



International Jet Formation Masters

COMPETITION RULES

1. Introduction

The purpose of the International Jet Formation Masters (IJFM) is to promote and develop jet modelling sports by means of an official International Competition held in the form of a model air show style entertainment event.

The IJFM is open to all formation teams internationally, flying any type of manoeuvre with scale aircraft, civilian or military, sport aircraft with jet engines or turboprop driven aircraft. Most importantly, it is a Show presented by the teams to the spectators.

2. General Regulations

2.1 Competitors

Competitors must be formation teams from countries holding an IJMC Membership.

The maximum number of pilots in a team is limited to six.

There is no limit to the number of teams per country but it is unlikely that entries from more than fifteen teams will be accepted. If a lower limit to the total number of teams has to be imposed, this will be advised at the time of the official announcement of date and venue of the contest.

Pilots are not allowed to enter the competition in more than one team except in the event of a low entry or at the discretion of the organiser.

2.2 Competition program

The event will be held over three days, starting on Friday at noon.

The maximum number of flights is five (5), the minimum number is three (3). The order of the first flight will be done by a draw. In the case of 5 flights three flights with mandatory

manoeuvres and two freestyle flights will be done. In the case of 3 flights two flights with mandatory manoeuvres and one freestyle flight will be done. At the organisers discretion and if time is limited, the final round may be reduced to the 10 top scoring teams.

2.3 Final Scoring

2.3.1 A minimum of 3 Teams are required to run the competition.

2.3.2 The final result of the contest will be calculated from the best two rounds scored by each team added to the one off score from 6.6.1, difficulty of program and the best free style round.

2.3.3 If the competition has only three flights, the final result of the contest will be obtained by considering all three rounds.

2.3.4 All flight round will be harmonized to 1000 Points for the best scoring competitor.

2.5 General Characteristics of the model

Max. Weight of model at take-off.	National legislation of hosting country is applicable.
Wing-loading	no restrictions
Max. surface area	no restrictions
Motive power	no restrictions

2.6 Airworthiness

The contestant is responsible for the airworthiness of the jet model that he enters. He will state that he has personally test flown his jet model successfully and safely before the start of the competition.

2.7 Parts loss during flight

If any part unintentionally separates from the aircraft during flight the scoring stops for this round and the pilot must land immediately. The rule 6.9.6 Loss of Aircraft will apply.

2.8 Smoke System

All aircraft must be equipped with a smoke system which will be used as an option and is the responsibility of each Competitor. Smoke may be produced as a volatile additive to the fuel or by other chemical means.

2.9 Pyrotechnics

The use of fireworks/pyrotechnics on the ground is not allowed.

Functions of the model, such as fireworks/pyrotechnics and flares, may be used during the flight and must be operated only by the pilot from his transmitter and not operated by a third party using an additional transmitter. Use of an additional transmitter by a third party will void the score.

2.10. RC Equipment

The use of 2.4 GHz radio only is permitted during the competition.

There shall be no limitations on the radio or mechanical equipment used by the competitor (e.g. gyros are permitted). All R/C equipment must comply with statutory regulations of the country in which the event is being held, and transmit on an approved frequency and at an approved power for that country.

No person except the pilots is allowed to use a transmitter during flight.

2.11 Weather Conditions

In the case of inclement weather conditions at any time during the competition, a Team Leader or the Contest director may call a meeting to decide whether the competition should continue until more favorable weather conditions prevail.

The meeting will be attended by each competing Team Leader and the Contest Director.

A vote will be taken at the meeting to decide whether flying should continue and the decision will be carried by the majority vote.

In the case of a hung vote, the Contest Director will have the casting vote.

3. Event Program

3.1 Official Flights

The official flight is a freestyle program to music and must include the following mandatory manoeuvres:

- Formation take-off
- Low level formation flyby
- Formation Loop
- Crossover from opposite ends (see 4.4.2 and 6.8.4)
- Formation Landing

Round 3 and 4 are a full freestyle program to music which begins with take-off and ends with the landing. No mandatory manoeuvres need to be integrated during the free style program.

3.2 Starting Time

All teams will be given a 10 minutes warning before the start of their flight.

(Does this mean that each team have ten minutes to start their models before the flight time starts. If so it needs to say that)

The team will then be instructed to start their flight, the timing of which will commence when the team leader calls "Start or Take –off".

3.3 Flying Time

Maximum flying time is 7 Minutes starting when the first model begins its take-off run. (see also 6.8.5) During the final 30 seconds a countdown in 10 second increments will be provided for the judges by the official timekeeper.

No points will be awarded for any manoeuvre not completed at the end of the time allowed. Choreography points will be awarded in proportion to the amount of the flight manoeuvres completed.

3.4 Flying Program

The flying program, mandatory manoeuvres and the freestyle program, must be submitted in English in a typewritten manner, prior to the start of the contest and the mandatory manoeuvres must be highlighted. The program music should be on CD or other suitable media and must be delivered to the contest director along with the flying programme during the team registration. Once flown during the first round the program cannot be changed during the competition and manoeuvres missed or flown out of order in subsequent rounds will be penalised (see also 6.2).

4. Nomination & Roles of Judges

4.1 Judges

A team of 5 judges plus one reserve judge will be nominated by the IJMC. The reserve judge will serve as a safety line marshal unless called upon to judge.

A condition of the judges' appointment will be that they are able to speak good English and undertake to attend a Judge's briefing on the morning before the competition begins.

4.2 Chief Judge

The Chief Judge shall be selected from the IJMC judges list. The main concern of the Chief Judge should be the accurate and fair judging of the competition flights. He should place his expertise at the disposal of the Board of Judges, and coordinate and guide their work. He will certify and hand in raw results immediately following each flight, so the public can be informed as soon as possible of the leading team. The marks he awards will be treated in exactly the same way as those of the other Judges.

He is responsible for certifying the scores.

4.3 Protests

All protests must be made in writing, and handed to the Contest Director.

Prior to the start of the contest the CD will organise and appoint an 'Arbitration Tribunal', which will consist of the following 3 persons:

- A representative of the event organiser, CD or flightline director.
- A member of the hosting club
- A representative for the competitors who will be elected by a vote of all pilots at the briefing before the contest begins. The CD shall ensure that the Tribunal reaches a decision within 12 hours of any protest being made, and before any final results are released or prize giving commences. In the event that the representative is the protestor, a new representative will be appointed by the pilots.

No other person(s) shall be present at the arbitration discussions with the exceptions of the protester, the team being protested against, any language translators required and any person called upon to give evidence. The Tribunal will first hear from the protester, and afterwards may request a response from the Competitor being protested against followed by any other competent witnesses, if called.

After deliberation the Arbitration Tribunal will announce their decision which will be final and may not be appealed against.

No protests may be submitted later than 3 hours after the posting of the score for the protested flight.

4.4 Safety Issues

4.4.1 Safety Line

If there is a cross-wind causing persons to be endangered by a competitor's model, or the Safety Line, established jointly by the Contest Director and Flight Line Controller, is crossed under any circumstances, scoring will cease and all pilots of the team involved will be instructed by the Flight Line Controller to land their models immediately.

4.4.2 Crossover

Crossover from opposite ends when performed by formations of more than two models, only two of the aircraft may perform this manoeuvre.

4.4.3 High Risk Manoeuvres

High energy turns, “split” and “crossover” manoeuvres flown towards the crowd closer than 75 metres from the crowd line are banned. If any team is considered by the Flight Line Controller to be in breach of this regulation, scoring will cease and all the team pilots will be instructed by the Flight Line Controller to land their models immediately.

4.4.4 Minimum Height.

No manoeuvre may be performed below 5 metres.

4.5 Position of the Judges

The judging positions will be decided by the Chief Judge during the briefing of the pilots and judges and before the training flight.

5. Competition flights regulations

5.1. Contest Briefing

Prior to the start of the contest a briefing for Competitors will be held on local procedures. At the beginning of each day a briefing will be held for the Competitors, Officials, Judges and Jury regarding organisational matters for the day.

The briefings shall include, as a minimum:

- Weather forecast and winds speeds.
- Description of the Performance Zone and the Judges position.
- Safety and Security rules, deadline and minimum altitude if any.
- Starting order and schedule.
- Music procedure. (only Audio CD or MP3 Files on USB stick accepted)
- Definition of field boundary.
- Emergency procedures.

Attendance by all team pilots at the pilots’ briefings is mandatory. Non attendance by competitors at the pilots’ briefing will mean NO FLIGHT.

5.2 Judges Briefing

The time and date will be set for this briefing by the Chief Judge, the attendance of which is compulsory for all Judges.

It will be conducted by the Chief Judge and will include the following:

Safety line Judges duties.

Judges review of the following items:

Range of scores.

Criteria for scoring.

Other items deemed necessary.

5.3 Cancellation of flight

If a Team is unable to start or complete a flight and in the opinion of the Contest Director, the cause is outside the competitor’s control, for example an act of God, bad weather or safety reasons the C.D. may, at his discretion, allow the team a re-flight. The C.D. shall decide when the re-flight takes place. If there is any doubt, the team should be allowed a re-flight as soon as possible after which, if the reason for the re-flight was subsequently considered not valid, the protest procedure will be invoked. This will avoid delaying the closure of the competition to accommodate late re-flights. It will also ensure that re-flights are made in similar weather conditions to the original scheduled flight.

5.4 Restart Joker

Each team can use the restart Joker once only during the competition and if time allows all Joker reflights will take place on the same day.
 If the Joker is used shortly before the end of the day's competition, the reflight will take place the next day, the timing of which will be at the discretion of the CD.
 After the team has called take-off, no restart is possible.
 The Team can use the Joker for whatever reason.

6. Evaluation of flights

6.1 Scores

Marks from 0.0 to 10.0 in 1/10th point increments will be awarded by each judge.
 The lowest and highest judge's scores given for each manoeuvre will be automatically discarded by the scoring system.

6.2 Selection of Figures

Selection of figures or figure combinations in the freestyle program will be made by each team and changes to their selection either in style or order will not be permitted. If a manoeuvre is missed or flown out of order the score will be downgraded according to the severity of the omission.

6.3 Music – performing rights

Each team will select the music for their flights and will accept all responsibility with regards to obtaining permission from composers to use their music for public displays.
 Each Promoter will undertake all responsibility in regards to the performing rights (broadcast) for live or recorded music, including declaration to an appropriate Company in charge of collecting author's rights in the event country.

6.4 Music - operation

Teams are required to supply their musical accompaniment either live or on suitable media for the "Freestyle to Music" program. The music will be played by an operator of the team, or by a local operator who will just broadcast the recording as it is, no action will be made by the local operator (i.e. fade out, change tracks, etc...)

6.5 Music - Failure

If the music does not start because of a technical problem linked to the sound system itself, the schedule may be aborted by the Team Leader after he has made the announcement to start. The CD or Chief Judge will permit a re-flight if the music fails during the flight for a reason outside the competing team's control.

6.6 Flight Manovers

The K-Factor for 6.6.1 (difficulty of program) is depending on the number of models flown in the formation.

pilots	0	1	2	3	4	5	6	
programpoint of flying 6.6.1								
1 the difficulty of the program	✓	0	0	6	8	10	12	14

Flight round 1, 2 and 4 consist of:

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The 5 mandatory maneuvers edited by freestyle passages. The program order is defined by the team.

Flight 1-3 will be scored according to the following criteria:

		Pilot	2	3	4	5	6		
programpoint of flying 6.6.2 to 6.6.7									
1	Mandatory Manoeuvres	✓	0	0	10	10,2	10,4	10,6	11
2	Precision of demonstration	✓	0	0	10	10,2	10,4	10,6	11
3	Synchronism of demonstration	✓	0	0	15	15,2	15,4	15,6	16
4	Close formation	✓	0	0	15	15,2	15,4	15,6	16
5	Special effects	✓	0	0	10	10	10	10	10
6	Choreography	✓	0	0	5	5	5	5	5
7									
8									
9									
10									
Mandatory Manoeuvres									
1	Formation Take off	✓	0	0	10	10	10	10	10
2	Low level fly by	✓	0	0	10	10	10	10	10
3	Formation Loop	✓	0	0	10	10	10	10	10
4	Crossover from opposite sides	✓	0	0	10	10	10	10	10
5	Approach Landing	✓	0	0	10	10	10	10	10
6									

The different K-Factors for 6.6.2 to 6.6.7 are depending on the number of models flown in the formation.

		Pilot	2	3	4	5	6		
programpoint of flying freestyle									
1	Creativity	✓	0	0	15	15	15	15	
2	Precision of demonstration	✓	0	0	10	10,2	10,4	10,6	11
3	Synchronism of demonstration	✓	0	0	15	15,2	15,4	15,6	16
4	Close formation	✓	0	0	15	15,2	15,4	15,6	16
5	Special effects	✓	0	0	10	10	10	10	10
6									
7									

The different K-Factors for the freestyle are depending on the number of models flown in the formation.

6.7 Difficulty of the program

The judges will award points for the difficulty of the complete program. They will take into consideration the difficulty of chosen figures, formation changes, synchronisation between different elements of the program and flying in harmony with the musical arrangement. The points for the difficulty of the program will be awarded only one time after the first demonstration flight. They will be added to the final score.

Note. Check rule 6.10.1

Maximum points for a two pilot team are 180, up to a maximum of 420 points for a team for manoeuvres missed or flown out of order from the written sequence. (Don't know what this means needs to be clarified)

6.8 Mandatory manoeuvres

The mandatory manoeuvres must be flown in the order as declared on the judging sheets. Random changing of the order of the manoeuvres is not permitted.

The judges will judge each manoeuvre according the following criteria:

- Manoeuvres not flown
- Manoeuvres not identifiable
- Manoeuvres flown well
- Manoeuvres flown excellent

All manoeuvres must be flown parallel with and close to but beyond the far side of the runway.

6.8.1 Formation Take-off

The formation shall take off; fly in a straight line from take off and at a constant rate of climb. Turn off at the end of this manoeuvre will be defined at the pilots briefing.

6.8.2 Low level formation flyby

The formation shall make a low fly-by, for duration of 5 - 10 seconds, at a height of between 5 - 10 metres.

6.8.3 Formation Loop

From straight and level flight, the formation executes a 360° circle in a vertical plane, and resumes level flight at the same altitude and on the same track and heading as it started.

6.8.4 Crossover from opposite ends.

Two models from each formation team shall make a low fly-by from opposite directions. At the crossing point the models shall be centred on the judges' position.

6.8.5 Approach and Landing

The formation will make a landing approach in the manner of the prototype, and land on the runway in front of the judges. Timing will stop when the wheels of the first aircraft in the formation touch down but the landing of following models in the team will be scored (see also 3.3). Retractable undercarriage is to be extended and flaps, spoilers, speed brakes etc., are to be extended as per the full-size prototype.

6.9 Scoring criteria

6.9.1 Precision of demonstration

The manoeuvres must be performed in a position and at a height which will allow them to be seen clearly by the judges. The judges will note the precise headings and attitudes, smoothness and accuracy during the scheduled manoeuvres. In addition they will also take into consideration such things as use of the permitted air space during the reversing and turning manoeuvres.

6.9.2 Synchronism of demonstration

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The judges will award points for the synchronism of figures, selection of the manoeuvres, change of formation and the harmony of the tempo and mood music to the style of the flying.

6.9.3 Close Formation

The judges will award points for the closeness of the aircraft in formation, the distance between the models during the demonstration should be a minimum 2 wingspans.

6.9.4 Special effects

During the preliminary rounds all special effects may be deployed but, during rounds 1 and 2 the judges will only score the use of smoke, however generated.

In the third flying round and the final freestyle round the judges will award points for the use of smoke, lights, and special effects with music. If special effects are deployed on the ground (no pyro technique or fireworks) they must be positioned no nearer to the crowd line than the far side of the runway and placed after the previous team have flown. The time taken for their preparation may not exceed five minutes.

6.9.5 Choreography

The judges will reward flight speed, smoothness, accuracy and harmony with music throughout the whole flight. Non-scale manoeuvres flown by scale aircraft will not be penalised.

6.9.6 Loss of Aircraft

A complication arises when the number of models in a formation changes. In the case of a two model formation, the loss of one model signals the end of the round and scoring stops. In the case of three or more models in the formation, this can happen if a model flames out or crashes during a round. In this case the K factor used changes to the actual number of planes flying from this point on. For the calculation of the difficulty factor an average will be calculated.

Example:

A 4-ship formation loses one plane during the 2nd flight. The K-Factor is calculated as follows: $(10 + 8 + 10) / 3 = 9.33$.

If this model also cannot fly in the following round the following calculation applies: $(10 + 8 + 8) / 3 = 8.66$

(This sounds unnecessarily complex)

6.10 Flight points and Coefficients.

6.10.1 Difficulty of the Program (6.6.1) and the Element of Flight Schedule (6.6) will be only judged one time at the first official demonstration flight of the team. (see explanation in para. 6.7). Points will be awarded from 0 - 10 in 1/2 point increments by each of the judges. All mandatory manoeuvres and each program part 6.6.1 – 6.6.7 will be awarded points from 0 - 10 in 1/2 point increments by each of the judges during every official flight. The points awarded for each program part shall then be multiplied by the appropriate K- factor. From the five flying judges, the lowest and highest scores awarded for each manoeuvre will be discarded.

6.10.2 In the case of three flying rounds, the best two flight scores added to the freestyle score will count towards the final score. In the event that less than the proscribed numbers of rounds are flown due to bad weather, for example, all flight scores will count towards the final score.

6.10.3 Due to the use of only three of the five judge's scores being used, the maximum points possible from a three scoring flight round contest, after applying the K factors will be between 6030 and 6480 points depending on the number of models in the formation. The total flight points shall be the sum of the points awarded by the judges for the highest scoring flights.

6.11 Maximum Flight Scores

Program-difficulty	Points 6.6.1	= 180 max Points (2 Pilots) = 420 max Points (6 Pilots)
1. flight	Normalization to 1000 Point for the best scoring Team Points 6.6.2 – 6.6.7	= 1950 max Points (2 Pilots) = 2070 max Points (6 Pilots)
2. + 3. flight	Normalization to 1000 Point for the best scoring Team 1950 + 1950	= 3900 max Points (2 Pilots) 2070 + 2070 = 4140 max Points (6 Pilots)
3. + 4. Freestyle	Normalization to 1000 Point for the best scoring Team 1800 + 1800	= 3600 max Points (2 Pilots) 1920 + 1920 = 3840 max Points (6 Pilots)
	Normalization to 1000 Point for the best scoring Team	
Final result with three regular and two freestyle flights flown	Points 6.6.1 + Total of the two best regular flights plus the best freestyle	max. 1000+1000+1000+1000 = 4000
Final result with two regular and one freestyle flights flown	Points 6.6.1 + Total of all regular flights plus the freestyle	max. 1000+1000+1000+1000 = 4000max:

6.12 Public announcements

Prior to and after the performance of a program, details regarding the Competitor concerned will be published by any means (radio, announcer, etc...).

During the flight, only the teams' music or a live commentary from the Team Leader or the caller should be heard, to explain the figures or technical details in an effort to maintain public interest. No comment on the quality of any part of a flight may be made until the Chief Judge has collected all of the relevant score sheets.

No public commentaries shall be heard by the Pilots whilst flying.

6.13 Final results

Trophies and certificates will be awarded to place 1 – 3 and certificates will be awarded to all team members. All other items given by sponsors will be awarded to the teams in order of their ranking.

6.14 Dead heat

If this procedure fails to produce a result, prizes awarded for all the positions of competitors who tie, will be added together and shared equally.

(I don't understand the last paragraph, it needs to be clarified).