NATIONAL FREE FLIGHT SOCIETY

OFFICIAL COMPETITION RULES

2011 – 2012 EDITION

NATIONAL FREE FLIGHT SOCIETY

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Notice

This Rulebook contains the most current NFFS Competition Rules and supercedes previous editions. Copies of the Rulebook and the Nostalgia Eligible Designs List may be purchased from the NFFS Publications Service or may be printed from the NFFS Web site http://freeflight.org. Construction plans for the eligible designs may be purchased from the NFFS Plans Service (see contact addresses above).

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1 INTRODUCTION

The intent of the NFFS Nostalgia Gas and Rubber movement and it's Rules is to perpetuate interest in free-flight power and rubber designs of the January 1,1943 to December 31, 1956 period, using engines of the period in the gas events. The Society also promotes flying of towline glider models in the Classic Open Towline Glider event, Vintage FAI Power, and Super D, a large power event. All of these are intended to be more casual events than the AMA and FAI formal events for enjoyment of those competing with designs of the respective eras. Consequently, no national records will be maintained.

Current AMA free flight and general rules apply to all NFFS events and competitions unless specifically modified by the NFFS Competition Rules presented in the remainder of this document.

2 THE USNC / USOC CHAMPIONSHIPS

2.1 Points

The NFFS will normally conduct the competitions for determining individual national Champions as part of the annual U.S. Outdoor Championships (USOC) in Muncie, Indiana. Points earned by competitors in the respective category events will determine the individual Champions. Organizers will use the approved Points Table (Appendix B USOC National Championship Points Table) to award points for standings in the events.

2.2 Events

USOC officials have the option of including any or all NFFS events as Championship events or may combine or eliminate events from the USOC schedule. Such scheduling decisions will be announced sufficiently in advance in the NFFS Free Flight Digest and NFFS Web site.

2.3 Host and Sponsor

Although the NFFS USOC at Muncie will ordinarily provide the venue for the U.S. Nostalgia Championships (USNC), managers of other major contests may request the right to host the USNC. If the request meets requirements listed below, the Competitions Committee and Nostalgia Subcommittee will poll the committee members for opinions on awarding the USNC to the applicant:

1. Written applications by sponsors must be submitted 12 or more months in advance of the USNC.
2. Financial arrangements for contest expenses, pre-event publicity and administrative support are assured.
3. The sponsor will conduct a AAA or larger contest that attracts participants from a wide geographic area.

The Committees recommendations will be forwarded to the President and Directors for a final decision.

3 THE RULES AND RULES CYCLE

3.1 Purposes of the Rules

1. Ensure the fidelity of construction of original Nostalgia and VIntage designs as flown by contestants in competition.
2. Promote use of original engines of the era and selected post-Nostalgia engines.
3. Promote a Classic Towline event and a Vintage FAI Power event without the technical difficulties and costs associated with the current FAI events.

3.2 Rules Cycle

Officers of NFFS and its Competition Committee and Subcommittees are entrusted with administration and interpretation of NFFS Competition Rules. The rules cycle is in effect for a 2-year period that coincides with the current free-flight rules cycle of the Academy of Model Aeronautics (AMA). NFFS will entertain proposed rules changes prior to each cycle. Once enacted, the rules shall be in effect for two years, except for emergency changes deemed to be necessary by NFFS officials.

4 GENERAL RULES

The General AMA rules and Outdoor Free Flight rules apply to all of the NFFS events unless specifically modified by the rules stated herein under this section or under event specific sections.

4.1 Builder of the Model Rule

The NFFS Competition Rules endorse the AMA Builder of the Model Rule with the following exception.

Models built by now deceased modelers may be flown in any NFFS event. If such models are flown the following are required:

1. Builder's AMA number shall be retained with the addition of a "- D" following said number. If no builder's AMA numbers are present the flier shall add builder's last name to the upper left surface of the wing followed by a "- D".
2. Flier's AMA number shall be added to the model either immediately above or below the builder's number on the right wing if present. If builder's AMA number is not present the flier shall add their number to the right wing.
3. Use of parts from deceased builder's models is also allowed. If such parts constitute a majority of the model, any two of the three major assemblies for example, the deceased builder shall be identified as in 1 and 2 above.
4. Builder's identification/address label shall be removed and replaced by flier's identification/address label.
5. Model shall meet all other rules for the event in which it is flown.
6. Model may not be flown by more than one flier in any sanctioned contest.

5 GENERAL NOSTALIGA POWER AND RUBBER GUIDELINES

5.1 Model Eligibility

Free-flight power and rubber models suitable for NFFS events that were first available in kit form or as plans that first appeared in a commercial publication between Jan. 1, 1943 and Dec. 31, 1956 are automatically eligible. The NFFS Competition Committees and Nostalgia Subcommittees will consider for acceptance models kitted or published after the 1956 cutoff date, if it can be proved that the model flew competitively in the required timeframe. (See Approval Procedures, below.) The Committees will also consider models that were not commercially kitted or published, but which otherwise qualify. All towline glider designs that meet NFFS Classic Open Towline Glider rules requirements are eligible

1. Nostalgia Gas and Rubber designs that were kitted or published after 1942 but were also available prior to World War II are not eligible for NFFS competitions. Examples are the Pacer, Comet Zipper A, 1939 Zipper, Sailplane, Interceptor, Strato Streak and Brooklyn Dodger.
2. A Nostalgia Eligible Designs List is available from NFFS Publications Service.
3. Any question of proof regarding eligibility of a model or engine is the responsibility of the contestant.

5.2 Scaling

Scaling up or down of models is permitted except where noted.

5.3 Approval Procedures

Competitors seeking approval of a gas model design for competition must complete a standard design-information form, available from the NFFS Nostalgia Subcommittee, and submit it, with other supporting documentation, (photos, articles, etc.) to the Chairman. Include a 3-view plan with airfoils and sufficient construction detail. A 3-view measuring 8-1/2 x 11-in., is acceptable, but a full-size plan must be available if requested. If approved, the design and plan will be featured in NFFS Free Flight Digest. Authentication of Nostalgia Rubber and Classic Open Towline Glider designs is the responsibility of the contestants

5.4 Later Modifications & Approval

Changes in an already approved original gas model design made during the Nostalgia timeframe must also be submitted to the design-approval procedure to be eligible for competition. The Nostalgia Subcommittee will consider documentation offered to prove that a design flew with such modifications in competition during the Nostalgia era. Otherwise, the builder should faithfully maintain the dimensions and construction details of the original model, except for minor differences in nose moment and thrust line and the following allowed modifications (see Construction Guidelines below)..

5.5 Model Construction Guidelines

5.5.1 Allowed Modifications

The following changes are allowed in original model plan construction details:

1. Strengthening and reinforcing materials may be added by using gussets, doublers, larger wood sizes, etc.
2. Wing spars may be added at any point in the airfoil (upper and lower surfaces and internal) with the following restriction. In the forward 33% of the wing section only one additional upper surface turbulator type spar, flush with the upper surface, may be added. In addition, use of any

other turbulator device is prohibited. Addition of false ribs is permitted, as is strengthening of the wing center section with sheet.

3. Ribs and formers may be added when scaling up and may be reduced in number when scaling down.

5.5.2 Restricted Modifications

Construction restrictions include:

1. No variation in stab location. Changing location from the bottom of the fuselage to the top is prohibited, unless it can be proved that the variation was flown in competition during the Nostalgia timeframe.
2. No geodetic or Warren truss-type construction is allowed unless it is shown on original plans;
3. No addition of sheet to wing and/or stab leading edges is permitted. No substitution of sheet for built-up sections on fuselages is allowed, except in high-stress areas like the engine mounting area, pylon base and stab mounting area;
4. Auto-surfaces are prohibited even if shown on the original plans except movement of the rudder for Classic Open Towline Glider at the time of towline release is allowed.

5.5.3 Covering

Any commercially available covering material is acceptable.

5.5.4 Wheels and Skid

Models must have at least as many wheels and/or skids as shown on the construction plan. When scaling a model up or down, the scaling factor will determine the minimum wheel diameters.

If the original plans show neither wheel nor skid, the option of using wheel, skid or no undercarriage is up to the builder. Some designs had versions with both wheels and skids. If the model is built from or scaled from one of these plans, the builder may use whichever undercarriage is shown on that plan.

6 NOSTALIGA GAS GENERAL RULES

6.1 Official Flights and Scoring

Unless otherwise noted, AMA rules apply to Nostalgia Gas. Contestants are allowed six attempts to make three official flights of 40 seconds or longer. The final score is the total time of up to three official flights plus any fly-off flights for which the contestant becomes eligible by achieving maximum times in each of the three official flights.

6.2 Fuel and Fuel Systems

Except for the Ignition Event, Nostalgia Gas rules allow any fuel ingredients permitted by AMA regulations. Fuel feed may be suction or pressure.

6.3 Number of Models Allowed

A contestant is permitted to enter and fly two models in each event. The contestant must declare a model before attempting the first official flight with that model.

6.4 Design Eligibility

Only model designs listed in the Nostalgia Eligible Designs List are eligible for competition. (The Eligible Designs List is available from NFFS Publications and is on the NFFS web site).

6.5 Engine Eligibility

Eligible and specific ineligible engines for use in all Nostalgia Gas events unless otherwise specified under the specific events are listed in Appendix A NOS Gas Engines

6.5.1 Pre-1957 Engines

Glow or diesel engines produced and made commercially available prior to 1957 are eligible for Standard events. Cox Tee Dee .010 and .020 engines are eligible for 1/4A Nostalgia.

6.5.2 Pre-1963 Engines

Any, plain-bearing, loop-scavenged engine that was produced and commercially available prior to 1963 is also eligible.

Ineligible exceptions are ABC or Perry-ported engines; .049-.152 Cox Tee Dees; all post-1956 ball-bearing Cox engines except 1957 Olympic 15. Perry porting is an early form of schnuerle porting and is evident by added small ports located between the transfer port(s) and the exhaust port(s).

6.5.3 Reproductions

Certain reproduction engines are eligible, but they must first have been approved by the NFFS Nostalgia Committee. Companies considering manufacturing a reproduction engine for potential Nostalgia competition should contact NFFS prior to commercial release of such a product.
Currently eligible reproduction engines are shown on the engine list, by name of manufacturer.

6.5.4 Custom-Built

Home-built engines are not eligible. Even those flown during the Nostalgia era must be approved by the NFFS Nostalgia Committee to gain eligibility.

6.5.5 Special Post-1956 Engines

Certain post-1956 engines are eligible for Nostalgia. They are designated with an “SE" suffix on the engine list.

6.5.6 Modifications

Standard engine reworking practices are acceptable, as is substitution of needle-valve assemblies and standard-configuration venturi. Illegal procedures include changing an ineligible ball-bearing engine to plain bearing; changing intake location, or changing from glow to diesel operation (or vice versa) unless the manufacturer supplied such parts for changeover during the Nostalgia timeframe.

6.5.7 Glow Plugs/Heads

This section applies to any Nostalgia engine. In addition to stock items, the following glow plugs and glow heads are acceptable:

1. Any screw-in glow plug, including GloBee and Nelson with a vertical element is legal for use on any Nostalgia engine. Note: the flat-coil GloBee head (insert/button type with flat element and any facsimile thereof) is allowed for use only in the Cox 0.020 family of engines.

2. Turned-down Cox 325 glow head, for use with a screw-in ring, offered for sale by a commercial source for the Holland Hornet, is acceptable.

3. Modified AME glow head may be used may be used in any 1/2A engine for Nostalgia but not for Early 1/2A Nostalgia.

4. Cox 1702 head is permitted only on the Cox Thermal Hopper and Space Hopper.

5. Otherwise, any other plug/head combination is acceptable, so long as it is commercially available (advertised for sale in letterpress commercial publications—including the classified or display ads in NFFS Digest), and is thus available to anyone.

6.6 Scaling

Scaling of any approved original design to any desired size for flying in Standard and ROW Gas events is permitted. Scaling for PAA, Ignition or Early 1/2A is not permitted, except to other sizes as noted on the original plan or construction article.

6.7 Model Weight

Gas models must weigh at least 100 oz per cu. in. of engine displacement (without fuel).

6.8 Launches

Contestants have the option of hand launching or one-point VTO in Category I and Category II events. Category III flights are hand launched.

7 STANDARD NOSTALIGA GAS

7.1 Standard NOS Gas Events

Table 1 - Standard NOS Gas Event Classifications

Events	Engine Displacement (cubic in.)
1/4A	.000 -.025
1/2A	.026-.050
A	.051-.199
B	.200-.300
C	.301-.650

7.2 Engine Runs and Flight Maximums

The contest director may establish engine runs and maximum flight times, depending on weather and flying-site conditions. Otherwise, the following times (in seconds) are allowed for all Standard Nostalgia Gas and Early 1/2A Nostalgia Gas events.

Table 2 - Engine Runs and Flight Maximums for Standard NOS Gas

	1st Three Official Flights (sec)	Fly-off Flights (sec)	Flight Maximums (sec)
Cat I			
Handlaunch	14	8	300
VTO	17	12	300
Cat II			
Handlaunch	12	8	180
VTO	15	11	180
Cat III			
Handlaunch	9	6	120

8 EARLY ½ A NOSTALIGA GAS

8.1 Scaling

Not permitted.

8.2 Engine Runs and Flight Maximums

The same as for Standard Nostalgia Gas (above).

8.3 Engine Eligibility

Early 1/2A engines are restricted to OK Cub 049 (Original A, B, and X); Wasp as mfg'd. by both Atwood and Holland; Anderson (Royal Baby Spitfire 049, Baby Spitfire, Spitzy and Spitzy Sr. 045); first K&B Torpedo 049;and Wen-Mac 049. Use of an integral head/glow element (aka Glow Head) in any early NOS engine is not legal for competition.

8.4 Ineligible Engines

OK-Cub reed valves and diesels and any other engine not listed in 6.3.4.

9 IGNITION NOSTALIGA GAS

9.1 Design Eligibility

Designs of the Nostalgia era in the World War II and late 1940's period that were powered by spark-ignition engines are eligible. Plans must show a spark-ignition engine or it must be referenced in a published article. The design must have originally flown with an ignition engine. Nostalgia Eligible Designs are indicated on the Plans List by an asterisk (*) preceding the wingspan.

Plans that indicate the models used either glow or ignition engines (Civy Boy, kitted Zeek, Super Slicker, etc.) are not eligible. However, designs that show both ignition and diesel engines are eligible. Several designs are legal for both Nostalgia Ignition and SAM Old Timer. The Eligible Designs List identifies the latter by an asterisk and a plus sign (*+) preceding the model's wingspan.

9.2 Scaling

Not permitted for Ignition, unless other sizes are noted on the original plan or construction article. Classes. Nostalgia Ignition events may be flown in two classes:-Small (.09-.28 cu. in.)-and Large (.281-1.20 cu. in). Combining classes is at the discretion of local Contest Directors or the USNC/USOC contest management.

9.3 Engine Runs and Flight Maximums

The contest director may establish engine runs and maximum flight times, depending on weather and flying-site conditions. Otherwise, the following times (in seconds) are allowed for Ignition Nostalgia Gas.

Table 3 - Engine Runs and Flight Maximums for Ignition NOS Gas

	1st Three Official Flights (sec)	Fly-off Flights (sec)	Flight Maximums (sec)
Cat I			
Handlaunch	16	11	300
ROG	20	15	300
Cat II			
Handlaunch	16	11	180
ROG	20	15	180
Cat III			
Handlaunch	16	11	120

9.4 Ignition Systems

Engine shutoff must be by timer-operated electrical circuit breaker. Use of transistorized components other than for ignition systems is not approved.

9.5 Fuel

Fuels legal for Old Timer Free Flight Ignition events are acceptable for NFFS Nostalgia Ignition.

9.6 Model Weight

Models must weigh at least 8 oz/sq ft of projected wing area, less fuel. If flown in Standard Nostalgia category, an Ignition-powered model will be subject to the same engine-run and power-loading requirements as a glow-powered model.

9.7 Eligible Ignition Engines

1. Pre-1952 original ignition engines;
2. Approved replicas and certain recently manufactured ignition engines. Examples are: Morrill Hornet 19 and Simplex 25; J&J Torpedo 29 and 32; Wahl Bunch Tiger, Brown, Gold Seal and Hurleman; MG and RJL Forster front intake 29 and 35; Orwicks by Dunham and Kustom Kraft; Spielmaker Golden Eagle Megow 19 and Bantam 16; Edco 65, Super Cyclone, 1949 McCoy and Bantam 19 replicas; Remco 29; Shilen K&B Torpedo, Orr.
3. 3.Glow engines produced during the ignition-glow transition period, offered in either version and converted to ignition. Examples: Ohlsson, 1948 Torpedo, Mighty Midget, twin-stack Torpedo Special, Atwood, Bullet, Orwick, Forster, Bantam, McCoy 36 Sportsman Jr. and 55 Sportsman Sr., Anderson Spitfire.

9.8 Ineligible Ignition Engines

Other glow engines converted to ignition; Shilen Old Timer 19.

10 RISE-OFF-WATER NOSTALIGA GAS

Any approved Nostalgia Gas design is acceptable for ROW. Scaling is permitted. Engine eligibility and weight requirements are the same as for Standard Nostalgia. Engine classes are combined. The Contest Director may use site and weather considerations to determine engine runs and flight-time limits.

11 NOSTALIGA RUBBER

11.1 Design Eligibility

The period of eligibility for Nostalgia Rubber Category designs shall be from January 1, 1943 through December 31, 1956. To be eligible to compete in Nostalgia Rubber, a model must have been designed and the original plans published or otherwise verified by the contestant to have been drawn and used for construction and flight during the Nostalgia period. Multiple versions of a model design are permitted, provided the above criteria are met with each design modification.

Authentication of model designs as eligible for Nostalgia Rubber Category competitions shall be the responsibility of the contestant. SAM-legal rubber designs are not eligible for Nostalgia Rubber events.

11.2 Events

There shall be two Nostalgia Rubber Category Events:

1. Nostalgia Rubber, including only non-Wakefield designs.
2. Nostalgia Wakefield, including only Wakefield designs.

The Events may be flown separately or combined. Either the individual Events or the combined Events may be conducted at a contest.

11.3 Contest Processing

There shall be no weight requirements for models or restrictions on rubber weight. The name of the model design(s), the designer(s), and the vintage(s) of at least one model shall be declared at initial registration.

11.4 Number of Models

Contestants shall be allowed two models in an individual or combined event. At least one of the two models shall be declared before attempting an Official flight; the second model may be declared after initial registration but must be declared before making any flight attempt with that model.

11.5 Scaling

Scaling up or down of model parameters or components shall not be allowed.

11.6 Construction

The flying surfaces, airfoils, and propeller shall be the same as the original design. A design may be modified only sufficiently to allow a blast tube and a dethermalizer mechanism.

11.7 Launch Requirements

Nostalgia Rubber Event models designed and intended to be hand-launched shall be hand-launched. Nostalgia Wakefield Event models designed to be launched R.O.G. shall be launched unassisted R.O.G., using all points of the designed take-off gear, from a flat surface positioned not higher than 30 inches above ground level unless flown in a combined Nostalgia Rubber / Nostalgia Wakefield Event in which case hand-launching is permitted.

11.8 Official Flights and Scoring

The NFFS Nostalgia General Rules and AMA Competition Regulations apply to Nostalgia Rubber and Nostalgia Wakefield Events, unless otherwise noted. Six attempts are permitted to achieve three Official flights of 40 seconds or longer. Flights of less than 40 seconds may be recorded as Official flights at the option of the contestant if declared immediately but the decision may not be reversed. Maximum flight times for site Categories I, II and III shall be: three Official flights in the order of 2, 3 and 4 minutes. The final score is the total of up to three Official flights plus the recorded time of any Fly-off flights for which the contestant becomes eligible by achieving maximum time in each of the three Official flights.

11.9 Fly-Offs

Fly-off flights shall begin at 4-minute maximums and continue at 4 minutes until the contestant's model fails to achieve the duration limit for that flight. Only one attempt is permitted for each Fly-off flight. All Official and Fly-off flights must be launched prior to the end of the contest as determined and signaled by the Contest Director.

12 PAA-LOAD GAS

12.1 Designs and Scaling

Eligible designs are identified on the Nostalgia Eligible Designs List with a minus sign (-) preceding the wingspan. Scaling is not permitted.

12.2 Classes

Classes are defined by engine displacement: 1/2A (up to .050); A (.051-199); and B (.200-.299). Contest management may opt to combine classes.

12.3 Model Weight

Total weight less dummy must equal a power loading of 100 oz/cu. inch displacement.

12.4 Dummy Specifications

Dummy occupant(s) must be readily removable, and must face forward in an enclosed compartment that provides visibility through a transparent area measuring at least 3/4-in. high for 1/2A or 1-in. high for A/B to the front and to each side of the dummy's head. 1/2A PAA-Load models must carry one 4-oz dummy having a 3/4-in. cubical head centered on a body that is 1-1/2 in. wide x 2 1/4-in. tall x 3/4-in. thick (3-in. total height). Class A PAA-Load models must carry one 8-oz dummy and Class B models two 8-oz dummies with both having the following dimensions: a 1-in. cubical head centered on a body measuring 3-in. wide x 3-in. tall x 1-in. thick (4-in. total height).

12.5 Launches

Unassisted R.O.G. launches from ground level are required unless the available launching area or other provided surface are unsuitable in which case the CD may allow hand launches.

12.6 Number of Flights, Engine Runs and Flight Maximums.

Six attempts allowed to make three official flights of 40 seconds or longer. The CD may establish engine runs and flight maximums, depending on weather and flying-site conditions. Otherwise, the following times (in seconds) are allowed for PAA-Load Gas.

Table 4 - Engine Runs and Flight Maximums for PAA-Load Gas

	1st Three Official Flights (sec)	Fly-off Flights (sec)	Flight Maximums (sec)
Cat I	17	13	300
Cat II	16	12	180
Cat III	14	10	120

13 CLASSIC OPEN TOWLINE GLIDER

13.1 Model Requirements

Two models allowed per contestant and may be of any design and type of construction.
The combined projected surface areas of the wing and horizontal stabilizer shall not exceed a total of 750 sq. in. (48.39 sq. dm.). No restrictions on model weight.

13.2 Towing, Pennant and Flight Controls

1. Towline maximum length is164 ft (50 m) when under a 4.41 lb (2 kg) tensile load.
2. Wire towline not allowed.
3. A tow reel or winch is permitted but may not be tossed or thrown unless obviously necessary to avoid certain major damage or destruction of a model. If the reel or winch is thrown in such circumstances, an attempt shall be recorded (as per 3.E. below). If thrown with other intent, the

timer shall record a zero flight score for the attempt.

4. A pennant with minimum area of 38.75 sq. in. (2.5 sq. dm.) must be attached to the towline below the tow ring.
5. Straight-tow only. Zoom launches are allowed. Circle-tow hook functions and bunting are not allowed. Purposeful and/or intentional circle-towing and/or bunting shall result in a zero flight score for the attempt.
6. Timer-actuated flight settings are not allowed except for purposes of dethermalizing a model.
7. The rudder(s) may be caused to move from a straight tow position to a glide position upon release of the tow ring from the tow hook.

13.3 Official Flights

1. All official and unofficial flights are attempts.
2. Six attempts are allowed to make three official flights of 40 seconds or more.
3. Timing of a flight attempt begins with release of the tow ring from the tow hook signaled by a fallen pennant and ends with termination of the flight.
4. To achieve a flight score, an attempt must be launched, towed and released into free flight during the official clock-time of the contest.
5. Flight maximums for the three official flights shall be 2, 3 and 4 minutes attempted in that order.

13.4 Unofficial Flights

1. Flights of less than 40 seconds are unofficial but may be recorded as official if requested immediately by the contestant.
2. After launch, the glider returns to the ground without release of the towline.
3. Glider part(s) are dropped during launch, tow or flight, including fly-off flights.
4. The instant of towline release from the tow hook cannot be established.
5. While towing, the contestant loses contact and control of the towline and fails to regain control, and/or another person takes control of the towline.

13.5 Repeat Flight Attempts

1. Attempts for official or fly-off flights may be repeated if “2”, “3” or “4” below occur prior to the end of the contest. However, if the glider continues in flight, the resulting flight time may be recorded as official if requested by the contestant.
2. At launch, the glider collides with a person other than the launcher.
3. During tow, the model collides with another model in free flight (but not with a model being towed or with a towline) and towing cannot continue normally.
4. During free flight, the glider collides with another model or another towline.

13.6 Fly-Off Flights

1. If the sum of a contestant’s three official flights equals the maximum allowed (540 seconds), fly-off flight attempts may begin with the maximum time 240 seconds (four minutes) and shall continue at 240 seconds for each attempt until a maximum time is not achieved.
2. One attempt is allowed for each fly-off flight (see also 4.A. above)..

13.7 Weather, Terrain and Other Conditions

Because of actual or predicted adverse weather, terrain, flying conditions or other safety concerns, the Contest Director may modify the flight maximums for official and/or fly-off flights but with appropriate notice and in a manner to protect already recorded flight scores.

14 SUPER D

14.1 Categories

There are two categories for Super D. A VIT category that allows any variable incidence surface construction or geometry as per current AMA rules for AMA Power events and a fixed surface category as per AMA rules for AMA Classic Power.

14.2 Wing Area

For both categories the projected wing area shall be a minimum of 1000 square inches

14.3 Engine Displacement

Engine displacement shall be a minimum of 0.60 cubic inches to a maximum of 0.67 cubic inches.

14.4 Engine Run/Flight Time

Engine run for the VIT category shall be the same as for AMA Power Cat III.

Engine run for the fixed surface category shall be 9seconds engine run and 2 minute maxes for the first 3 flights; 6 second engine run and 2 minute maxes for flights 4 and 5; and 6 second engine run and 2.5 minute maxes for all subsequent flights.

15 E-36

15.1 Model Requirements

1. 36 in. maximum projected wingspan allowed.
2. 120 gm. minimum weight, ready-to-fly, required.
3. No autosurfaces allowed .

15.2 Power Requirements

1. Any type electric motor allowed.
2. Nickel or lithium batteries allowed, 2-cell lithium limit or 6-cell nickel limit.
3. Gearing and folding props allowed.

15.3 Flight Requirements

1. Two minute maxes required for all flights
2. First three official flights to be made with a 15 sec. motor run each. If all maxes, a fourth flight to be made with 10 sec. motor run, and if maxed, then all later flights to be made with 5 sec. motor runs until a max is dropped.
3. Six attempts for the first three official flights is allowed, immediate declaration required and 20 sec. maximum for attempts, overruns being automatic attempts for the first three official flights and overruns after the third official flight to be automatically awarded a "0" score

Be advised: the motor runs and two-minute maxes prescribed are seen as appropriate for large field competition. CD's are encouraged to modify the motor runs and maxes to suit local conditions. This is a NFFS event and records won't be kept, so fly smart and keep your models on the field.

16 VINTAGE FAI RULES

The intent of the vintage FAI event is to build and fly the historic FAI power models as they were originally designed in a competition where the rules have reproduced each time period in such a way as to make one period reasonably competitive with the others. The overriding principal is to reproduce these models and competitions without adding modern enhancements that were not part of the history of this event; thereby preserving the historical integrity of the models of the various eras.
Some minor alterations have been made to the rules in order to compensate for current conditions such as field size and availability of some vintage resources. It is the expectation of the framers of this event that these rules are followed carefully so as to make each of these vintage periods enjoyable to fly in competition and to relive our enjoyment of these specialized vintage models.

16.1 Model Eligibility/FAI Specifications

16.1.1 Vintage Period 1
Models designed to rules in effect 1951- Dec. 31,1955:
•Maximum Engine Displacement: 2.5cc (.15 cu.in.)
•Fuselage Cross Section = No cross section requirement
•Weight: Minimum weight is 200 grams per cubic centimeter. (17.64 oz for .15 cu.in)
•Engine run maximum is 20 Seconds.
•Fuel: No restrictions
•Minimum Surface Loading is 12g/sq. dm. (2.75 oz per 100 sq. in.) All areas are projected totals for wing and stabilizer.
•Launch method: Minimum one point ROG/VTO required (HL optional under certain conditions, see section 5.7 below for specifics).

16.1.2 Vintage Period 2
Models designed to rules in effect Jan. 1,1956-1 Dec. 31, 1957
All rules are per vintage period 1 above, except as stated below:
•Maximum engine run is 13 seconds
•Launch method: VTO/ROG (HL optional)

16.1.3 Vintage Period 3
Models designed to rules in effect Jan. 1, 1958 - Dec. 31, 1960.
•All rules are per vintage periods 1 and 2 above, except as stated below
•Minimum Weight 300 grams per cubic centimeter (173.4 oz per cu. in or 26.4 oz for .15 cu. in engine.)
•Minimum surface loading is: 20 gm/sq. dm. (4.58 oz./100 sq. in.) All areas are projected totals for both wing and stabilizer.
•Maximum engine run is changed to 15 seconds.
•Launch method: Hand launch only.

16.1.4 Vintage Period 4
Models designed to rules in effect Jan.1, 1961- Dec. 31, 1965.
As per Vintage Period 3, all rules apply except engine run decreased to 10 seconds.

16.1.5 Vintage Period 5
Models designed to rules in effect Jan. 1, 1966- Dec. 31, 1970.
As per Vintage Period 4, all rules apply except tuned pipes allowed and 80/20 fuel required.

16.1.6 Vintage Period 6
Models designed to rules in effect Jan. 1, 1971- Dec. 31, 1975.
As per Vintage Period 5, all rules apply except tuned pipes are banned.

16.1.7 Vintage Period 7
Models designed to rules in effect Jan. 1, 1976 - Dec. 31, 1979.
As per Vintage Period 6, all rules apply except engine run decreased to 7 seconds.

16.2 Engine Eligibility

Note that any engine eligible in a vintage period may be used in a later vintage period. For example a

Vintage Period 1 engine may be used in a Vintage Period 7 aircraft if so desired.
*Replica diesels will be allowed in all classes if the original was allowed.
Nelson, VE engines or any other engines produced after 1979 are specifically prohibited.

16.2.1 Vintage Period 1:
Glow: K&B Green Head 09 & 15; Pre-1960 ST G-20S , OK Cub 14.
Diesel: Elfin 2.49, Elfin 1.49 , ED Racer, AMA 2.47, S.T. G-20 Sport
ED Racer, Webra Winner 2,46, Webra Mach 1 and 2, ED 2.46, Frog 1.5cc, Eifflander 2.46. Other diesels of the period.

16.2.2 Vintage Period 2 and 3
Glow: OS Max I,II, and III, Cox Sportsman and Olympic, Enya Mk. I, II,III. MVVS, Super Tigre G-20 (with 1960 printed on the engine case); Fox 15 early model
Diesel: Frog 2.49, Allbon Rapier 2.5, ED Racer 2.46, all Oliver Tiger 2.49, Oliver Tiger 2.43 cc Mk III, AM 25, Jaguar 2.5cc, Aero 2.5, Enya 15D, MVVS. Other diesels from the period.

16.2.3 Vintage Period 4 & 5
Cox TD, TD Special and Mk II Special; ST G-20 (later model) and G-15, Fox Rocket 15X and 15XX, K&B .15 Series 61 and 64. K&B .15R, Johnson Bulldog 09.

16.2.4 Vintage Period 6 & 7
Rossi, Super Tigre, Cox Conquest, Cossi, A.D.15

16.3 Other Model Specifications

- Motor Mounts - Any motor mount is acceptable (does not have to conform to the original design).
- Glow plugs - Any glow plug may be used on any period model.
- Propellers - Folding propellers are banned as are metal propellers.
- Timers - Any mechanical timer may be used. Electronic timers are specifically prohibited.
- Engine stoppage - Flood off may be used. Brakes are not allowed on any except for the Vintage Period 6 & 7 models.
- Fuel Tank - Any type of fuel tank may be used.
- Construction - Wings and Stabs must be tissue/silk covered if original design had open structure and not replaced with sheeting. Sheet must be used on the wing and stabilizer if the original design used it. No restrictions on covering materials. Micafilm/. modern film may be used in place of tissue, silk, etc.
  No aluminum/carbon D-box construction will be allowed on the wing or stab. Carbon spars and carbon capped ribs will be allowed. No carbon only TEs will be allowed. Balsa/Carbon TEs will be allowed. This rule applies to all vintage periods.
  Modern fuselage construction will be allowed for any model that used a rolled tail boom on the original model. If the model used a box style construction for the fuselage, then this construction style must be duplicated.
- Bunting - No bunting allowed.
- VIT/AR Prohibition - No model may be equipped with AR/VIT or other device or enhancement unless specifically shown on the source plan.
- Landing Gear/Prop Savers – These items are the choice of the builder, except, if the original had a wheel or wheels, the replica should have a wheel or wheels of identical diameter and characteristics.
- Added Spars/Ribs - Adding spars or false ribs will be allowed for strengthening purposes. A
- Two Piece Wings - Two piece wings will be allowed for any design.
- Identification - Models will be identified by Vintage Period. The identification will be prominently displayed on the wing, and may be displayed on the fuselage and tail, if desired. The identification will be V-1 for Vintage Period 1, V-2 for Vintage Period 2, etc.
- Early era models allowed to be flown in later events. Models designed in an earlier era may be flown in a later era as long as the engine runs, engines and other specification of the latter era are met.

16.4 Competitor Information

16.4.1 Proxy Flying
Proxy flying will be allowed. The builder of the model can make arrangements for a flier of the

model/models or arrangements may be made with the CD by agreement with the builder. Models of deceased fliers may be flown according to NFFS rules.

16.4.2 Entry of Multiple Models and Backup Models

A competitor will be allowed to enter more than one model providing it is from a different vintage period. Example: A model from V-1 period and another from the V-2 or other period would be allowed as separate entries. The only requirement is that the contestant must pay another entry fee for each vintage period entered. All flights must be completed in the specified time period for each round. A contestant may use one backup model for each vintage period entered.

16.5 Contest Specifications/CD Requirement

16.5.1 CD Requirement

Prior to the start of the contest, the CD is required to state or post the requirements under which the contest will be conducted. The requirements include: Number of flights required, flights by round or by time frame, length of round or time frame, HL option, max times, and flyoff methodology.

16.5.2 Flight lines

Flight lines will not be used. Flights will be conducted from a 50 meter square box. Flights may be conducted at any location in the box at the discretion of the flier.

16.5.3 Rounds

Flights are to be conducted in rounds whenever possible, with 5 one hour rounds as the standard. At the discretion of the CD, the flights may be flown without rounds, but during a designated time frame; for example: 5 official flights recorded during a 4 hour time frame, etc.

16.5.4 Number of flights

The standard is that the first 5 official flights are for 3 minute maxes. However, at the discretion of the CD, flights may be reduced to 5 flights of 2 minutes max length or some combination of these two options. A chart of specified engine runs and max times follows.

16.5.5 Official Flights

A flight of under 40 seconds shall be classified as an attempt, and a contestant may have only two attempts to complete an official flight of 40 seconds or more.

16.5.6 Engine Run by Vintage and 3 Minute Max with Prefered Progressive Max Flyoff

Vintage	Engine Run	Max Time	Flyoff Max Progression
1.	20 sec. VTO/ROG	180	4 min., 5 min., 6 min. etc. for all
1. (option)	17 sec. HL	180	vintage classes, until one flier
2.	13 sec., VTO/ROG	180	remains
2. (option)	10 sec. HL	180	
3.	15 sec. HL	180	
4.	10 sec. HL	180	
5.	10 sec. HL	180	
6.	10 sec. HL	180	
7.	07 sec HL	180	

16.5.7 Engine Run by Vintage and 2 Minute Max with Prefered Progressive Max Flyoff

Vintage	Short Max Engine Run	Max Time	Flyoff Max Progression
1.	13 VTO/ROG	120	3 min., 4 min. 5 min. etc. for all
1. (option)	11 HL	120	vintage classes until one flier
2.	11 VTO/ROG	120	remains
2. (option)	8 HL	120	
3.	10 HL	120	
4.	07 HL	120	
5.	07 HL	120	
6.	07 HL	120	
7.	05 HL	120	

Engine Run by Vintage and 3 Min. Max with optional Reduced Engine Run Flyoff

Vintage Era	Engine Run	Max Time	Engine Run for Flyoffs
1.	20 sec. VTO/ROG	180	13 seconds - continue 3 min. max.
1. (option)	17 sec. HL	180	8 seconds - continue 3 min. max.
2.	13 sec., VTO/ROG	180	8 seconds - continue 3 min. max
2. (option)	10 sec. HL	180	6 seconds- continue 3 min. max
3.	15 sec. HL	180	7 seconds - continue 3 min. max
4.	10 sec. HL	180	7 seconds - continue 3 min. max
5.	10 sec. HL	180	7 seconds - continue 3 min. max
6.	10 sec. HL	180	7 seconds - continue 3 min. max
7.	07 sec HL	180	5 seconds - continue 3 min. max

16.5.8 Engine Run by Vintage and 2 min. max with optional Reduced Engine Run Flyoff.

Vintage Era	Engine Run	Max Time	Engine Run for Flyoffs
1.	13 VTO/ROG	120	10 seconds - continue 2 min. max
1. (option)	11 HL	120	8 seconds - continue 2 min. max
2.	11 VTO/ROG	120	8 seconds - continue 2 min. max
2. (option)	8 HL	120	6 seconds - continue 2 min. max
3.	10 HL	120	7 seconds - continue 2 min. max
4.	07 HL	120	5 seconds - continue 2 min. max
5.	07 HL	120	5 seconds - continue 2 min. max
6.	07 HL	120	5 seconds - continue 2 min. max
7.	05 HL	120	4 seconds - continue 2 min. max

16.5.9 Hand Launch Option for V-1 and V-2 Models

The standard is that all V-1 and V-2 models are either launched rise of ground or a minimum of one point VTO. However the contest director may declare these period models eligible for hand launch. If the CD announces this option, a contestant may still VTO/ROG if he chooses. The engine runs for all flights can be found in the charts (5.6 - 5.9 above). VTO/ROG flyoff flights may continue regardless of flyoff methodology listed above. A contestant may choose to mix his flights and flyoffs using HL and ROG/VTO interchangeably, as he determines, with the approval of the CD.

16.5.10 Flyoff requirements for Three Minute Maxes

The CD is empowered to determine the methodology for the flyoffs. Here are his two choices:

1 Adding Max Time - Add one minute to each successive flyoff flight until a tie is broken. Flyoff engine runs remain unchanged. An overrun disqualifies.

2 Decreasing Engine Run - Decrease engine runs for flyoffs but maintain the 3 minute max. An overrun disqualifies.

16.5.11 Flyoff requirements for Two Minute Maxes

The CD is empowered to determine the methodology for the flyoffs. Here are his two choices:

1 Adding Max Time - Add 60 seconds to each successive flyoff flight until a tie is broken. Engine runs remain unchanged from the first five flights. An overrun disqualifies.

2 Decreasing Engine Run - Decrease engine runs for flyoffs but maintain the 2 minute max. Continue flying until tie is broken. An overrun disqualifies.

16.5.12 Flyoffs

Flyoffs are to begin only after all rounds are completed and/or all contestants have completed their 5 official flights. Each flyoff round shall be conducted in a timed manner stated in advance of the flyoffs, for example: “Each flyoff round will be 30 minutes in length."

16.5.13 Other

Refer to the current FAI Code for any questions not covered by this set of rules.

*Note: A CD checklist card with this information summarized is available from NFFS Publications.

Conversion Measurements - 1.0 sq. decimeter is 15.5236 sq/ in. 28.349 grams equal one ounce

Appendix A NOS Gas Engines

Eligible Glow Engines

Anderson. All models of 045, 049 and 065 (Spitzy, Baby and Royal Spitfire); 60 and 65 Spitfires.
Atwood. All 049 and 051 (Signature, Wasp, Atwood, Cadet and Shriek); 49 and 51 Triumph; Champion and Super Champion, GD 60-65 Series.
Cox.
Class 1/4A: All front- and rear-intake .010 and .020 engines (SE)..
Class 1/2A:

1. All rear-intake .049 engines are legal for 1/2A NOS. (Note special restrictions pertain the Early 1/2A NOS.)
2. Killer Bee .049, produced in 1995 (SE). Must be flown in stock condition, with no parts interchanged or modified, other than radial mounting or use of a Nelson vertical element plug/head. Any fuel system or tank is acceptable.
3. Medallion .049 (SE), as sold in the early 1990s or earlier Medallions if fitted with the silted cylinder as described below. Legal cylinder contains four small exhaust slits of the same size and two intake bypasses with one boost port per bypass. The engine must be used in stock condition, except for the following modifications:
   - Enlarging the inside diameter of the venturi.
   - Reducing the outside diameter of the stock needle-valve spraybar to increase airflow;
   - Replacing the needle-valve assembly as noted below.
   - Use of a Nelson vertical element plug/head.

Class A: 051 Killer Bee (SE) and Medallion (SE) of the above vintages and with the same restrictions as for 1/2A; Sportsman 15; Olympic 15 (SE).
Cox Parts Restrictions: Use of Tee Dee parts in Killer Bee or Medallion (or in any otherwise legal Nostalgia engine) is not allowed, except for glow-plug use as described above. You can replace the needle-valve assembly used for the Medallion, but the Tee Dee needle-valve assembly , its parts, or a similar assembly with peripheral jets is not an acceptable substitution. For any legal replacement the spray-bar must pass through the venturi at the existing location in the Medallion. A rear NVA assembly would also be legal if a spray bar is used that passes completely through the venturi.
Note to Contest Directors: The Tee Dee cylinder has boost ports in the bypasses, with two open-type exhaust slots; the Medallion has four small exhaust slits.
Dooling. All 29 and 60 models.
Enya. 049; 060; 09 models #3001 and #09-II; 15 models #3101 (15-I) and #15-II; 19 models #4001, #4002, #4003, #4004; 29 models #5001, #5002, #5103; 35 models #5001 and #6001; 45 #6001 plain bearing with smooth head; 60 first model.
ETA. 19 Mk I; 29 Mk I-IV manufactured 1949-1956 (ball bearing).
Forster. All original and MG/JRL reproductions of front and rear intake 29, 301, 31, 35 and 99.
Fox. All 049, 070, 09 rear intake, 10 front intake, 15, 19, 201, 25 29 Stunt/R/X; 35 Stunt; 35 Rocket (red or aluminum head); 35 Combat (black head); 40 Combat/Stunt; 59 with long and short shaft. All 049, 15X, 29 and 35 manufactured post-1962 with plain bearings and cast-on round intakes.
Herkimer. (OK). 025 twin exhaust; all models 039-049, 06, 074, 09, 14, 19, 29, 35; OK Super 60.
Holland. 049 and 051 Hornet; 049 Wasp.
Hornet. 19 and 60.
Johnson. 09 Bulldog; all plain-bearing 29, 32 and 35.
K&B. See Torpedo.
McCoy. All 049s; Testor/McCoy 049; all rear-rotor 19-60; all Stunt and Super Stunt front-rotor 09, 19, 29, 36; Red Head and Blue Head Stunt 19, 29, 35, 40; Testor/McCoy Custom Series 19, 29, 35, 40 (with lightning bolt on crankcase); Solinburger reproduction 29 rear rotor.
Merco. 29 and 35 plain bearing with orange or aluminum head, manufactured prior to 1963.
Ohlsson. All models, 049 through 60.
OK. See Herkimer.
Orwick. All 23, 29, 32, 64 and 73 (73 for ignition only); Dunham/KK/Daniel reproductions.
OS. Plain bearing with steel fins—06, 09 Pet, 19, twin-exhaust 29 and 36; Max Series I, II and III—15, 29, 35; 29X/35X III; last model Pet 09 with aluminum fins.
Super Tigre. All pre-1957 ball-bearing and plain-bearing 15, 29, 35 with vertical and slanted intakes, no removable backplates and no “V" on crankcase; 1962 plain-bearing 35 Model C35 with a “V” on the case is legal unless it has Perry porting. Perry porting is specifically not allowed and the porting can be seen through the exhaust port as small vertical slots/ports located between the exhaust and transfer ports.

Torpedo. 020, 035, 049; Tornado 049 and 060; all Stallion 049 and 35; all Sky Fury; Torpedo green head and aluminum head 09, 15, 19, 201, 23, 24, 29, 29R/S, 32, 35, 35C, 45; all J&J and Shilen 24, 29 and 32 reproductions.
Veco. All aluminum and gray matte-finish, plain bearing 19, 29, 29R, 31, 35 and 35C models.
Wen Mac. All 049s with standard glow plugs; all Hot Shot series with glow heads.
Other Glow Engines. Arden, Bullet, Cameron, Frog 500, JW Firecracker, Gilbert, Mighty Midget, Pagco, Pogo, Super Hurricane, Torpedo Special.

Ineligible Glow Engines

Cox. All Tee Dees except 010 and 020; Medallions except for the .049 and .051 described above; factory prototype 15 with angled rear intake; engines manufactured after 1995, stock or modified by Cox personnel; Killer Bees and Medallions are not approved by the Nostalgia Committee..
Enya. Series III and IV 09 models, 09 and 09-IV; Series III and IV 15 #3303 and #3304; Series V 19 #4005; Series IV 29 #5224; Series III and IV 35 #5224; first model 45 #6001.
ETA. Mk II 19; Mk V and later 29.
Fox. Square-intake 29, 35, 36, 40 with ball or needle bearings; 1970 36 and 40 Stunt engines; rear rotor 29X, post-1956, ball bearing; post-1962 bolt-on intake models.
Johnson. 35 ball-bearing models.
McCoy. Black head Series 21, front intake with Dykes rings.
Merco. Black head models, manufactured after 1962.
OS. All ball-bearing versions; all aluminum-finned models other than 09 Pet.
Super Tigre. Ball-bearing models, vertical and slanted intakes, with removable backplate and “V" symbol on crankcase; 1960 G20 and G21 ball-bearing models, post-1962 plain-bearing C35 (light matte color and centered intake; 1963 plain-bearing 46 (dark matte finish).
Torpedo. Series 61 and 64 ball-bearing models manufactured post-1957 in front and rear intake versions; Series 75 plain bearing model with bright aluminum finish; ignition or glow Shilen 19 repro.
Veco. Ball-bearing 19 and 45 models.

Eligible Diesel Engines

(Note abbreviations: cv, clapper valve; fi, front intake; pb, plain bearing; bb; ball bearing; rv, reed or rotor valve.)
Aero. 150 (1.5 cc, fi, pb); 250 (2.5 cc, fi, pb).
ALAG. (1.5 cc fi, pb) X-3, X-4 and X-5.
Allbon. Dart .54 cc (fi, pb); Javelin MkI and MkII 1.5 cc (pb, fi); 2.8 cc (3 port, pb and bb).
Allen Mercury. (1 cc) green head; (1.5 cc) blue head; (2.5 cc) black head; (3.5 cc) red head; all pb, fi).
AMA. (2.5 cc, fi, pb).
Amco. .87 cc (3 port, pb) MkI and MkII; 3.5 cc bb (slanted ri); 3.5 cc (fi, pb).
Aquila Baby. (1 cc, fi, pb).
Barbini. B38 (1 cc, fi, pb)
BWM. 25OD (2.5 cc, fi, pb).
Burford. Sabre 250 MkI and MKII (2.5 cc, fi, pb).
Byra. (2.5 cc and 3.5 cc, rv, bb).
CIE. (.12 cu in. and .16 cu in.)
David Andersen. Satellite (1 cc and 2.5 cc, fi, pb); (2.5 cc, 3 port, pb).
Davies Charlton. Allbon Bambi ,015 cc (fi, pb); Dart MkII (.55 cc, fi, pb); DC 350; Manxman 350; (both are 3.5 cc, pb, fi); Merlin (.76 cc, fi, pb); Sabre (1.5 cc, fi, pb); Spitfire (1 cc, fi, pb); Wildcat MkI-III , 5 cc (3 port, pb).
Deezil. (2 cc, 3 port, pb); repros by Gordon Burford and CS.
Drone. (5 cc, fi, pb and bb).
E.D. Baby, MkI and MkII (,047 cc, fi, pb); Bee MkI and MkII (1 cc); MkI, MkII and SeriesII (rv, pb); Cadet 1 cc (3 port, pb); Hornet 1.4 cc (rv, pb); Comp Special 2 cc (3 port, pb); MkIII 2.5 cc (fi and pb, rv and pb); 3.46 Hunter MkI-IV, bb, rr; Pep .8 cc, (fi, pb); CS Hunter reproduction Racer 2.5 cc bb;.
Elfin. Baby .49 cc; 1.49 cc, 1.8 cc and 2.49 cc fi, pb and bb; 2.49 cc BR MkI and MkII, rr, bb; Reproduction 1949 2.49 cc by Dunham/Argo/ Buford/CS; BR 1.49 (rv, bb); BR 1.8 (rv, bb); BR 2.49 (rv, bb).
Engel.1 cc (fi, pb); 1.5 cc (fi, pb); 2.5 cc (fi, pb).
Enya. 15 Series I; 15 Series II; .061D 2 cc (rv, pb).
E.P.C. Moth .85 cc (3 port, pb).

ETA. "5" 5 cc (3 port, pb).
Frog. 2.49 cc (bb, fi, natural aluminum head); 3.49 cc (rr, pb, white aluminum finish); 50 .5 cc (fi, pb); 100 1 cc (fi, pb); 149 Vibramatic (cv, pb); 150 1.5 cc (fi, pb); 150R 1.5 cc (fi, pb); 250 2.48 cc (fi, pb); 180 1.66 cc (fi, pb).
Jaguar. .8cc (fi, pb); "2.5D" 2.47 cc (fi, pb).
Jasolka. 2.5 cc (fi, pb).
J.E. Ballard. JB Atom 1.5 cc (fi, pb).
K Model Engineering. Falcon 2 cc and 2.5 cc (fi, pb); K Hawk .2 cc (fi, pb); Kestral 1.9 cc (fi, pb); Vulture 5 cc (fi, pb).
Kalper. .32 cc SeriesI and SeriesII (3 port, pb).
Katipo. 1.5 cc Series I and SeriesII (fi, pb).
Letmo. .6 cc (3 port, pb); 2.5 cc (3 port, pb); MD 2 7 ' cc (rv, pb).
Marown Engineering. Heron I cc (fi, pb); Snipe 1.5 cc (fi, pb).
McCoy. .049 cu in. (fi, pb); .099D (fi, pb); .049D (fi, pb, shaft valve and clapper valve).
McCoy Replica. .049 cu in. (fi, pb) produced by Bob Langelius
Meteor, 2.47 cc (fi, pb).
Micro. 2 cc (3 port, pb).
Miles. Spec. 4.9 cc (rv, bb).
Mills . .75 cc (3 port, pb) MkI and MkII; 1.3 cc 3 port, pb) MkI and MkII; 2.4 cc (rv, pb); .75 cc repros by G. Burford, Aurora and Irvine; 1.3 cc repro by Aurora and Irvine.
Mite. .09 cu in. fixed compression (fi, pb).
OK Cub. 0.049 and 0.09 cu in.
Oliver. BattleAxe 2.5 cc 3 port, pb); 1.5 cc Cub Mk I, with removable intake; 2.5 cc MkI, II, III, pre-1957 bb; CS reproduction 2.5 cc Mk III; Fury 2 cc (3 port, pb); Jaguar 2.5 cc (3 port, pb; also sold as Rayline Panther).
Owat. 5 cc (fi, pb);
P.A.W. 2.5 cc (fi and pb); 1.49 cc (pb with vertical fi)
Pepperell. 2 cc (fi, pb).
Pfeffer. 2.5 cc (rv, bb).
Rawlings. 1.8 cc (3 port, bb).
Reeves. Goblin 2.5 cc (rv, pb); Goblin 3.4 cc (fi, pb); H18 1.8 cc (pb).
Schlosser. 2.5 cc (fi, pb) blue head.
Star. 5 cc (fi, pb).
Super Tigre. GB .16b 5.65 cc (fi, pb); G19A 4.82 cc (fi, pb); G22 1.23 cc (fi, pb); G23 2.47 cc (fi, pb); G25 1 cc (fi, pb); G26 1.5 cc (fi, pb); G27 3.2 cc (fi, pb); G28 .5 cc (fi, pb); G29 .8cc (fi, pb); G31 1.5 cc (cv, bb).
Taifun. Hurrikan 1.5 cc (bb, rv).
Vivell. .035 cu in. (fi, pb);.099 cu in rv, pb).
WAF. 1 cc (fi, pb); 5 cc (fi, pb).
Webra. Bulley 3.5 cc (pb, fi) blue head; Komet 2.5 cc (pb, fi) red head; Mach I, 2.5 cc (bb, rr) green head, small or large intake; Piccolo .8 cc (fi, pb); Record 1.5 cc (fi, pb);Winner 2.5 cc (fi, pb).
Wilo. 2.45 cc (crank disk rv, pb).
Ze Engine runs and flight maximums for PAA-Load Gas iss. Jena 2 cc (rv, bb); 2.5 cc (rv, bb).

Ineligible Diesel Engines

E.D. 1.5 cc ball bearing Super Fury 1958; 2.5 cc Racer 5th model, aluminum case, rear rotor.
Elfin. 1950 1.49 cc Russian reproduction with ABC construction.
Fro Engine runs and flight maximums for PAA-Load Gas g. Post-1956 2.49 cc ball bearing, front intake with red head; 3.49 cc rear rotor, plain bearing with white aluminum finish.
Oliver Tiger. Mk II Cub; Mk IV 2.5 cc ball bearing.
P.A.W. All sizes with ball bearings (these models have ball race at aft end and sleeve at front.
Super Tigre. G33 1.5 cc.
Webra. Mach II 2.5 cc front rotor.

Appendix B USOC National Championship Points Table

Number of Event Entries that Made an Official Flight																		
Place	1-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	22-23	24-25	26-27	28-29	30-31	32-33	34-35	36-37	≥38
1	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
4		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
5			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
6				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
7					1	2	3	4	5	6	7	8	9	10	11	12	13	14
8						1	2	3	4	5	6	7	8	9	10	11	12	13
9							1	2	3	4	5	6	7	8	9	10	11	12
10								1	2	3	4	5	6	7	8	9	10	11
11									1	2	3	4	5	6	7	8	9	10
12										1	2	3	4	5	6	7	8	9
13											1	2	3	4	5	6	7	8
14												1	2	3	4	5	6	7
15													1	2	3	4	5	6