POINTS Total of best 3 of 6 official flights. No factoring.

- A. Minimum official flight - 20 sec. Max flight - 120 sec.
 - 1. Contestants have an unlimited number of attempts to achieve 6 official flights.
 - 2. Flights of less than 20 seconds duration may be declared official at the contestant’s option. This decision must be made immediately after the flight and cannot be changed.
 - 3. Timing starts when line detaches from the model and the flag drops.
 - 4. Attempt is canceled if the towline fails or is interfered with by another model / modeler.
- B. Six official flights allowed for a given model. Changing launch method mid-stream does not reset the total count of official flights

III-5.6 TOTAL SCORE = Scale Points + Bonus points + Flight Points

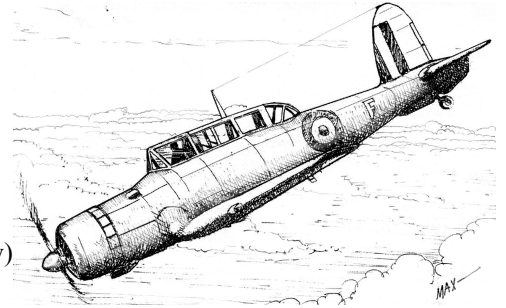
FAC Scale Gliders BP chart	
0	High Wing Cabin and Shoulder Wing Monoplanes
3	Parasol Wing
5	Mid-Wing
5	Canard or Tandem Wing
10	Low Wing
15	Biplane or Sesquiplane
+5	Each additional wing >2
10	Seaplane with multiple floats of proportional scale dimensions
10	Unorthodox design (i.e. flying wing)
3	Exposed landing gear / skis with struts. Center mounted skids / embedded wheels not eligible.
5	Fully exposed (head-to-toe) 3D pilots
2	Fully exposed (head to toe) 2D pilot

IX. TIE BREAKING (All Timed Events)

Tie breaking rules should be published in advance based on field size and history; however, the process may be changed at the CD's discretion due to changing weather and field conditions. Contestants must assist the CD in bringing ties to his attention. Fly off timing slips **MUST** be marked "FLY-OFF" to assist the score keepers. CD may post a deadline for turning in fly off times.

IX-1.0 TIE BREAKING - METHOD BY EVENT

- A. FAC PIONEER SCALE, FAC POWER SCALE
 1. The model with the highest scale points (exclusive of bonus points) wins.
 2. If scale points are identical, highest flight time determines the winner.
 3. When scale points and flight times are the same, multiple awards will be given.
- B. TOTF NON-SCALE
 1. Methods 1, 2, 3 or 4 (see XI-1.3 "Tie Breaking Methods" below).
- C. PHANTOM FLASH
 1. INDOOR: Single fly off, ROG from floor.
 2. OUTDOOR: Single fly off, hand launch
- D. GHQ-PEANUT: see GHQ Peanut event rule "F".
- E. ALL OTHER EVENTS: Methods 1 or 2 (see XI-1.3 Tie Breaking Methods below)



IX-1.1 TIE BREAKING METHODS

- A. METHOD 1: Single Fly-Off
 1. Single fly-off as per normal event rules. If applicable, scale points and /or bonus points are added.
 2. If still tied, a second fly-off flight may be made or multiple awards may be awarded.
- B. METHOD 2: Target Time
 1. A "target time" will be announced; closest to the target time wins.
 2. If still tied, a second target time may be announced or multiple awards may be awarded.
- C. METHOD 3: Multi-Round Fly-Off. (Suggested where a regular FAC Max of 120 seconds does not send the models off the field.)
 1. Fly-offs will be flown until a tied model fails to achieve a regular Max; that flight then becomes the final tie breaking time for that model. All other tied models will continue until they also fail to Max.
 2. If after three fly-off flights have been made a tie remains, multiple awards will be given.
- D. METHOD #4: Auto Fly-Off (Suggested for larger sites and contests)
 1. The CD may at his discretion limit the events qualifying for AUTO FLY-OFF.
 2. When TWO OR MORE models achieve three regular FAC Maxes they automatically qualify for a fly-off. There is no need to check with the CD.
 3. Max flight time adjustments are adjusted upwards, as follows:
 - a. First fly-off: 135 seconds. (150 secs. for very largest sites.)
 - b. Second fly-off: 150 seconds. (180 secs. for very largest sites.)
 - c. Third fly-off: 165 seconds. (210 secs. for very largest sites.)
 4. Fly-off flights:
 - a. First fly-off flight should be made ASAP after qualifying.
 - b. With each max fly-off flight, the next fly-off flight should be made ASAP.
 - c. If a tie remains after three fly-off flights, multiple awards will be presented.
 5. Fly-off Timing Slips:
 - a. **MUST** be clearly marked "FLY-OFF".
 - b. **MUST** include the flight sequence number. Flight seq. number **MUST** be circled on the timing slip.
 - 1) The first fly-off flight is event flight # 4; the second fly-off is #5; the third fly-off is #6
 - c. **MUST** be turned in immediately after the flight for all to process.
 - d. **MUST** be in proper sequence.
 - e. **MUST** be turned in before the official close of the contest to be valid.

X. MASS LAUNCH EVENTS

X-1.0 COMMON MASS LAUNCH MODEL RULES

- A. Mass Launch models must meet the standards of scale outlined in the Pilot's Pre-Launch Checklist (PPLC). (See Appendix F)
- B. Construction:
 1. Non-scale airfoils may be used.
 2. Under cambered airfoil permitted if original had such.
 3. Dihedral may be increased in compliance with the Pilot's Pre-Launch Checklist (PPLC).
- C. Only one model may be entered into any mass launch event.

- D. With the command to “start winding”, tying, gluing or replacing broken motors is PROHIBITED.
- E. With the command to “start winding”, absolutely NO repairs to the model of any sort are permitted.
- F. Ballast / shims may be added / moved once the rounds start; test flights, glided or powered, after such an adjustment are prohibited.
- G. At the CDs discretion:
 - 1. Minor rule modifications (“ground rules”) may be implemented to fit local conditions.
 - 2. Any mass launch event may require one or more qualifying flights. The CD will determine in advance how many models will qualify for the finals using total flight scores of those qualifying flights.
 - 3. The C.D. may set a maximum time limit between rounds, which includes time for winding, and time for retrieval.
- H. Number of rounds to be flown where there are:
 - 1. Three contestants: Two (2) rounds must be flown.
 - 2. Four or more: A minimum of three (3) rounds must be flown.

CONTEST DIRECTORS: Please consider the weather and the contestants’ well-being when setting conditions of events.

X-2.0 THOMPSON TROPHY, GREVE, and NATIONAL AIR RACES (NAR) Mass Launch

The FAC groups Racers into three categories as shown below. Although not historically correct this suits our purpose for the flying of scale race plane models.

- A. The Thompson Trophy Event: civil aircraft powered by radial engines designed and built for closed course / pylon races held from 1929 through 1939. Excludes high-wing and parasol aircraft. See Appendix G, “Thompson Trophy Race Plane List” for eligibility.
- B. The Greve Event: civil aircraft powered by non-radial engines, designed and built for closed-course / pylon races held from 1929 through 1939. Excludes high-wing and parasol aircraft. See Appendix H, “Greve Race Plane List” for eligibility.
- C. The NAR Event: civil, military or production aircraft of any configuration, entered in or appeared in any domestic point-to-point or closed course / pylon races held from 1920 to 1939. Racers that do not appear on the Greve / Thompson lists are eligible for the NAR. Proof of eligibility for the NAR is up to the modeler.
- D. Maximum wing span for Thompson, Greve and NAR racers is 24 inches.
- E. At the CD’s discretion, the Thompson / Greve / NAR events may be combined. However, given the perceived advantage of high-wing aircraft, CDs are encouraged to try to maintain the separation between NAR and other race events.

X-3.0 GOODYEAR / FORMULA Mass Launch Aircraft designed and built for Goodyear / F-1 / F-Vee / Biplane races.

- A. Maximum wingspan: 13 inches

X-4.0 WWI and WWII COMBAT Mass Launch

- A. **WWI:** For multi-wing aircraft that experienced combat during the WWI years 1914 through 1918.
 - 1. At the CD’s discretion, monoplanes may compete when publicized in advance.
- B. **WWII:** For aircraft that experienced combat during the WWII years 1939 through 1945.
- C. **“Combat” means engagement with the enemy, in armed aircraft that were purpose built to fight and return to fight another day. Remote controlled flying bombs, “one-way suicide rockets”, liaison aircraft, target tow aircraft and the like are not eligible.**
- D. **Models should show colors / markings of a specific combat aircraft, or be in markings typical of combat aircraft of the time.**
- E. No wing span restrictions in either WWI or WWII.
- F. High wing cabin and parasol types are excluded in both classes.

XI. B.L.U.R. EVENT (Bee Line Unlimited Race)

Competition for rubber powered scale race planes to complete a defined race course consistently faster than the competition.

XI-1.0 BASIC RULES

- A. Aircraft eligibility:
 - 1. Any racer, any genre, any nationality.
 - 2. Models must meet the standards of the PPLC (See Appendix F). Be prepared with documentation.
- B. Wings:
 - 1. Minimum span shall be 13 inches. Maximum span shall be 36 inches.
 - 2. Wings must be balsa, built up to a scale appearance. Scale appearing sheet balsa wings are permitted.
- C. Launch technique: Hand launch.
 - 1. The contestant may not step on or over the starting line.
 - 2. Model must exhibit sustained powered flight.
- D. Official “successful” flight: The model must fly over the finish line between the finish line pylons to complete the course.

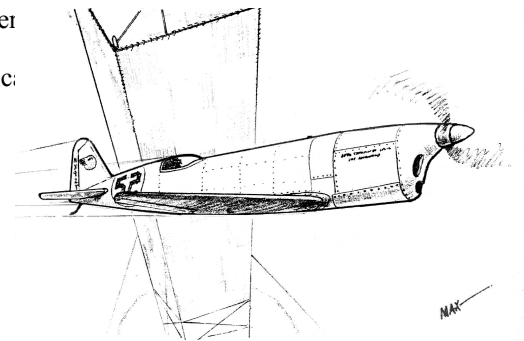
- E. Course Layout (See Appendix E: BLUR Race Course Layout). Course adjustments allowed at CD's discretion.
- F. Miscellaneous:
 - 1. Models may be repaired between heats, AND
 - 2. ...between heats, motors may be changed or modified, as well as rear peg location, BUT...
 - 3. ...with the command to "start winding", absolutely NO further repairs to the model are permitted of any sort, including gluing, tying or changing motors, and you MUST BE PRESENT FOR LAUNCH WHEN CALLED. Failure to present for launch will result in a zero score for that round.
 - 4. Trim adjustments may be made after any flight; however, no test flights are permitted.
- G. Safety Considerations:
As the BLUR event is intended to be viewed by hordes of spectators, safety issues must be kept in mind by all participants and spectators. The heat / starting line judge shall be the lead CD of the event, and has final say on all matters. If at any time the CD determines that a particular model is a hazard of any type, the model will be disqualified from further competition.

XI-2.0. HEAT STRUCTURE: THE FIBONACCI FORMULA (See Appendix D: Fibonacci Formula)

- A. Each pilot is assigned a number, in accord with the sign-up sheet.
- B. Number of racers per heat: Three.
- C. The total number of heats is based upon the number of pilots signed up for the race.
- D. When more than ten sign-up, the formula may be expanded.

XI-3.0 SCORING (See Appendix C: BLUR Race Scoring Chart)

- A. The flyer with the most cumulative points at the end of all the heats is the winner
- B. Tie breaking:
 - 1. The names of all pilots locked in a tie will be placed on a list in alphabetic;
 - 2. That list will create a new number for each pilot.
 - 3. A new Fibonacci Formula will be created, and the tie breaking heats will start.



XII. REPORTING CONTEST RESULTS

- A. Contest reports must be made using the official "FAC Kanone Report Form", available here:
 - 1. JAN / FEB. 2012 FLYING ACES CLUB NEWS, ISSUE # 263.
 - 2. "Forms" page of the FAC website: www.flyingacesclub.com/FACforms.html
- B. Results must be reported within 30 days of the contest. NO EXCEPTIONS---NO EXCUSES!
- C. When reporting "Mass Launch Events," list total number of contestants in the event and the total number of "heats" flown. NOTE WELL! Refer to Sec. VI, Common Mass Launch Rule 1.0-H. A single heat does NOT qualify for a Kanone!
- D. Send contest results via mail or email to:

GEORGE BREDEHOFT
 FAC Keeper of Kanones
 7686 B Drive South
 Battle Creek, MI 49014
kanonereports@gmail.com



Please print clearly. Do not change the form in any way.

E-mail reports are acceptable, under the following conditions:

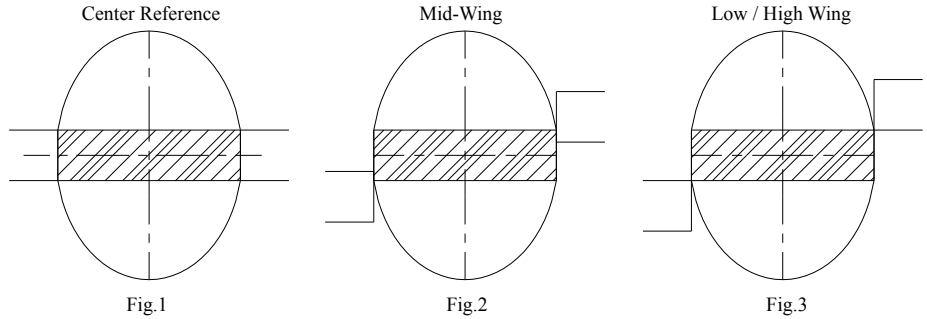
- a) You may photograph the Kanone Report pages; these MUST be high resolution and legible;
- b) You may scan the Kanone Report pages; these MUST be high resolution and legible;
- c) You may type the information—all of it!—into a Word .doc or Excel spreadsheet.

XIII. APPENDICES

APPENDIX A: DETERMINING MID-WING STATUS

To be used as a guide where common sense fails. Judge's decisions are final.

1. Establish a horizontal center datum line through the fuselage, using a three view of the actual aircraft. Include the canopy if one exists as part of the front view silhouette.
2. Center the scale wing root rib thickness on this center datum line. The top and bottom of the root rib in this position establishes the upper and lower vertical limits of the mid-wing "range" (Fig. 1).
3. If the bottom or the top of the wing falls within this zone, it's a mid-wing (Fig 2).
4. If the bottom of the wing falls on or above the top reference line, it's a high or shoulder-wing (Fig.3).
5. If the top of the wing falls on or below the bottom reference line, it's a low-wing (Fig. 3)



Appendix B: FAC SCALE FACTORING CHARTS

TRADITIONAL					
secs	pts	secs	pts	secs	pts
60	60	80	70	100	77.5
61	60.5	81	70.5	101	77.75
62	61	82	71	102	78
63	61.5	83	71.5	103	78.25
64	62	84	72	104	78.5
65	62.5	85	72.5	105	78.75
66	63	86	73	106	79
67	63.5	87	73.5	107	79.25
68	64	88	74	108	79.5
69	64.5	89	74.5	109	79.75
70	65	90	75	110	80
71	65.5	91	75.25	111	80.25
72	66	92	75.5	112	80.5
73	66.5	93	75.75	113	80.75
74	67	94	76	114	81
75	67.5	95	76.25	115	81.25
76	68	96	76.5	116	81.5
77	68.5	97	76.75	117	81.75
78	69	98	77	118	82
79	69.5	99	77.25	119	82.25
				120	82.5 MAX

INVERTED									
secs	pts	secs	pts	secs	pts	secs	pts	secs	pts
20	5	40	10	60	19	80	32	100	52
21	5.25	41	10.25	61	19.5	81	33	101	53
22	5.5	42	10.5	62	20	82	34	102	54
23	5.75	43	10.75	63	20.5	83	35	103	55
24	6	44	11	64	21	84	36	104	56
25	6.25	45	11.5	65	21.5	85	37	105	57
26	6.5	46	12	66	22	86	38	106	58
27	6.75	47	12.5	67	22.5	87	39	107	59
28	7	48	13	68	23	88	40	108	60
29	7.25	49	13.5	69	23.5	89	41	109	61
30	7.5	50	14	70	24	90	42	110	62
31	7.75	51	14.5	71	24.5	91	43	111	63
32	8	52	15	72	25	92	44	112	64
33	8.25	53	15.5	73	25.5	93	45	113	65
34	8.5	54	16	74	26	94	46	114	66
35	8.75	55	16.5	75	27	95	47	115	67
35	9	56	17	76	28	96	48	116	68
37	9.25	57	17.5	77	29	97	49	117	69
38	9.5	58	18	78	30	98	50	118	70
39	9.75	59	18.5	79	31	99	51	119	71
								120	72 MAX

APPENDIX C: BLUR RACE SCORING CHART

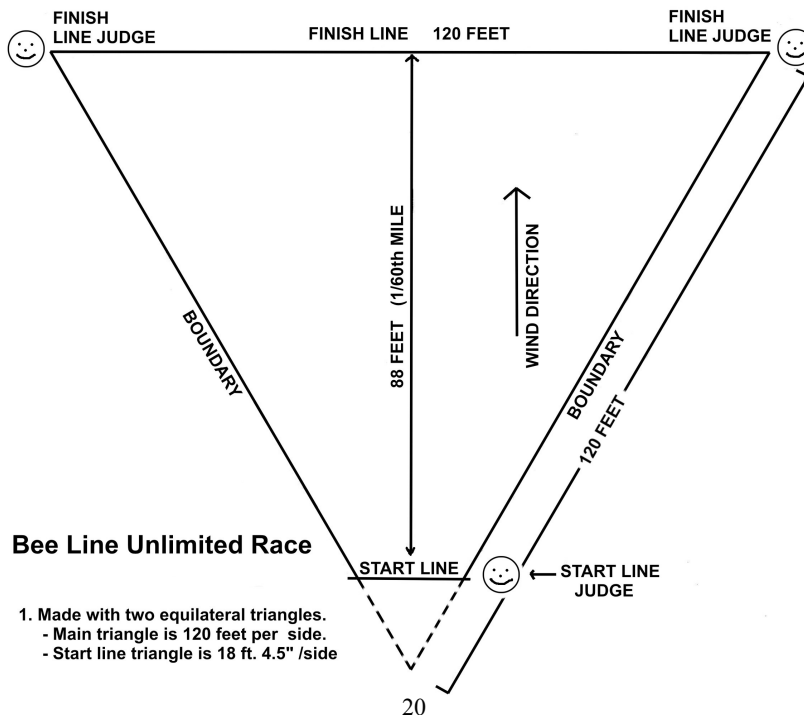
Status	Points	Comments
Finish 1st	2	Continue to next scheduled heat.
Finish 2nd or 3rd	1	Continue to next scheduled heat.
Dork	0	Landing on course before crossing finish line. Continue to next scheduled heat.
Rules violation / DNF (Did Not Finish)	0	Late arrival, cross start line, etc. = DNF. Continue to next scheduled heat.
Drop Out	0	Heat slot remains empty; Fibonacci Formula rotation remains intact.

APPENDIX D: FIBONACCI FORMULA (BLUR RACE)

When more than ten contestants sign up, formula can be expanded as needed.

Number of Pilots	4	5	6	7	8	9	10	etc.
1st heat group	1-2-3	1-3-5	1-3-6	1-3-7	1-3-8	1-3-9	1-3-10	
2nd heat group	2-3-4	2-4-1	2-4-1	2-4-1	2-4-1	2-4-1	2-4-1	
3rd heat group	3-4-1	3-5-2	3-5-2	3-5-2	3-5-2	3-5-2	3-5-2	
etc.	4-1-2	4-1-3	4-6-3	4-6-3	4-6-3	4-6-3	4-6-3	
		5-2-4	5-1-4	5-7-4	5-7-4	5-7-4	5-7-4	
			6-2-5	6-1-5	6-8-5	6-8-5	6-8-5	
				7-2-6	7-1-6	7-9-6	7-9-6	
					8-2-7	8-1-7	8-10-7	
						9-2-8	9-1-8	
							10-2-9	2

APPENDIX E: BLUR RACE COURSE LAYOUT



APPENDIX F: PILOT'S PRE-LAUNCH CHECKLIST (PPLC)

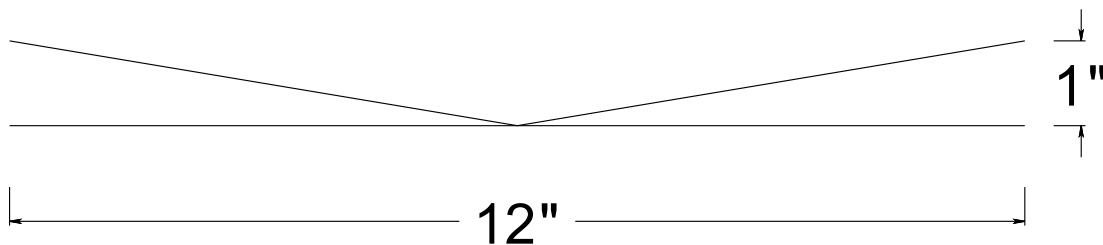
For MASS LAUNCH and TOTF SCALE Events

FAC Mass Launch and TOTF (Total of Three Flight) Scale events are designed for maximum fun with scale models. These models do NOT need to be museum pieces, but fliers should remember that they are SCALE models in the stick and tissue tradition of the Flying Aces Club, and must meet the standards outlined below.

Be prepared with documentation to avoid being DQ'd after the event in case of questions.

ALL MASS-LAUNCH & TOTF MODELS MUST HAVE THE FOLLOWING:

- ___ National insignia and side / wing registration letters / numbers appropriate to the era, event or conflict.
- ___ Colors appropriate to the era, event or conflict.
- ___ All principal load / stress bearing struts and wires, exclusive of control horns and control wires.
- ___ Control surfaces outlined.
- ___ Scale landing gear, or if retracted, gear panel outlined
- ___ If radial engine, at least a paper engine if visible from the front.
- ___ 3-D exhausts, if they protrude above the skin of the original aircraft.
- ___ Cowl bumps if applicable.
- ___ Wing fillets if they are shown on the three view. May be small, flat triangular pieces when fillet amounts to a small, mostly flat fairing used only to blend the trailing edge of the wing into the fuselage.
- ___ Approximate scale outlines, allowing for modifications as specified in FAC rules (e.g. enlarged stab). Side stringers required to represent approximate scale cross sections on oval fuselages.
- ___ Military combat aircraft: all visible gun troughs and forward-firing guns must be 3-D; non-protruding gun ports must be appropriately marked.
- ___ **Dihedral:** a maximum of 1" per tip per foot of wingspan **or**, in the case of low wingers, no higher than the bottom of the canopy-**whichever is higher**. See graphic below. Models built from kits may be built to plan even if the specified dihedral exceeds these standards. In such cases—bring your plans!



APPENDIX G: OFFICIAL FAC THOMPSON TROPHY RACE PLANE LIST

AIRPLANE	ENGINE	RACE #	REGISTRY	YEAR
Allenbaugh Model A	Salmson AD9	66	R256Y	1934
Buchanan Zipper			R12239	1935
Carpenter Special	Salmson AD9	9		1934
Carr Special	Warner Scarab	66	12844	1936
Cessna GC-2	Warner	44	NR404W	1930
Cessna CR-2 & CR-2A	Warner	34,35,37	NR11717	1932
Cessna CR-3	Warner	27	NR57Y	1933
Flagg, L.A.D. Flaggship	Pobjoy Niagara		R89Y	1937
Flagg, L.A.D. F-15	Pobjoy	19	NX89Y	1938
Frank Hawk's "Time Flies"	P&W		NR1313	1936
Gee Bee E	Warner	52	NC46V	1932
Gee Bee E	Warner & Lambert		NC72V	1932
Gee Bee E	Warner		NC656Y (NC856Y?)	1932
Gee Bee E	Warner		NC11041	1932
Gee Bee E	Warner		NC11044	1932
Gee Bee Z	P&W	4	NR77V	1931
Gee Bee R-1	P&W	11	NR2100	1932
Gee Bee R-2	P&W	7	NR2101	1932
Gee Bee Y	P&W	54	NR11049 (X11049)	1931
Gee Bee Y	Lycoming & Wright	7	NR718Y	1932
Gee Bee R-1 / R-2 hybrid	P&W	7	NR2101	1933
Gee Bee QED	P&W	77, 46	NX14307	1936
Granville "Mickey Mouse"	Warner		694N	1932
Haines H-2	Warner		14518	1936
Hughes H-1 (short wing)	P&W		NR258Y	1935
Kadiak Speedster	Velie	11	NR111312	1932
Keith-Rider R-3 (Marcoux-Bromberg)	P&W	4,3,2	NX14215	1937
Laird LC-DE Speedwing Jr.	Warner	17,171	NR10422	1931
Laird LC-DW Solution	P&W	77, 46	NR10538	1930
Laird LC-DW Super Solution	P&W	400	NR12048	1932
Linberg Special	Warner		NX479W	1938
Loose Special	Loose	27	NR10545	1933
Loose Special	Loose	11	R13686	1935
Military Aircraft Corp. HM-1	P&W	41	NX2491	1938
Nicholas-Beazley Phantom I	Pobjoy	23,111	R1W	1930
Rowinski TM-1 Miss Milwaukee	Wright	36	R12094	1932
Rowinski	Continental	10	NR12992	1933
Rasmussin Skippy	Rasmussin 5 cyl.	10	NR13518	1934
Reece Rocket	LeBlond		NR12028	1931
Simplex	Wright	71	NR43M	1932
Travel Air Mystery (D. Davis)	Wright	31	R614K	1929
Travel Air Mystery (Haizlip)	Wright	26,35	NR482N	1930
Travel Air Mystery (Hawks)	Wright	13	NR1313	1930
Turner-Laird Pesco Spec., Meteor, etc.	P&W	29	R263Y	1937
Wedell-Williams We Winc	Wright	92	NR536V	1931
Wedell-Williams (Wedell)	P&W	44	NR278V	1931
Wedell-Williams (Turner)	P&W	121,57,2,25	NR61Y	1932
Wedell-Williams (Haizlip)	P&W	92	NR536V	1932
Wedell-Williams 45	P&W	45	NR62Y	1934

Compiled by Dave Stott (revised Jan. 2019)

Some of the aircraft listed were powered by different engines at different times. Some competed under more than one race number. From year to year, color schemes were sometimes changed. The year listed is when the ship first appeared. There are no known drawings for some of them. Research is up to the modeler. All were designed expressly for racing. They are all radial engine powered. If you don't see it here, it probably does not qualify for the FAC Thompson mass launch event. If you have an aircraft that you think SHOULD qualify but is not on the list, make your case to the FAC CinC. Racing aircraft not on this or the Greve List likely qualify for the FAC NAR mass launch event.

APPENDIX H: OFFICIAL FAC GREVE RACE PLANE LIST

AIRPLANE	ENGINE	REGIST.	RACE #	YEAR
Alden Brown	Menasco	NR71Y	203	1932
Allenbaugh	Menasco	R256Y	66	1936
Armitage	Sturdevant		50	1938
Ambrosini Special	Heath Henderson	13563		1935
Brown B-1 (Bushey)	Menasco	NR83Y	8	1934
Brown B-2 Miss Los	Menasco	NR255Y	33	1934
Buchanan Zipper	Miller Straight	R12239	84	1937
Bushey-McGrew Special	Menasco	NX98Y	17	1938
Butz Special	Cirrus	R12040	8	1930
Burrows R-5	Martin 333	NR214Y		1934
Burrows R-6	Miller 4	NR214Y		1935
Caudron C-460	Renault		100	1936
Carr Special	OX-5 or Hisso	NR12844	36	1932
Cessna GC-1	Cirrus	NR144V	89	1930
Chileen-Fitten	Church	12936		1933
Chambers Chambermaid	Menasco	NX95Y	21	1938
Church Special	Church	NR12050	100	1930
Commandair Little Rocket	Cirrus	10403	45	1930
Curtiss Wright Bunting	Aeronca Twin	259Y		1935
Chester Jeep	Menasco	NR12930	15,2,3,5	1932
Chester Goon	Menasco	NX93Y	5	1938
Crosby CR-3	Menasco	R260Y	52	1936
Crosby CR-4	Menasco	NX92Y	52	1937
Delgado Maid	Curtiss	NR65Y	6,17	1935
Delgado Flash	Menasco	R68Y	9,49	1934
Dugan Gill	Church J3	4AIL	2	1934
Folkerts SK-1	Cirrus	NR500W	12,4,21	1933
Folkerts SK-2	Menasco	R283Y	1,11	1936
Folkerts SK-3	Menasco	R14899	301	1937
Folkerts SK-4	Menasco	NX288Y	15	1938
Floyd Bean Special	Menasco	NX97Y	22	1938
Gee Bee X	Cirrus	NR49V		1930
Gee Bee D	Menasco	NC11043	53	1931
Gee Bee D	Menasco	NC855Y		1931
Gee Bee D	Menasco	NC854Y		1931
Graham-Perrin	Wright Gypsy	13620		1930
Haines H-3	Menasco	R91Y	88	1937
Hansen Baby Bullet	Wright	N11351		1931
Hansen Baby Bullet	Continental A-40	NR282W	44,46	1932
Hansen Baby Bullet	Continental A-40	N84Y	14	1934
Heath Cannon Ball	Heath, Menasco	10372	3,74	1930
Heath Cannon Ball	Martin 333	10372	102,9	1931
Heath 115 Special	Continental A-40	NR12882	3,44	1932
Heath Baby Bullet	Continental A-40	NR282W	18,4	1933
Heath Baby Bullet mono-wheel	Continental A-40	R6784	50	1932
Hosler Fury	Curtiss	NX14Y		1938
Howard Pete	Wright Gypsy	NR27	37	1931
Howard Ike	Menasco	NR56Y	39	1932
Howard Mike	Menasco	NR55Y	7,38	1932
Hunt Special	Cirrus	NR10421	7,16	1930
Israel Redhead	Menasco	NR111V	97	1933

Compiled by Dave Stott (revised Jan. 2019)

The aircraft listed here were powered by engines other than radials, some by different engines at different times. Some competed under more than one race number. From year to year, color schemes and registry numbers were sometimes changed. The year listed is when the ship FIRST appeared. There are no known drawings for some of them; research is up to the modeler. Some actually did race in the Greve. All were designed expressly for racing. If you don't see it here, it probably does not qualify for the FAC Greve mass launch event. If you have an aircraft that you think SHOULD qualify but is not on the list, make your case to the FAC CinC. Racing aircraft not on this or the Thompson Trophy list will likely qualify for the FAC NAR mass launch event.

AIRPLANE	ENGINE	REGIST	RACE #	YEAR
Jamieson Speedwing	Curtiss Conqueror			1933
Kamm Airdale	Globe Ford			1932
Keith-Rider B-1	Menasco	NR10216	123	1930
Keith-Rider R-1 San Francisco I	Menasco	R51Y	131	1931
Keith-Rider R-2 San Francisco II	Menasco	R52Y	132	1931
Keith-Rider R-3 Firecracker	Menasco	NR261Y	70	1936
Keith-Rider R-5 Elmendorf	Menasco	NX264Y	22	1936
Keith-Rider R-6 Eightball	Menasco	NX96Y	8,18	1938
Laird LC-DE	Cirrus, Menasco	R10422	5,74,44	1930
Laird LC-DE	Ranger,	NR10537	105,1	1930
Loose Special	Lambert Twin	10545	47, 64	1931
Mummert Mercury S-1	Cirrus	13223	23	1931
Miles and Atwood Special	Menasco	NR225Y	6,1,4,44	1932
Neuman	Continental A-40	R11331		1932
Newhall DLX	Menasco		64	1936
Pacific Engineering Special	Cirrus	R10358	7	1930
Parker Winged Bullet	Cirrus	NR860W		
Pearson Williams Mr. Smoothie	Curtiss Conqueror	NX94Y	11	1938
Rasmussin Skippy	Rasmussin 4 cyl.	NR13518		1933
Robbins	Hisso	NR11987		1934
Rowinski TM-1	Tank	12094	36	1932
Tilbury and Fundy Flash	Church	12931	7,21,71	1932
Travel Air Mystery	Chevroilair	R613K	32	1930
Wedell Williams We Will	Hisso	NR278V	91	1930
Wedell Williams We Will Jr.	Cirrus	NR10337	17,19	1930
Wedell Williams We Will Jr.	Cirrus	NR60Y		1930
Wedell Williams We Will Jr.	Menasco	NR60Y	54,22	1933
Wedell Williams Model 22 (Delgado fuselage)	Menasco	NR64Y	22	1936
Wittman Chief Oshkosh	Cirrus	12047	8,21,66,101,1	1931
Wittman Chief Oshkosh	Menasco	R14855	2,111	1936
Wittman Bonzo	Curtiss Conqueror	NR13688	101,6,2,4	1934