FAI F3S Aerobatic

TOP GUN - Europe Master

Competition Rules

Introduction

We are very glad to cooperate with FAI to promote the new aerobatic category for Jets. The FAI F3S is open to all aerobatic pilots and they can fly with any type of sport or scale Radio Controlled Aerobatic Jet Model Aircraft.

General Regulations

- All Competitors must be member of WJA (World Jet Association).
- There is no limit of competitors number per each country.
- It will be flown only the preliminary schedule F3S SP-19 and in finals the schedule F3S SF-19.
- The F3S-individual Freestyle event will be flown after the final schedule, as final event of competition and will be held only with a minimum of 5 (five) competitors or more.
- Every competitor of TOP GUN Europe Master (any class) has the right to take part at the individual freestyle round, with any type of sport or scale Radio Controlled Aerobatic Jet Model Aircraft.

5.12 CLASS F3S – RADIO CONTROLLED AEROBATIC JET MODEL AIRCRAFT

5.12.1 Definition of a Radio Controlled Aerobatic Jet Model Aircraft
A model aircraft, but not a helicopter, which uses turbine jet(s) or ducted fan(s) as the propulsion source(s) and which is aerodynamically controlled by control surface(s) in attitude, direction, and altitude by a pilot on the ground using radio control. Variable thrust direction of the propulsion device(s) is permitted.

5.12.2 General Characteristics of a R/C Aerobatic Jet Model Aircraft

The R/C Aerobatic Jet Model Aircraft shall use as a propulsion device turbo jet/s or ducted fan/s.
Ducted fans may use turbo jet engines or electric motors as a power source.
Rocket or pulse jet engines may NOT be used.

The number of model aircraft eligible for entry is two (2).

Maximum overall span .	3500mm *
Maximum overall length	3500mm *
Maximum take-off weight with fuel (or with battery if EDF)	25 kg *
Electric Motors power source max. no load voltage	72 volts *

*A tolerance of 1% will be allowed for possible inconsistencies in measurement instruments for size, weight, and voltage unless otherwise stated.

The propulsion device(s) must automatically shut-off (EDF) or fully idle (turbo jet) at the moment an R/C signal failure occurs.

A maximum thrust of turbine is not defined, however limits for the competition area of the event have to be followed and must be submitted to the competitors***!***

Noise limits do not apply. If there is a noise limit for the competition area of the event, this must be submitted to the competitors!

Radio Equipment:
Radio equipment shall be of the open loop type (ie no electronic feedback from the model aircraft to the ground except for the stipulations in CIAM General Rules C.16.2.3).

Permitted:
1. Control rate devices that are manually switched by the pilot.
2. Any type of button or lever, switch, or dial control that is initiated or activated and terminated by the competitor.
3. Manually operated switches or programmable options to couple and mix control functions.
4. The use of electronic stability augmentation devices or gyros with or without speed related automatic gain control derived from a GPS signal.
5. The transmission of information from the model aircraft to the pilot on the ground.

Not permitted:
1. Snap roll buttons with automatic timing mode.
2. Pre-programming devices to automatically perform a series of commands, except for landing gear function.
3. Automatic flight path guidance.
4. Any type of voice recognition system.
5. Any type of learning function involving maneuver to maneuver or flight to flight analysis.

5.12.3. Definition and Number of Helpers

A helper may be a Team Manager, another competitor, or an officially registered supporter. Each competitor is permitted one helper (usually the caller) during the flight. Two helpers may be present and assist during the starting of the motor(s). One person, either a helper, or the team manager, or the caller, may place the model aircraft for take-off and retrieve the model aircraft following the landing. In exceptional circumstances, another helper may join the competitor and caller/helper during the flight, but only to hold a sun-shield as protection from direct sunlight. These protection devices must not interfere with the judges' vision of the maneuvers. Physically disabled competitors requiring an additional helper and/or caller or other assistance, must request permission with full details, with their entry, from the organizer of a championship. This additional assistance must be provided by the competitor, must not give him an unfair advantage over other competitors, and must not unduly delay or interfere with the running of the competition. Except for communication between the caller and the competitor, no other performance-enhancing communication with helpers is permitted during the flight.

5.12.4. Number of Flights

Competitors have the right to the same number of preliminary, semi-final, or finals flights. Only completed rounds will be counted. Only when all competitors in the preliminary, semi-final, and final rounds, have had the opportunity to complete the same number of rounds, can the results of the rain-interrupted (or other delay) competition be determined.

5.12.5. Definition of an Attempt

There is an attempt when the competitor is given permission to start.

If the propulsion device fails after the model aircraft becomes airborne, the attempt will be deemed complete.

5.12.6. Number of Attempts

Each competitor is entitled to one attempt for each official flight.

Note: An attempt can be repeated at the contest director's discretion only when any unforeseen reason beyond the control of the competitor, causes the model aircraft to fail to start (if there is radio interference). Similarly, in a flight that is interrupted by any circumstance beyond the control of the competitor, the competitor is entitled to a re-flight, with the entire schedule being flown and judged, but only the affected maneuver and the unscored maneuvers that follow will be tabulated. This re-flight should take place within 30 minutes of the first flight, in front of the same set of judges, or be the first flight after the judges' break, or, if it involves a protest, as soon as the FAI Jury has deliberated and communicated the outcome of the protest to the contest director. The result of the re-flight will be final.

5.12.7. Definition of an Official Flight

There is an official flight when an attempt is made whatever the result.

5.12.8. Marking

a) Each judge has to assess each maneuver and any other relevant action of the competitor individually and independently from the other judges. The criteria for judging are contained in the Description of Maneuvers (Annex 5M) and in the Maneuver Execution Guide (Annex 5B)

b) Each maneuver may be awarded marks by each of the judges during the flight. Every maneuver starts with the mark of 10 points and will be downgraded for each defect during the execution of the maneuver in one point steps, depending on the severity of the defect. The remaining points result in the mark for the maneuver. During tabulation, these marks are multiplied by a coefficient (K-Factor) which relates to the difficulty of the maneuver.

c) Any maneuver not completed, or flown out of sequence with the stated schedule shall be scored zero (0). Zero scores need not be unanimous, except in cases where an entirely wrong maneuver was performed. Judges must confer after the flight in these cases, bringing it to the attention of the flight line director/contest director on site.

d) Take-off and landing procedures are not judged and are not scored.

e) The maneuvering zone is vertically spread in front of and at a distance of approximately 150 m - 200 m from the pilot. (depending on the size of the model aircraft). It is laterally limited by two virtual vertical planes above the extension of two lines on the ground each at an angle of 75 degrees left and right from the intersection of a center line with the safety line. The center line is positioned on the ground perpendicular to the safety line on the ground which is parallel to the runway. Two starting circles of 3m diameter are marked on the middle of the runway, one left and one right at minimum 15 m off the center line, also serving for sound/noise measurement, if required. The upper limit of the maneuvering zone is defined by the virtual plane stretching up 75 degrees from the ground at the intersection of all ground lines.

f) The dimensions, inertia and speed of a jet model aircraft have to be considered

g) The pilot is normally placed on the intersection of all ground lines.

h) Maneuvers must be performed such that they can be seen clearly by the judges. If a judge, for some reason beyond the control of the competitor, is not able to follow the model aircraft through the entire maneuver, he shall set the "Not Observed" (N.O.) mark. In this case, the judge's mark for that particular maneuver will be the average of the numerical marks with two digits after the decimal point, rounded up. If the majority of the judges scored "Not Observed", the competitor has the right for a re-flight as per paragraph 5.12.6. If, for some reason within the control of the competitor, a judge is not able to follow the model aircraft through the entire maneuver, he has to downgrade the maneuver accordingly.

i) Centre maneuvers should be primarily performed in the center of the maneuvering zone while turn around maneuvers should not extend past the lateral limits. Vertical height should not exceed the upper limit. Also, maneuver should be primarily performed along a line of flight approximately 150m -200m in front of the safety line. Infractions of this rule will be cause for downgrading by each judge individually and in proportion to the degree of infraction. Exceptions

to this rule are cross-box maneuvers, 3D-manoeuvres, or maneuvers in a stalled condition, as well as the horizontal circle maneuvers which, of necessity, may deviate from the 150m - 200m distance of flight.

j) The maneuvering zone shall be clearly marked with white (or contrasting color to the background) vertical poles, approximately 100mm in diameter and approximately 4m high, placed on center and 75 degrees each side of center on a line 150m in front of the competitor's position. Flags, streamers, or boards of contrasting color to the background, should be mounted on the poles to improve visibility. White (or contrasting) lines, originating at the competitor's position and extending outward at least 50m, shall also be used to mark the center and extreme limits (75 degrees left and right of center) of the maneuvering zone. Audible and visual signals to indicate violations of the maneuvering zone must not be used.

k) The judges shall be seated not more than 10m, and not less than 7m behind the competitor's position (the apex of the 75 degree lines) and within an area described by the extension of the 75 degree lines to the rear of the competitor. The judges must be seated abreast, usually separated by 2m, with scribes or score secretaries separating them.

l) If a model aircraft is, in the opinion of the judges, unsafe or being flown in an unsafe or inappropriate manner, they may bring this to the attention of the flight line director, who may instruct the pilot to land.

m) The individual maneuver scores given by each judge for each competitor must be made public at the end of each flight of competition. The team manager must be afforded the opportunity to check that the scores on each judge's score document correspond to the tabulated scores (to avoid data capture errors). The score board/monitor must be located in a prominent position at the flight line, in full view of the competitors and the public.

5.12.9. Classification TOP GUN Europe Master:

a) Each competitor will have two (2) preliminary flights with schedule F3S SP19 with sum of the two (2) scores (normalized scores to 1000 points) to determine the preliminary ranking.
b) The top thirty percent (30%) of the classified F3S SP19 competitors with a minimum of ten (10) will enter the finals.
c) The finalists will fly one (1) final flight as a known, using the final schedule F3S SF19.
d) For the 10 finalists, the sum of the preliminary normalized scores and the final flight score (normalized to 1000 points) will determine the winner.

5.12.10. Judging

Judging of jet aerobatics has to be according to Annex 5B by giving consideration to the dimensions, inertia and speed of a jet model aircraft.

a) For each competition in F3S, there must be a minimum of three (3), and a maximum of five (5) judges, plus one timer.

b) For larger events, there might be several panels of judges.

c) For World or Continental Championships the organizer must appoint one or more panels of five judges each. The judges must be of different nationalities. Those selected must reflect the approximate geographical distribution of teams having participated in the previous World Championships and the final list must be approved by the CIAM Bureau. At least one third, but not more than two thirds of the judges must not have judged at the previous World Championship. Judge assignment to the panels will be by random draw.

   In the case of more than one panel of judges, the panels may be combined for final rounds of flights.

d) The invited judges for World or Continental Championships must be selected from the applicable list of current or upcoming approved FAI international judges and must have had a reasonable amount of F3A or F3S judging experience and must submit a resume of his judging experience to the organizer when accepting the invitation to judge at a World or Continental Championship. The organizer must in turn submit the resumes to the CIAM Bureau for approval.

e) To avoid errant judging, it is recommended that training flights be performed, before the beginning of official flying. These training flights are judged and tabulated according to the

regulations, but the results are not made public.

5.12.11. Organization for Radio Controlled Aerobatics Contests

a) Members of a National team, who have processed only one model aircraft each, may make use of the second model aircraft processed by another member of the same team. However, once that model has been used by a team member in that competition, it may not be used by any other competitor. If that team member did not process the model aircraft in the first place, then it must be re-registered and re-marked appropriately. This is the responsibility of the team manager.

b) Only spread spectrum radio control systems are allowed.

c) The draw for flight order will be done for each flight line. Team members will not be drawn to fly directly after each other. Team members on separate flight lines will be separated by at least two competitors. Competitor identification numbers will only be assigned after this flight order draw, by competitor group, and in numerical ascending order.

d) For flights two, three and four of the preliminary rounds the flight order will start ¼, ½ and ¾ down the flight order respectively. Organizers must take care to avoid a flight draw which will cause competitors to fly at approximately the same time each day.

e) The flight order for the first round of the finals in will be established by a random draw as above. The flight order for flights two, and three will start 1/3 and 2/3 down the finals flight order with decimals rounded-up.

f) Competitors must be called by a flight line official at least five minutes before they are required to occupy the starting area.

g) The competitor and his helper(s) then occupy the starting area so that a radio check can be performed to verify the correct functioning of the radio control equipment. The competitor must be allowed a maximum of one minute for a radio check before the beginning of the starting time.

h) The time keeper will audibly notify the competitor when the minute is finished and immediately begin timing the starting time.

i) According to paragraph 5.1.2., the voltage of the propulsion battery of electric powered models, must be checked by an official in the preparation area before the starting time is started.

j) For electric powered models, the electric power circuit(s) must not be physically connected, before the starting time is begun and must be physically disconnected immediately after landing.

k) A competitor is allowed six (6) minutes of starting time and eight (8) minutes of flying time for each flight. The timing of an attempt starts when the contest director, or timekeeper, gives an instruction to the competitor to start and the 6-min starting time begins. The competitor must be informed when 6**-**minutes of the starting time have elapsed. The openly displayed timing device/clock will be re-started to count the 8-min flying time when the model aircraft has been placed in the take-off circle. If the model aircraft is not placed with its wheels in the starting circle before/at the expiration of the 6-minute starting time, the contest director/time keeper will advise the competitor and helper that the flight may not proceed. The flight shall score zero points.
With the expiry of the ***8-***minute flying time, the scoring will cease except for the in-flight sound assessment, which is judged after the model aircraft has landed, irrespective of the time. The contest director/time keeper will advise the pilot, helper, and the judges of the expiry of the 8-minute flying time. The clock will be stopped at the end of the last maneuver as proof to the competitor of the recorded time.

l) The competitor may not start his model aircraft unless he has been instructed by a flight line official to do so. Deliberate starts at the flight line during official flying to check the propulsion device will be subject to disqualification from that round. No public address or commentary should be made during flights.

m) During the flight, the pilot and his helper/caller (if required) must stay in the designated position in front of the judges, at the convergence of the ground lines and under the supervision of the flight line director. The pilot must wear or display his identification/start number.

5.12.12. Execution of Maneuvers

a) The maneuvers must be executed during an uninterrupted flight in the order in which they are listed in the schedule. The competitor may make only one attempt at each scored maneuver during the flight.

b) The model aircraft must take-off and land unassisted, that is, no hand launched flights. If any part of the model aircraft is jettisoned during the flight, scoring will cease at that point and the competitor must be instructed by the flight line director to immediately land his model aircraft. Usually, the judges will be able to determine when a part has been jettisoned from the model aircraft. They should bring this to the attention of the flight line director on site.

c) The direction of the first maneuver or the landing may be different from that of the take-off.

d) After take-off, only turn-around maneuvers, and not more than two (2), are allowed before starting the first maneuver of the schedule.

5.12.13. Schedule of Maneuvers

The schedule F3S SB-19 is recommended to be flown in local competitions so as to offer advanced pilots a suitable way to achieve skills to step-up to P- Schedules.

The schedule F3S SP-19 is a preliminary schedule for expert pilots in Jet Aerobatic Power Model Aircraft competitions.

The schedule F3S SF-19 is a finals schedule for expert pilots in Jet Aerobatic Power Model Aircraft competitions.

The schedule F3S-FS (Freestyle) is for competitors to demonstrate their artistic performances in Jet Aerobatic Power Model Aircraft in conjunction with music.

Basic Schedule SB-19	K Factor
SB-19.01: Loop	3
SB-19.02: Knife-Edge Flight	4
SB-19.03: Reverse Cuban 8 with 1/2 roll, 1/2 roll	4
SB-19.04: Figure 9 with roll up	3
SB-19.05: 45° Up-line with ½ roll	3
SB-19.06: Slow roll	4
SB-19.07: Square Loop	4

Preliminary Schedule SP-19	K Factor
SP-19.01: Loop with roll integrated over top 90 degrees	4
SP-19.02: Half reverse Cuban 8 with ½ roll	2
SP-19.03: Knife-edge Flight	3
SP-19.04: Immelmann with ½ roll	2
SP-19.05: Reverse Cuban 8 from top with ½ roll, roll	4
SP-19.06: Half Loop	1
SP-19.07: Figure 9 with roll up	3
SP-19.08: Pull-push-pull Humpty Bump with ½ roll down	3
SP-19.09: 45° Up-line with 3 consecutive ½ rolls	3
SP-19.10: Half Square Loop	2
SP-19.11: Slow roll	3
SP-19.12: Half Cuban 8 with ½ roll	2
SP-19.13: Square Loop with ½ roll, ½ roll	5

Final Schedule SF19	K Factor
SF-19.01: Square Loop on corner with ½ roll, ½ roll, ½ roll, ½ roll	5
SF-19.02: Shark Fin with two consecutive ¼ rolls	3
SF-19.03: Knife-edge flight with roll	4
SF-19.04: Pushed Immelmann with roll	2
SF-19.05: Rolling Loop	5
SF-19.06: Half Square Loop with ½ roll	2
SF-19.07: Figure 9 with with four consecutive ¼ rolls	4
SF-19.08: Pull-push-pull Humpty Bump with consecutive two ¼ rolls	3
SF-19.09: Avalanche	4
SF-19.10: Top Hat with two consecutive ¼ rolls, ½ roll	3
SF-19.11: Knife Edge Humpty Bump with ¼ roll, ¾ roll	4
SF-19.12: Half square loop on corner with half roll	3
SF-19.13: Reverse Nine with 3/4 roll, 3/4 roll	3
SF-19.14: Half reverse Cuban 8 with consecutive two ¼ rolls	3
SF-19.15: Roll Combination with four consecutive 1/8 rolls, four 1/8 rolls in opposite direction	4

For the description of the maneuvers, judging notes, and Aresti diagrams, see Annex 5X.
For the Maneuver Execution Guide, see Annex 5B.

ANNEX 5X
F3S – RADIO CONTROLLED AEROBATIC JET MODEL AIRCRAFT

DESCRIPTION OF MANOEUVRES

BASIC SCHEDULE F3S B19

SB 19.01 Loop

From upright, pull through a loop, exit upright

SB 19.02 Knife edge Flight

From upright perform a ¼ roll into sustained Knife Edge Flight, perform a ¼ roll, exit upright.

SB 19.03 Reverse Cuban Eight with ½ roll, ½ roll

From upright, pull through a 1/8 loop into a 45° upline, perform ½ roll, pull through a ¾ loop into a 45°downline, perform a ½ roll, pull through a 5/8 loop, exit upright.

SB 19.04 Figure 9 with roll up

From upright, pull through a ¼ loop into a vertical upline, perform a roll, pull through a ¾ loop, exit upright.

SB 19.05 45° Upline with ½ roll

From upright, pull into a 45 degree upline, perform a ½ roll, pull through ¼ loop, exit inverted.

SB 19.06 Slow roll

From upright perform a low roll, exit upright

SB 19.07 Square Loop

From upright, pull through a ¼ loop into a vertical upline, pull through a ¼ loop, pull through a ¼ loop into a vertical downline, pull through a ¼ loop, exit upright.

PRELIMINARY SCHEDULE F3S SP-19

SP-19.01 Loop, with roll integrated over top 90 degrees

From upright, pull through a loop while performing an integrated roll in the top 90 degrees of the loop, exit upright.

SP-19.02 Half Reverse Cuban 8 with ½ roll

From upright, pull through a 1/8 loop into a 45 degree upline, perform a ½ roll, pull through a 5/8 loop, exit upright.

SP-19.03 Knife-edge Flight

From upright, perform a 1⁄4 roll to knife-edge flight, perform a 1⁄4 roll, exit upright.

SP-19.04 Immelmann with ½ roll

From upright, pull through a ½ loop, immediately followed by ½ roll, exit upright.

SP-19.05 Reverse Cuban 8 from top with ½ roll, roll

From upright, push through a 1/8 loop into a 45° downline, perform ½ roll, push through a ¾ loop into a 45°downline, perform a roll, pull through a 5/8 loop, exit inverted.

SP-19.06 Half Loop

From inverted, pull through a ½ loop, exit upright.

SP-19.07 Figure 9 with roll up

From upright, pull through a ¼ loop into a vertical upline, perform a roll, pull through a ¾ loop, exit upright.

SP-19.08 Pull-push-pull Humpty Bump with half roll down

From upright, pull through a ¼ loop to a vertical upline, push through a ½ loop into a vertical downline, perform a ½ roll, pull through a ¼ loop, exit upright.

SP-19.09 45 ° Upline with three consecutive ½ rolls

From upright, pull into a 45 degree upline, perform consecutively three ½ rolls, pull through ¼ loop, exit inverted.

SP-19.10 Half Square Loop

From inverted, pull through a ¼ loop into a vertical downline, pull through a ¼ loop,, exit upright.

SP-19.11 Slow roll

From upright, perform a slow roll, exit upright.

SP-19.12 Half Cuban 8 with ½ roll

From upright, pull through a 5/8 loop into 45° downline, perform a ½ roll, pull through a ¼ loop exit upright.

SP-19.13 Square Loop with ½ roll, ½ roll

From upright, pull through a ¼ loop into a vertical upline, pull through a ¼ loop perform ½ roll, push through a ¼ loop into a vertical downline, push through a ¼ loop, perform ½ roll, exit upright.

FINAL SCHEDULE F3S SF19

SF-19.01 Square Loop on corner with ½ roll, ½ roll, ½ roll, ½ roll

From upright, pull through a 1/8 loop into a 45 ° upline, perform a ½ roll, push through a ¼ loop into a 45 ° upline, perform a ½ roll, pull through a ¼ loop into a 45 ° downline, perform a ½ roll, push through a ¼ loop into a 45 ° downline, perform a ½ roll, , pull through a 1/8 loop, exit upright.

SF-19.02 Shark Fin with two consecutive ¼ rolls

From upright, pull through a 1/8 loop into a 45 degree upline, perform consecutively two ¼ rolls, pull through a 3/8 loop, pull through a ¼ loop, exit upright.

SF-19.03 Knife-edge Flight with roll

From upright, perform a ¼ roll, perform a knife-edge flight, perform a roll in opposite direction to the ¼ roll, perform a knife-edge flight, perform a ¼ roll in opposite direction to the roll, exit inverted.

SF-19.04 Pushed Immelmann with roll

From inverted, push through a half loop, immediately followed by a roll, exit upright.

SF-19.05 Rolling Loop

From upright, push through a loop while integrating one roll, exit upright.

SF-19.06 Half Square Loop with ½ roll

From upright,, push through a ¼ loop, perform a ½ roll, pull through a ¼ loop, exit upright.

SF-19.07 Figure 9 with four consecutive ¼ rolls

From upright, pull through a ¼ loop into a vertical upline, perform consecutively four ¼ rolls, pull through a ¾ loop, exit upright.

SF-19.08 Pull-push-pull Humpty Bump with consecutive two ¼ rolls

From upright, pull through a ¼ loop to a vertical upline, push through a 1/2 loop into a vertical downline, perform consecutively two ¼ rolls, pull through a ¼ loop, exit upright.

SF-19.09 Avalanche

From upright, pull through a loop, while performing a snap roll on top, exit upright.

SF-19.10 Top Hat with two consecutive ¼ rolls, ½ roll

From upright, pull through a ¼ loop into a vertical upline, perform consecutively two¼ rolls, pull through a ¼ loop into a horizontal line, pull through a ¼ loop into a vertical downline, perform a ½ roll, push through a ¼ loop, exit inverted.

SF-19.11 Knife Edge Humpty Bump with ¼ roll, ¾ roll

From inverted, fly past center, push through a ¼ loop into a vertical upline, perform a ¼ roll, perform a ½ knife edge loop into a vertical downline, perform a ¾ roll, push through a ¼ loop, exit inverted.

SF-19.12 Half Square Loop on corner with half roll

From inverted, push through a 1/8 loop into a 45° upline, perform a ½ roll, pull through a ¼ loop into a 45° degrees upline, pull through a 1/8 loop, exit inverted.

SF-19.13 Reverse Nine with 3/4 roll, 3/4 roll

From inverted push through a 7/8 loop into a 45 degree downline perform consecutively two 3/4 rolls in opposite direction, push through a 1/8 loop, exit inverted.

SF-19.14 Half reverse Cuban 8 with roll

From inverted, push through a 1/8 loop into a 45° upline, perform a roll, pull through a 5/8 loop, exit upright.

SF-19.15 Roll Combination with four consecutive 1/8 rolls, four 1/8 rolls in opposite direction

From upright perform consecutively 4 1/8 rolls, four 1/8 rolls in opposite direction.

F3S-individual Freestyle (F3S-FS), added event

After the competition flights with schedule P and F, one ore two Freestyle Rounds may be held as part of the event, with an independent classification, depending on local circumstances and the time available.
Every competitor who takes part in the competition has the right to take part at the freestyle round, with one of the two models registered in the competition at his choice.
The freestyle event can be held only with a minimum of 5 competitors or more.
The total of the round (normalized to 1000 points) will count as final classification for the individual Freestyle competition.
The allowed starting time is six (6) minutes. The competitor must be informed when five (5) minutes of the starting time have elapsed.
Music starts when the competitor has signaled his wish to start the music to the operator of music. This has to be done within the first thirty (30) seconds after take-off. The duration of the music must be five (5) minutes +/- 5 seconds. Judging of the flight starts with the beginning of the music, the flight ends at the stop of the music. The model has to be landed as soon as possible after the music has ended or with ending of the music.

FS 1. Take-off Sequence

Place the model aircraft on the floor and take-off.

FS 2. Freestyle

A sequence of maneuvers, freely composed by the competitor and flown in harmony to simultaneously played music of his choice. Any possible flight maneuvers may be flown and "show effects" presented, as long as safety is not compromised and conformity to the rules is met. It is permitted to perform different programs in conjunction with different music in each round. The performance is judged for the entire flight from start to finish and in accordance to the following ***five*** criteria:

For Freestyle flights the judges can give up to the maximum points. The scores are given after the flight for all ***five*** criteria. It is important, that the scores for each criterion reflect the entire flight, not only some details of the flight.

Precision and Accuracy K-19

The maneuvers and figures should be executed with precision and accuracy, with the competitor demonstrating that he has the aircraft under full control in all attitudes. It should be clear to the judges that the maneuvers flown, were in fact, intended and fully under the pilot's control. Higher marks will be given under this heading when individual maneuvers elements are started and finished on obviously precise headings and well-defined attitudes

Complexity K-19

This criterion evaluates the level of difficulty and variety of maneuvers of the freestyle flight. It is important, that the entire flight is to be judged, not only some highlights. So the score reflects the average level of difficulty and variety. In addition, the pilot is to utilize the full flight performance scope of his model. Fast and slow flying, snap maneuvers, hovering etc. The maneuvers should show positive as well as negative "g"-portions: loops, rolls, snaps, spins, stall-turns, tail-slides, hovering, torque-rolls, flat circles, Lomcevacs, circles, etc. Frequent repetition of the same maneuver has to be downgraded respectively. Maneuvers should be positioned in parallel or rectangular to the safety line. Poorly governed, unplanned or casually

flown maneuvers will be downgraded. The same applies to phases less extraordinarily attractive.
Risky maneuvers should never be mistaken as difficult maneuvers. Risky maneuvers must not lead to higher scores for difficulty, but result in a downgrade for safety.

Harmony of flight to Music K-30

The difficulty for competitors in F3S_FS will be to fly perfectly in harmony and rhythm with a musical arrangement that they have selected themselves. The flight performance should be synchronized with the music and must not be a flying with background music.

The maneuvers should follow the music and end with it. In F3S FS flights, the transformation of musical accents into the performance is of great importance.
The selected music piece(s) should flow through transitions, but contain fast-slow, soft-loud and dramatic sections. Dynamic and diversified sequences will lead to higher scores here. There should be a variety of different tempi in the presentation. The mood of the selected music should be reflected in the maneuvers and the presentation. Flights to Music pieces with little contrast, variety or tempi result in downgrades.
Marks should be deducted in this category for a flight that shows no relation between the rhythm of the evolutions and the music, therefore transforming the musical accompaniment to simple background music.

Utilization of Maneuvering Area K-10

The presentation should fill the maneuvering area .The performance should be orientated towards judges and spectators, although risky flying towards judges and spectators will result in downgrades.

Special Effects K-10

For special effects, additional points can be given. (see Judges Notes)
Special effects may be used for making the presentation of the freestyle flight more spectacular through the use of:

Smoke: Main turbine smoke and wing tips smoke may be used to empathize the freestyle maneuvers in a positive way (max. 5 points)

Lights can be a part of the model aircraft. They may be switched on and off during the flight or used to match the beat of the music. (max. 2,5 points)

Other: Unspecified special effects that pilots elect to use or may created in the future. (max, 2,5 points)

Judges Notes:

F3S-FS focuses on spectator and media efficacy. This is why the performances should be extraordinarily spectacular and entertaining under these aspects.

Judging of freestyle performance is more subjective and can't be done like used in F3S Aerobatics (P and F schedules by deducting points. So judging for Precision and Accuracy, Complexity, Harmony to Music and Utilization of Maneuver Area should start around 5 and add or subtract as the flight progresses.
For Special Effect Smoke judges may give a score up five (5) points. for other Special Effects up to two and a half (2,5) points. If a special effect is presented during the whole flight, there should not be more than ½ point for this effect. If a special effects fails, there should be zero (0) points for this effect. The maximum score for special effects is ten (10), if four (4) special effects are presented.
Bias in favor of, or against, particular persons, models, music pieces etc. must not influence the judging.
For the Judges it is recommended to make "pencil" notes right away during the presentation. So corrections are still possible in course of the flight. All criteria have to be marked simultaneously and evenly.

FS 3. Landing Sequence

Landing has to be done in a safe manner.