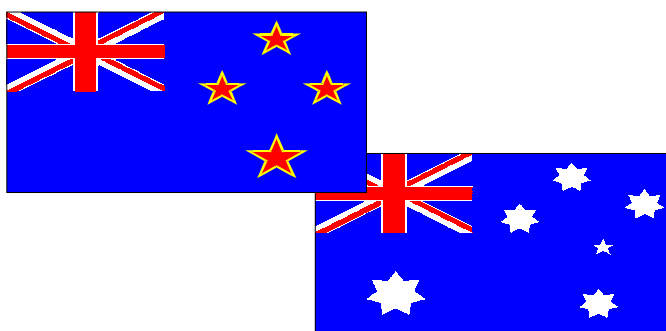


***Royal New Zealand Aero Club***  
***Royal Federation of Aero Clubs of Australia***

## **NEW ZEALAND WINGS TROPHY RULES**

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## 1.1 Introduction

The New Zealand Wings Trophy Championships are conducted annually by the Royal New Zealand Aero Club (RNZAC) and the Royal Federation of Aero Clubs of Australia (RFACA) in accordance with the Civil Authority regulations pertaining to the host organisation and are open to amateur pilots holding a current New Zealand or Australian Pilot Licence issued by the relevant regulatory authority.

## 1.2 Competitors

1.2.1 All competitors must hold a minimum of a current Private Pilot Licence and be endorsed and current on the type of aircraft in which they intend competing.

1.2.2 The holder of a Commercial Pilot Licence is eligible to compete providing:

- He/she has not exercised the privileges of the licence to fly for hire or reward;
- He/she is not a Service Pilot.

1.2.3 All competitors for all events must be entered on the official New Zealand Wings Trophy Entry Form by an authorised representative of the organisation making the entry.

1.2.4 Competitors in the Formation Flying event must produce evidence of holding the relevant qualifications required by the Civil Authority of the host country. The team must also provide evidence that they have recently flown together as a formation team.

1.2.5 Competitors in the Aerobatics event must produce evidence of holding a current Low Level Aerobatic Approval.

1.2.6 A competitor may represent only one organisation and may enter each event only once in any one Championship.

1.2.7 All competitors shall attend the Main Pilots' Briefing which will be held at a time and place to be notified annually. However, where a competitor is unavoidably prevented from attending the Main Pilots' Briefing he/she must report to the Championships Director before competing in any event. Failure to do so may involve disqualification.

**1.3 The Championships**

1.3.1 The Championships consist of the following four events:

- Aerobatics
- Forced Landing
- Formation Flying
- Spot Landing

**1.4 New Zealand Wings Trophy Team Championship**

1.4.1 Each organisation may enter one team only for the New Zealand Wings Trophy Team Championship.

1.4.2 Each team must enter all four events.

**1.5 Individual & Overall Championships**

1.5.1 The competition for the Individual Championship and the New Zealand Wings Trophy Team Championship will be conducted at the same time.

**1.6 Trophies**

1.6.1 The New Zealand Wings Trophy shall be awarded to the team winning the greatest number of New Zealand Wings Trophy Championship events and a medallion shall be awarded to each member of the winning team.

1.6.2 Should the number of events won by each team be equal in number, then the team with the highest number of aggregate points gained shall be declared the winner.

1.6.3 Medallions will be awarded to competitors gaining first place in each event.

1.6.4 In the Formation Flying event each pilot in the team gaining first place will be awarded a medallion.

**1.7 Scoring**

1.7.1 All competitors' scores will be factored to, or awarded from, 100 points for each event.

1.7.2 The final score for each competitor in the Forced and Spot Landing Competitions will be the average of three rounds, each round being flown with a different Air Judge.

1.7.3 Scoring for the New Zealand Wings Trophy Team Championship shall be as follows:

1.7.4 Scores for each event will be factored to 100 points.

The team having:

1.7.5 The greatest number of wins shall be declared the winner of the New Zealand Wings Trophy Team Championship.

or if each team has an equal number of wins, then:

1.7.6 The team with the highest total points shall be declared the winner of the New Zealand Wings Trophy Team Championship.

1.7.7 Scoring for the Individual and Overall Championship shall be as follows:

1.7.8 The competitor with the highest final score in each event shall be declared the winner and champion for that event.

1.7.9 Should only one entry be received for any one event the entrant (or, for Formation Flying, the entrants) must perform and be judged in accordance with the Rules to be allocated points for the event.

1.7.10 In the event of teams or individual competitors having the same number of total points, final placings may be determined by video replay.

## 1.8 **Aircraft**

1.8.1 The New Zealand Wings Trophy championships are open to serviceable ZK or VH registered aeroplanes provided that where an Air Judge is carried such aircraft must be fitted with fully functioning dual controls.

1.8.2 Aircraft must not exceed 5700 kg MAUW.

1.8.3 All competing aircraft must be fitted with a serviceable safety harness or shoulder and lap strap safety harness for both occupants and such safety harness is to be used by both occupants.

1.8.4 All competing aircraft, complete with Maintenance Release and Aircraft Flight Manual or equivalent document, must be made available for scrutiny by the designated officials as required prior to taking part in the Championships.

1.8.5 Any luggage or loose objects are to be properly restrained.

1.8.6 Details of speeds and power settings which would affect the judging in any event must be submitted to the Championship Director prior to the commencement of the Championships.

1.8.7 For the purpose of these Rules, the "undercarriage" is defined as the main wheels of the aircraft.

1.8.8 QFE altimeter setting will be used for all events unless otherwise advised at the Main Pilots' Briefing.

## 1.9 **Director**

1.9.1 The Championship Director (who may have one or more assistants) and a Deputy Director will be appointed annually by the Executive of the RNZAC or RFACA whichever is the host organisation for that year.

1.9.2 The Director is in overall charge of the Championships and is responsible for:

- The good management and safe conduct of the Championships;
- Penalising or disqualifying a competitor for misconduct or failure to obey the Rules in accordance with advice tendered by the Stewards;
- Organisation of all briefings.

## 1.10 **Stewards**

1.10.1 At least two Stewards, one of whom shall be Chief Steward, will be appointed annually by the host organisation. The principal functions of the Stewards will be to:

- Watch over the conduct of the event and report to the Director any unfairness or infringement of the Regulations or behaviour prejudicial to the safety of other competitors or the public or in any way prejudicing the event;
- Advise on interpretation of the Rules and Regulations; investigate protests, report their findings to the Director and advise him regarding any penalties to be imposed;
- In exceptional circumstances take such action as is necessary to ensure the safety of competitors and the public.

## 1.11 **Judges**

1.11.1 Judges are responsible for the scrutiny of aircraft and documents as necessary.

1.11.2 The required number of Air Judges, including one who shall be nominated as Chief Air Judge, shall be appointed annually by the Executive of the RNZAC or RFACA depending upon who is the host for that year. Any suitably qualified person may be so appointed.

1.11.3 Subject to the approval of the Executive of the RNZAC or RFACA, the host club for the Championships shall appoint the required number of suitably qualified persons as Ground Judges, one of whom shall be nominated as Chief Ground Judge. Where possible, judges from both organisations taking part should be appointed.

1.11.4 All Judges shall be required to attend briefings as advised by the Director prior to the commencement of the Championships.

1.12 **Marshals**

1.12.1 Subject to the approval of the Director, the host club shall appoint suitable persons as Aircraft Marshals, one of whom shall be the Chief Marshal.

1.13 **Chairman**

1.13.1 The Chairman of the Championships, who shall normally be the President of the RNZAC or RFACA, shall be appointed by the Executive of the host organisation.

1.14 **Secretary**

1.14.1 The Secretary of the Championships, who shall normally be the Administration Officer of the host organisation, shall be appointed by the Executive of that organisation.

1.15 **Entries**

1.15.1 All entries for the New Zealand Wings Trophy Championships are to be submitted on the prescribed form and accompanied by the required entry fees. The form and fees must be lodged with the Secretary of the Championships by the date notified each year. Late entries may be accepted at the discretion of the Secretary.

## 2 GROUND JUDGING

2.1 The responsibility for ground judging and allocation of ground scores rests in the hands of the Chief Ground Judge and two assistant ground judges. The three ground judges will be assisted by line judges situated opposite each line of the landing grid and the simulated fence.

2.2 The aircraft must clear a 1.2 metre fence prior to landing. The landing path will be divided into ten sections, each carrying points as set out in Appendix I.

2.3 Where the undercarriage straddles the boundary between two scoring sections, the average of the two will count as the ground score.

2.4 Landings will be graded as NORMAL, REBOUND or BOUNCE.

### 2.5 Normal Landing

2.5.1 A normal landing is one where the main wheels of the aircraft touch down on the runway and remain firmly in contact with it.

2.5.2 In tricycle undercarriage aircraft the touchdown must be made on the main wheels with the nosewheel clear of the runway.

2.5.3 In tailwheel aircraft the touchdown on the main wheels must be made with the tail clearly lower than the horizontal.

2.5.4 In both types of aircraft where one main wheel touches down before the other, except in the case of a cross wind landing, scores will be taken as follows:

- Touchdown before the 60 metre line :  
Initial Score is taken when the one mainwheel first touches the runway.
- Touchdown after or on the 60 metre line :  
Score is taken when both main wheels are firmly on the ground.

2.5.5 In a crosswind landing touchdown may be made on the into wind main wheel and the score will be taken from when that wheel remains firmly on the ground. Touchdown on the out of wind wheel incurs a penalty.

### 2.6 Rebound

2.6.1 A rebound is a minor bounce where one or both main wheels leave the runway for a short distance. It may be caused by the reaction to touchdown or recoil of the undercarriage. It is not caused by a heavy

2.6.2 landing.

2.6.3 If the initial and second point of contact of the main wheels with the runway are within the same ground scoring box then it is classed as a rebound and the points allocated to that box will count as the ground score.

2.6.4 If the initial point of contact is in one box and the second point of contact is in an adjacent box then it is still classed as a rebound but the box which has the lesser value will count as the ground score.

## 2.7 **Bounce**

2.7.1 If the initial and second point of contact are separated by one complete box or more then the landing is classified as a bounce. The value attached to the lesser of the two contact boxes will count as the score. This landing attracts a bounce penalty.

2.7.2 In the case of a multiple bounce, the lesser of the two values attached to the box of initial contact and the box of permanent contact will count as the score. This landing attracts multiple bounce penalties.

2.7.3 If the final point of contact with the runway is outside the scoring area then the contestant is disqualified from that attempt. If, in the opinion of the Chief Ground Judge and at least one of the two assistant ground judges, a competitor has performed a landing which results in a bounce, even though the initial and second point of contact are in the same box or adjacent boxes, the landing will attract a bounce penalty.



3.1 **Procedure**

- 3.1.1 The object of the Forced Landing Competition is to land the aircraft on a marked area of the runway following a simulated engine failure whilst carrying out the checks and drills as specified in these rules.
- 3.1.2 The forced landing is to be conducted so as to conform to the procedures as outlined in the approved flight instructor manual and as briefed by the Championship Director.
- 3.1.3 Competitors are required to fly three circuits, each with a different air judge.
- 3.1.4 The competitor shall act as pilot in command under the supervision of the air judge.
- 3.1.5 Normally the climb to 2500 ft will be from a right hand pattern, the descent will be to a left hand pattern and QFE altimeter setting will be used. These conditions will only vary if advised at the main pilots' briefing, or the pilot briefing for this event.
- 3.1.6 The competitor shall climb the aircraft to 2500 ft and position it over the touchdown markers and heading in the direction of intended landing. At this point the competitor says "READY". The air judge initiates the forced landing by closing the throttle.
- 3.1.7 The air judge shall make all actual radio transmissions.

3.2 **Scoring**

- 3.2.1 Judging starts and scores are allocated from the reduction of power and continues to the completion of the landing roll.
- 3.2.2 A maximum of 100 points may be scored for each attempt.
- 3.2.3 The point system is as follows:  
  
Air Technique.....50 points  
Ground score.....50 points
- 3.2.4 A competitor's final score will be the average of the three attempts.

3.3 **Air Technique**

- 3.3.1 The forced landing score sheet in Appendix 2 gives details of items and point scores applicable. An explanation is set out in Section 4.

3.3.2 Each competitor will be required to nominate the following speeds on the air judge score sheet: - glide speed without flap, with partial flap, with full flap and the minimum approach speed. In the case of an aircraft without flap, a sideslip speed must be nominated. Such speeds shall not be less than those stated in the aircraft Flight Manual or the Manufacturer's data manual which must be available for inspection by the Air Judge.

### 3.4 **Countback**

If, when placings are being determined, a tie occurs then a countback will take place. The winner will be the competitor with the greatest number of normal landings and the least number of rebounds, bounces and heavy landings, and subject to Rule 1.7.10.

### 3.5 **Penalties**

#### 3.5.1 **Air Judging**

3.5.2 The air judge shall not allocate part points on the score sheet.

#### 3.5.3 **Ground Judging**

3.5.4 No penalty is incurred for a rebound.

3.5.5 The bounce as defined in Rule 2.21 attracts a bounce penalty. Multiple bounces attract multiple penalties.

3.5.6 Ten points are lost for the following:

- Each bounce
- Touching down on the out of wind wheel in a crosswind landing.

3.5.7 Twenty points are lost for:

- A three point or nosewheel first landing in a tricycle undercarriage aircraft.
- A main wheels landing in a tail wheel aircraft where the tail is level with or higher than the horizontal.

### 3.6 **Disqualification**

3.6.1 A competitor will be disqualified from the **whole event** if:

- The aircraft is, in the opinion of the air judge, flown in a dangerous manner.
- One or more tyres are deflated to a pressure lower than that officially recommended.

- False or misleading information is supplied to any official.

3.6.2 A contestant is disqualified from **that attempt** if the Ground judge determines that:

- The aircraft touches down before the fence
- The aircraft breaks the fence.
- If any part of the aircraft touches the fence and causes it to fall to the ground.
- The undercarriage is not kept within the touchdown area width.
- The aircraft is not firmly on the ground by the last touchdown line.

3.6.3 A contestant is disqualified from **that attempt** if the Air judge determines that:

- The power is applied (other than the allowable clearing burst) before touchdown
- The aircraft is sideslipped below 100 ft
- Flap is raised, partially or fully, on final approach after the fence has been crossed
- The approach speed is below the minimum stated in the Flight Manual or Manufacturer's data manual.
- The sequence of flying or emergency procedures is displayed in any form in the cockpit.
- In the interests of safety the air judge considers it necessary to take over control of the aircraft.
- A flapped aircraft is sideslipped with flaps down.

**4. INTERPRETATION OF FORCED LANDING SCORE SHEET**

4.1 Note: This Appendix to be read in conjunction with the Forced Landing Air Judges Score Sheet (Appendix 2). A maximum of 50 points may be awarded for air technique. The air judge will allocate all points for air technique.

**4.2 General**

4.2.1 Each of the four descending turns must be visually cleared for other traffic. The competitor must say out loud, "clear right, clear ahead, clear left" as the check is carried out. One point will be allocated for each correctly cleared turn.

4.2.2 The engine must be cleared once only, prior to base turn, by smoothly advancing the throttle and then returning to idle.

4.2.3 Safety checks covering all the items listed below are to be stated aloud and, where possible, the items are to be indicated by hand. These checks may be completed at any time after entering downwind:

Brakes	- Off
Mixture	- Idle cut-off
Fuel	- Off
Ignition	- Off
Hatches	- Unlocked
Harness	- Tight

**4.3 Before Base Leg (17 points)**

4.3.1 The glide is to be stabilised at the nominated glide speed without flap on the initial leg and maintained until flap is lowered on base leg.

4.3.2 Simulated trouble checks covering all of the items listed below are to be carried out by stating them out loud and indicating them by hand.

Carb heat	- Hot
Fuel	- On (or both or other tank) and sufficient, pump on, pressure OK
Mixture	- Rich
Oil temp & pressure	- Within range
Ignition	- Check left and right mag.
Throttle	- Linkage check
Primer	- Locked

4.3.3 The distress message is to be stated aloud but not transmitted. As a minimum the message must include:

MAYDAY, MAYDAY, MAYDAY  
(Callsign) SIMULATED ENGINE FAILURE  
LANDING ON RUNWAY (Number)  
AT (Aerodrome)  
POSITION (Crosswind/Downwind)  
ALTITUDE (At time of call)  
PERSONS ON BOARD (Number)

4.3.4 Passenger Briefing is to be stated aloud and must include the following:

WE HAVE HAD AN ENGINE FAILURE  
WE ARE GOING TO LAND ON RUNWAY (Number)  
SECURE YOUR HARNESS  
STOW LOOSE ARTICLES  
AFTER LANDING VACATE THE AIRCRAFT QUICKLY  
FOLLOW MY INSTRUCTIONS

4.4 **Base Leg (9 points)**

4.4.1 Use of Flap:- To obtain full points the competitor must lower part, but not more than 2/3, of the full flap available

4.4.2 Sideslipping :- Aircraft without flap may commence sideslipping after the turn onto base has been completed. More than one sideslip may be made without penalty.

4.4.3 Control of Airspeed:- To obtain full points on base leg the competitor must stabilise the airspeed at that nominated on the score sheet.

4.5 **Final Approach (24 points)**

4.5.1 Use of Flap:- To obtain full points the competitor must lower full flap on final leg

4.5.2 Sideslipping:- To obtain full points aircraft without flap must not be sideslipped below 200 ft AGL

4.5.3 Control of Airspeed:- To obtain full points on final leg the competitor must stabilise the airspeed at that nominated on the score sheet.

4.6 **Final Approach Control**

4.6.1 The control on final approach will be judged according to the following:

**GOOD** - Turn complete by 300 ft, the track is straight and on an extension of the runway centreline, the attitude is constant for each flap setting and the airspeed is correct for each flap setting.

**SAFE** - If one of the above criteria is assessed by the air judge as being less than good.

**POOR** - If more than one of the above criteria is assessed by the air judge as being less than good.

**UNSAFE** - If any one of the above deviate to such a degree that the air judge deems the approach to be unsafe and takes over control of the aircraft.

#### 4.7 **Landing Technique**

4.7.1 The landing technique will be judged as following:

**GOOD** - If the aircraft touches down firmly but not hard in the centre of the strip and on the main wheels so that the direction is straight. There should be no drift and the nosewheel must be clear of the runway. Tailwheel aircraft must clearly be in a tail down attitude.

**SAFE** - If any one of the above criteria is assessed by the air judge as being less than good.

**POOR** - If more than one of the above criteria is assessed by the air judge as being less than good.

**UNSAFE** - If any of the above deviate to such a degree that the air judge deems the landing to be unsafe and takes over control of the aircraft.

## 5 FORMATION FLYING COMPETITION

### 5.1 Procedure

- 5.1.1 Each team shall consist of three (3) aircraft. Teams will be judged on their performance from engine start until shut down, unless otherwise advised at the Formation pilots' briefing.
- 5.1.2 Emphasis will be placed upon team effort throughout. The time limit for the complete demonstration is 30 minutes.
- 5.1.3 Formation runs must be carried out at an altitude of not less than 500 ft AGL.
- 5.1.4 Overlapping of wings is permitted only where it is safe to do so and in accordance with the Rules of the Civil Aviation Authority of the country of the host organisation.

### 5.2 Judging

- 5.2.1 Judging will be carried out by five (5) judges appointed by the Championship Director.
- 5.2.2 All judges shall use the score sheet as set out in Appendix 3.
- 5.2.3 All flying must be undertaken within easy sighting distance of the Judges whose location will be notified at the Formation Pilots' Briefing. Station changes should be performed within a 15 degree arc overhead of Judges.

### 5.3 Compulsory Programme

- 5.3.1 The following programme must be performed by each team:

	Difficulty Factor
Start up	-
Taxi out	5
Take-off in formation or form up after stream take-off	10
Vic Formation	5
Formation change	5
Echelon port	5
Formation change	5
Echelon starboard	5
Formation change	5
Line astern	5
Free manoeuvre (See Note)	20
Landing in formation or spacing on landing	10

Taxi in	5
Shut down	-
Grouping of the complete demonstration	15

NOTE: Free manoeuvres involving a break in formation are difficult to judge. Synchronised flying and manoeuvres that involve crossing or opposing flight paths will not be deemed to be in formation by the judges.

5.3.2 Teams may arrange the sequence of presentation to suit their own requirements but must send the following details to the host organisation not less than thirty (30) days before the championships.

5.3.2.1 Evidence that team members hold approval to fly in formation, e.g. Photostats of Log Book entry to this effect.

5.3.2.2 Sequence Sheet (6 Copies) including details of the Free Manoeuvre.

5.3.2.3 Flow Chart (6 Copies) for each direction. The direction to be flown must be advised in writing to the Championship Secretary no later than the commencement of the Formation Pilots' Briefing immediately prior to the event.

5.3.3 Notwithstanding para. 5.3.2, teams shall be permitted to amend sequence sheets and flow charts prior to the commencement of competitions should changes be necessary due to terrain or other local factors. Such changes must be submitted in accordance with para. 5.3.2.3.

#### 5.4 Scoring

5.4.1 Teams will be given a score ranging upwards from 0-10 for each manoeuvre and for start-up, taxiing, take-off, landing and shut-down. The resultant score will be multiplied by a "difficulty" factor for each manoeuvre as indicated at para 5.3.1. The total points scored by each team will be factored to 100.

5.4.2 Any team taking longer than 30 minutes for the whole event will be penalised five (5) points for each extra minute. For this purpose timing starts when the formation commences to move from the designated parking area and stops when the aircraft come to rest after returning to the parking area.

5.4.3 If a stream landing is directed, points will be allocated for even spacing of the aircraft as they cross the threshold of the landing area. Spacing on the final approach shall be not less than a minimum safe distance.



5.4.4 Nil points will be awarded if a team:

- Omits a programmed manoeuvre
- Flies a manoeuvre deviating from the flow chart.

## 5.5 **Disqualification**

5.5.1 A team will be disqualified for any one or more of the following breaches:

- Descending below the minimum authorised height other than for take off or landing
- Failure to attend the mandatory pilots' briefing
- Performing a manoeuvre against which the aircraft is restricted
- Operating an aircraft with a known defect that renders it non-airworthy
- Failing to carry enough fuel and oil to enable an aircraft to take-off, hold, fly the programme, land and taxi to the parking lines plus 45 minutes reserve fuel.

## 5.6 **Meteorological Conditions**

5.6.1 The cloud base should be such as to enable contestants to take off and climb to the minimum authorised height whilst the maximum wind should not exceed 20 knots. However, the director may deviate from these conditions after a meeting with the contestants where at least one-third of those present agree to continue the event.

5.6.2 In the interests of safety the Director may direct a stream take-off and landing. However, should the crosswind component exceed 15 knots the contest will be postponed or cancelled.

## 6 SPOT LANDING

### 6.1 Procedure

6.1.1 The object of the spot landing competition is to fly a circuit and land on a marked area of the runway whilst carrying out the checks and drills as specified in these rules.

NOTE : CIRCUIT HEIGHTS WILL BE AS FOLLOWS:

When competing in Australia	-	500 feet AGL
When competing in New Zealand	-	1000 feet AGL

6.1.2 The techniques and procedures adopted are to conform to the performance landing procedure as briefed by the championship Director.

6.1.3 Competitors are required to fly three circuits, each with a different air judge.

6.1.4 The competitor shall act as pilot in command under supervision of the air judge.

6.1.5 A left hand circuit at the height specified in 6.1.1 is to be flown using QFE altimeter setting, unless otherwise advised at the main pilot briefing or the briefing for this event.

6.1.6 The air judge shall make all actual radio transmissions.

### 6.2 Scoring

6.2.1 The entire circuit from application of power to runway exit shall be judged.

6.2.2 A maximum of 100 points may be scored for each circuit.

6.2.3 The point system is as follows:

6.2.4	Air Technique	50 points
	Ground Score	50 points

6.2.5 A competitor's final score will be the average of the three attempts.

### 6.3 Air Technique

6.3.1 The Spot Landing Score Sheet in Appendix 4 gives details of items and point scores applicable. An explanation is set out in Section 7.

- 6.3.2 Each competitor is required to nominate the following speeds on the air judges score sheet; climb, base leg with flap, final approach with partial flap and with full flap, and minimum approach. Such speeds shall not be less than those stated in the Aircraft Flight Manual or the manufacturer's data manual which must be available for inspection, by the air judge.

#### 6.4 **Ground Judging**

- 6.4.1 The responsibility for ground judging and allocation of ground scores rests in the hands of the Chief Ground Judge and two assistant ground judges. The three ground judges will be assisted by a number of line judges.
- 6.4.2 The aircraft must clear a 1.2 metre fence prior to landing.
- 6.4.3 The landing path will be divided into ten sections, each carrying points as set out in the diagram in Appendix 1.
- 6.4.4 Where the undercarriage straddles the boundary between two scoring sections, the average of the two will count as the ground score.
- 6.4.5 Landings will be graded as NORMAL, REBOUND, BOUNCE.

#### 6.5 **Normal Landing**

- 6.5.1 A normal landing is one where the main wheels of the aircraft touch down on the runway and remain firmly in contact with it.
- 6.5.2 In tricycle undercarriage aircraft the touchdown must be made on the main wheels with the nose wheel clear of the runway.
- 6.5.3 In tail wheel aircraft the touchdown on the main wheels must be made with the tail clearly lower than the horizontal.
- 6.5.4 In both types of aircraft where one main wheel touches down before the other, except in the case of a crosswind landing, scores will be taken as follows:
- Touchdown before the 60 metre line: The initial score is taken when the one mainwheel first touches the runway.
  - Touchdown after or on the 60 metre line: The score is taken when both mainwheels are firmly on the ground.

- 6.5.5 In a crosswind landing the touchdown may be made on the into wind wheel and the score will be taken from when that wheel remains firmly on the ground. A touchdown on the out of wind wheel incurs a penalty.

## 6.6 **Rebound**

- 6.6.1 A rebound is a minor bounce where one or both main wheels leave the runway for a short distance. It may be caused by the reaction to touchdown or recoil of the undercarriage. It is not caused by a heavy landing.
- 6.6.2 If the initial and second point of contact of the main wheels with the runway are within the same ground scoring box then it is classed as a rebound and the points allocated in that box will count as the ground score.
- 6.6.3 If the initial point of contact is in one box and the second point of contact is in an adjacent box then it is still classed as a rebound but the box which has the lesser value will count as the ground score.

## 6.7 **Bounce**

- 6.7.1 If the initial and second point of contact are separated by one complete box or more then the landing is classed as a bounce. The value attached to the lesser of the two contact boxes will count as the score. This landing attracts a bounce penalty.
- 6.7.2 In the case of a multiple bounce the lesser of the two values attached to the box of initial contact and the box of permanent contact will count as the score. This landing attracts multiple bounce penalties.
- 6.7.3 If the final point of contact with the runway is outside the scoring area then the contestant is disqualified from that attempt.
- 6.7.4 If, in the opinion of the Chief Ground Judge and one of the two assistant ground judges, a competitor's landing results in a bounce even though the initial and second contact point are in the same or adjacent boxes the landing will attract a bounce penalty.

## 6.8 **Countback**

- 6.8.1 If, when placings are being determined, a tie occurs then a countback will take place. The winner will be the competitor with the greatest number of normal landings and the least number of rebounds, bounces and heavy landings and subject to rule 1.7.10.

## 6.9 Penalties

### 6.9.1 Air Judging

6.9.2 The air judge shall not allocate part points on the score sheet.

### 6.9.3 Ground Judging

6.9.4 No penalty is incurred for a rebound.

6.9.5 The bounce as defined in para. 4.20 attracts a bounce penalty. Multiple bounces attract multiple penalties.

6.9.6 Ten points are lost for the following:

- Each bounce
- Touching down on the out of wind wheel in a crosswind landing.

6.9.7 Twenty points are lost for the following:

- A three point or nosewheel first landing in a tricycle undercarriage aircraft.
- A mainwheels landing in a tailwheel aircraft where the tail is level or higher than the horizontal.

## 6.10 Disqualification

6.10.1 A competitor will be disqualified from the **whole event** if:

- The aircraft is, in the opinion of the air judge, flown in a dangerous manner.
- One or more tyres are deflated to a pressure lower than that officially recommended.
- False or misleading information is supplied to any official.

6.10.2 A competitor will be disqualified from **that attempt** if the Ground Judge determines that:

- The aircraft touches down before the fence.
- The aircraft breaks the fence.
- The aircraft is not firmly on the ground by the last touchdown marker.
- The undercarriage is not kept within the touchdown area width.

6.10.3 A competitor will be disqualified from **that attempt** if the Air Judge determines that:

- The aircraft is sideslipped below 100 ft.
- Flap is raised, partially or fully, on final approach after the fence has been crossed.
- The approach speed is below the minimum stated in the Flight Manual or manufacturer's data manual.
- A flapped aircraft is sideslipped with flaps down.
- In the interests of safety the air judge considers it necessary to take over control of the aircraft.

## 7 INTERPRETATION OF SPOT LANDING SCORE SHEET

Note: This interpretation is to be read in conjunction with the Spot Landing Air Judge Score Sheet (Appendix 4). A maximum of 50 points may be awarded for air technique. The air judge will allocate all points for Flying Technique.

### 7.1 Take-off (2 points)

- 7.1.1 Take-off power must be smoothly applied.  
The take-off path must be in the centre of the runway.

### 7.2 Initial Leg (4 points)

- 7.2.1 After take-off checks applicable to the type must be made in the first half of the initial leg. As a minimum they must include:

FLAP	- Up
CARB HEAT	- Cold
OIL TEMP & PRESSURE	- Within Range

- 7.2.2 Climb speed on initial leg must be within 5 knots of that nominated on the score sheet.
- 7.2.3 The initial track must be on an extension of the centreline.
- 7.2.4 The turn onto crosswind leg must be made at 500 ft (plus or minus 50 ft).
- 7.2.5 Before making any turn the competitor must say out loud, "Clear right, clear ahead, clear left", while taking appropriate action to ensure that it is clear to turn.

### 7.3 Crosswind Leg (2 points)

- 7.3.1 The track on crosswind leg must be at right angles to the runway.
- 7.3.2 The turn onto downwind leg must be made in accordance with para. 7.2.5 above.

### 7.4 Downwind leg (5 points)

- 7.4.1 Downwind checks appropriate to the type must be carried out early in the leg. They must be stated out loud and where possible the items should be touched. The minimum acceptable must include the following:

BRAKES	-	Off
UNDERCARRIAGE	-	Down
MIXTURE	-	Rich
FUEL	-	On and sufficient
HATCHES	-	Secure
HARNESSES	-	Tight.

7.4.2 If there is preceding traffic in the same event the aircraft which immediately precedes the competitor must be pointed out to the air judge.

7.4.3 The downwind track must parallel the runway.

7.4.4 The height throughout the downwind leg must not be in error by more than 50 ft.

7.4.5 The turn onto base leg must be made in accordance with para. 7.2.5 above.

#### 7.5 **Base Leg (8 points)**

7.5.1 Flap is to be used when speed is reduced on base leg.

7.5.2 The speed on base leg must stabilise at that nominated on the score sheet.

7.5.3 The track on base leg must be at right angles to the runway.

7.5.4 The turn onto final must be in accordance with para. 6.8.8 above.

#### 7.6 **Final Approach (16 points)**

7.6.1 The turn onto final must be completed at 500 ft. A tolerance of 50 ft is allowed.

7.6.2 The speed/speeds on final must be within 5 knots of those nominated with one exception. At no time is the airspeed to be lower than the minimum approach speed as per the aircraft Flight Manual or manufacturer's data manual.

7.6.3 To gain full points full flap must be used on final approach.

7.6.4 Aircraft without flap will be awarded five points provided there is no side slipping.

7.6.5 Final checks appropriate to the type must be made on final approach.

#### 7.7 **Profile, Attitude and Direction (5 points)**



7.7.1 The profile, attitude and direction will be assessed as follows:

**GOOD** - If the approach gradient is consistent, the speed constant and the final track is on the runway centreline.

**SAFE** - If any one of the above criteria is assessed by the air judges as being less than good.

**POOR** - If more than one of the above criteria is assessed by the air judge as being less than good.

**UNSAFE** - If any of the above deviate to such a degree that the air judge deems the approach to be unsafe and takes over control of the aircraft.

## 7.8 Landing Technique (7 points)

7.8.1 The landing technique will be assessed by the air judge as follows:

**GOOD** - If the aircraft touches down firmly but not hard in the centre of the strip and on the main wheels so that the direction is straight. There is to be no drift and the nose wheel must be clear of the runway. Tail wheel aircraft must clearly be in a tail down attitude.

**SAFE** - If any one of the above criteria is assessed as being less than good.

**POOR** - If more than one of the above criteria is assessed as being less than good.

**UNSAFE** - If any of the above deviate to such a degree that the air judge deems the landing to be unsafe and takes over control of the aircraft.

## 7.9 Landing Roll (1 point)

7.9.1 The landing roll shall be in the centre of the runway. The exit speed will be at normal taxi speed.

## 8 **AEROBATICS**

### 8.1 **General Information**

- 8.2 The Aerobatic Competition will be conducted in accordance with the rules and Regulations as distributed by the host organisation.
- 8.3 Details of the compulsory sequence to be flown by competitors will be notified annually by the host organisation.
- 8.4 The minimum height will be 1500 ft AGL.
- 8.5 Competitors must produce written evidence of holding a current Low Level Aerobatic approval (to 1500 ft AGL).
- 8.6 Aircraft being used in this event must be currently cleared in an Aerobatic Category.
- 8.7 When ready to commence, each competitor will call, "Ready to commence".
- 8.8 Detailed rules and judging criteria will be available from the RNZAC or RFACA.

9.1 **Complaints**

9.1.1 A competitor may request the Director or a delegated official to investigate any operational matter with which the competitor is dissatisfied. If after the investigation the complainant is still dissatisfied he or she may make a protest.

9.2 **Protests**

9.2.1 Decisions by Air Judges and Ground Judges are final subject only to the scrutiny of score sheets by officials and the protest/appeal provisions under this section.

9.2.2 Competitors only have the right to protest. However, officials may at all times take action even when no protest has been made to them.

9.2.3 A protest must be made in writing to the Director accompanied by such fee as may be prescribed from time to time.

9.2.4 The Stewards will investigate a protest in the first place and report their findings to the Director whom they will advise in regard to any penalties which may be imposed.

9.2.5 The decision of the Director will be binding except in the case of appeals as provided for in paragraph 8.3.1.

9.2.6 A fee lodged with a protest will be refunded if the protest is upheld.

9.3 **Appeals**

9.3.1 A competitor has the right to appeal to the host organisation (Royal Federation of Aero Clubs of Australia or Royal New Zealand Aero Club) against a decision taken by the Director, the Stewards or the penalty imposed.

## 10 **NOTES FOR JUDGES AND SCORE KEEPERS**

### 10.1 **Competitors**

10.1.1 The list of competitors for each event should be checked for any last minute change of entries.

### 10.2 **Air Judge Score Sheets**

10.2.1 Air judge score sheets shall be retained by the Air Judge and either handed to a marshal if asked during the event or to the control centre at the conclusion of the event.

### 10.3 **Ground Judge Score Sheets**

10.3.1 Ground judge score sheets are provided for each competitor in all events.

10.3.2 The chief ground judge shall collect the ground score sheets for the Forced and Spot Landing competitions from the control centre prior to the start of each event. They should be handed to an official who will collect them either during or at the end of each event.

10.3.3 The judges of the Aerobatics and Formation Flying competitions shall collect the score sheets from the control centre prior to the start of each event. they should be returned to the control centre at the end of the event.

10.3.4 Copies of air and ground score sheets will be available to competitors after the championships.

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APPENDIX 1a

**NEW ZEALAND WINGS TROPHY**

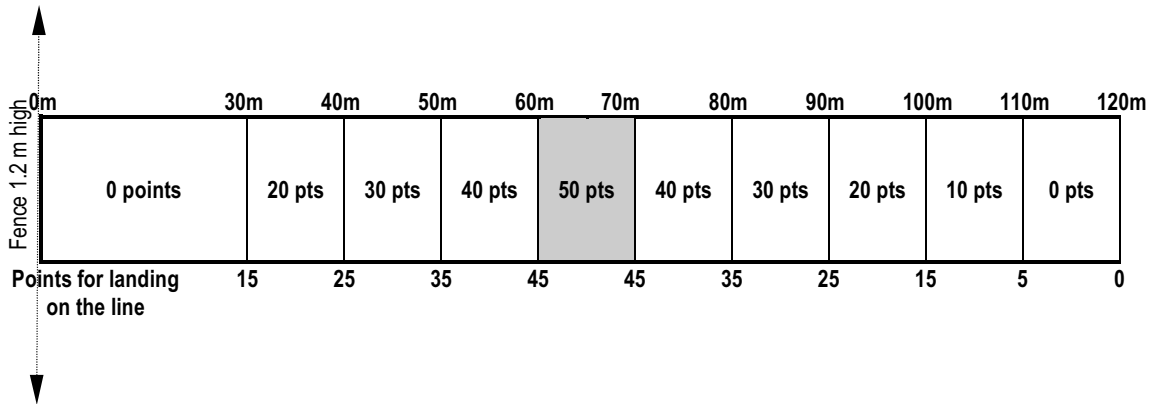
**GROUND JUDGING SCORE SHEET**

EVENT : \_\_\_\_\_

COMPETITOR : \_\_\_\_\_

AIRCRAFT REGISTRATION : \_\_\_\_\_

TIME OF RECORDING : \_\_\_\_\_



Ground Judge - indicate all points of touchdown until both mainwheels are firmly on the ground.

Recorded by : \_\_\_\_\_



APPENDIX II **FORCED LANDING**  
**AIR JUDGE SCORE SHEET**

		AIR JUDGE CIRCUIT 1	AIR JUDGE CIRCUIT 2	AIR JUDGE CIRCUIT 3
NAME _____		NOMINATED AIRSPEEDS		
PREF FIRST NAME _____		GLIDE SPEED WITHOUT FLAP _____ KNOTS		
CLUB _____		GLIDE SPEED PARTIAL FLAP _____ KNOTS		
AIRCRAFT REG # _____		GLIDE SPEED FULL FLAP _____ KNOTS		
STARTING No _____		MINIMUM APPROACH SPEED _____ KNOTS		
ROUND NUMBER _____		SIDESLIP NONFLAP AIRCRAFT _____ KNOTS		
BEFORE BASE LEG TROUBLE CHECKS		FINAL LEG USE OF FLAP		
POINTS		POINTS		
FUEL ON CONTENTS/TANKS	1	FUEL ON CONTENTS/TANKS	0	
FUEL PUMP & PRESSURE	1	FUEL PUMP & PRESSURE	0	
CARB HEAT HOT	1	CARB HEAT HOT	0	
MIX RICH PRIMER LOCKED	1	MIX RICH PRIMER LOCKED	3	
IGNITION CHECK L & R	1	IGNITION CHECK L & R	3	
OIL TEMP & PRESSURE	1	OIL TEMP & PRESSURE	-10	
THROTTLE LINKAGE CHECK	1	THROTTLE LINKAGE CHECK	DISQ	
CLEAR TURN ONTO CROSSWIND	1	CLEAR TURN ONTO CROSSWIND	5	
DISTRESS MESSAGE	1	DISTRESS MESSAGE	0	
PASSENGER BRIEF	1	PASSENGER BRIEF	-5	
CLEAR TURN ONTO DOWNWIND	1	CLEAR TURN ONTO DOWNWIND	DISQ	
AIRSPEED CONTROL		AIRSPEED CONTROL		
WITHIN ±5 KNOTS	5	WITHIN ± 5 KNOTS	5	
WITHIN ± 10 KNOTS	0	WITHIN ± 10 KNOTS	0	
OUTSIDE ± 10 KNOTS	-5	OUTSIDE ± 10 KNOTS	-5	
OUTSIDE ± 10 KNOTS	-5	OUTSIDE ± 10 KNOTS	DISQ	
CLEAR TURN ONTO BASE	1	CLEAR TURN ONTO BASE	DISQ	
FINAL CHECKS		FINAL APPROACH CONTROL		
BRAKES OFF	1	GOOD	5	
MIXTURE IDLE CUT OFF	1	SAFE	2	
FUEL OFF	1	POOR	-5	
IGNITION OFF	1	UNSAFE	DISQ	
HATCHES UNLOCKED	1	LANDING TECHNIQUE		
HARNESSTIGHT	1	GOOD	5	
BASE LEG USE OF FLAP		SAFE	2	
FLAP NIL	0	POOR	-5	
FLAP UP TO 2/3	3	UNSAFE	DISQ	
FLAP OVER 2/3	0	TOTAL THIS COLUMN		
AIRSPEED CONTROL		TOTAL PREVIOUS COLUMN		
WITHIN ± 5 KNOTS	5	18		
WITHIN ± 10 KNOTS	0	32		
OUTSIDE ± 10 KNOTS	-5	AIR TECHNIQUE TOTAL		
		GROUND POINTS TOTAL		
		<b>GRAND TOTAL</b>		
		TOTALLED BY _____		
		CHECKED BY _____		

CLEAR TURN ONTO FINAL	1	
-----------------------	---	--

TOTAL THIS COLUMN	32	
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AIR JUDGE  
SIGNATURE

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**NZ WINGS TROPHY**

**FORMATION FLYING MARKING SHEET**

Team: .....

Judge : .....

Time started: ..... Time finished: .....

Points  
(10 max)

Factor

Score  
(Points x  
factor)

TAXI OUT		5	
TAKE-OFF IN .....FORMATION OR FORMING UP AFTER STREAM TAKE-OFF		10	
..... FORMATION FLYPAST		5	
FORMATION CHANGE TO .....		5	
..... FORMATION FLYPAST		5	
FORMATION CHANGE TO .....		5	
..... FORMATION FLYPAST		5	
FORMATION CHANGE TO .....		5	
..... FORMATION FLYPAST		5	
FREE MANOEUVRE(S)		20	
LANDING IN FORMATION OR SPACING ON LANDING		10	
TAXI IN AND SHUTDOWN		5	
GROUPING OF COMPLETE DEMONSTRATION		15	

Total score = .....

(Checked by .....) )

*DISQUALIFICATION IF : Height of demonstration is below 500 feet AGL except during takeoff or landing or a prohibited manoeuvre is attempted.*

APPENDIX IV **SPOT LANDING**  
**AIR JUDGE SCORE SHEET**

		AIR JUDGE CIRCUIT 1	AIR JUDGE CIRCUIT 2	AIR JUDGE CIRCUIT 3
NAME	_____			
PREF FIRST NAME	_____			
CLUB	_____			
AIRCRAFT REG #	_____			
STARTING No	_____			
ROUND NUMBER				
		<u>NOMINATED AIRSPEEDS</u>		
		CLIMB	_____	KNOT S
		BASE WITH FLAP	_____	KNOT S
		FINAL APPROACH (1)	_____	KNOT S
		FINAL FULL FLAP	_____	KNOT S
		MIN APPROACH SPEED		KNOT S

TAKEOFF	POINTS	
POWER APPLICATION SMOOTH	1	
CENTRE OF RUNWAY	1	

INITIAL LEG

AFTER TAKE-OFF CHECKS	1	
CLIMB SPEED $\pm 5$ KNOTS	1	
TRACK ON RUNWAY CENTRELINE	1	
CLEAR & CORR TURN CROSSWIND	1	

CROSSWIND LEG

TRACK SQUARE TO RUNWAY	1	
CLEAR & CORR TURN DOWNWIND	1	

DOWNWIND LEG

DOWNWIND CHECKS	1	
NOMINATE PRECEDING AIRCRAFT	1	
TRACK PARALLEL TO RUNWAY	1	
DOWNWIND HEIGHT $\pm 50$ FEET	1	
CLEAR & CORR TURN BASE	1	

FINAL TURN	POINTS	
COMPLETED AT 500 FT $\pm 50$ FT	5	

FINAL APPROACH

NOMINATED AIRSPEED $\pm 5$ KNOTS	5	
FULL FLAP <i>or</i> A.C WITHOUT FLAP NO SLIP	5	
FINAL CHECKS	1	

PROFILE ATTITUDE DIRECTION

GOOD	5	
SAFE	2	
POOR	-5	
UNSAFE	DISQ	

LANDING TECHNIQUE

GOOD	7	
SAFE	2	
POOR	-5	
UNSAFE	DISQ	

BASE LEG

FLAP NIL	0	
FLAP UP TO 2/3	1	
FLAP OVER 2/3	0	
AIRSPEED ± 5 KNOTS	5	
TRACK SQUARE TO RUNWAY	1	
CLEAR & CORR TURN TO FINAL	1	
<b>TOTAL THIS COLUMN</b>	<b>21</b>	

**AIR JUDGE  
SIGNATURE** \_\_\_\_\_

LANDING ROLL

RUNWAY CENTRE TO EXIT	1	
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SCORE

TOTAL THIS COLUMN	<b>29</b>	
TOTAL PREVIOUS COLUMN	<b>21</b>	
AIR TECHNIQUE TOTAL		
GROUND POINTS TOTAL		
<b>GRAND TOTAL</b>		

TOTALLED  
BY \_\_\_\_\_

CHECKED BY \_\_\_\_\_

**NEW ZEALAND WINGS TROPHY**

**TEAM SCORE SHEET**

When completing this sheet, reference must be made to para 1.7.1

TEAM .....

	FORCED LANDING	SPOT LANDING	FORMATION	AEROBATICS	SCORE	PLACE
AIR POINTS 1						
AIR POINTS 2						
AIR POINTS 3						
GROUND POINTS 1						
GROUND POINTS 2						
GROUND POINTS 3						
AIR POINTS 1						
AIR POINTS 2						
AIR POINTS 3						
GROUND POINTS 1						
GROUND POINTS 2						
GROUND POINTS 3						
GROUND POINTS 1						
GROUND POINTS 2						
GROUND POINTS 3						
GROUND POINTS 4						
GROUND POINTS 5						
GROUND POINTS 1						
GROUND POINTS 2						
				TOTAL POINTS		

TEAM .....

	FORCED LANDING	SPOT LANDING	FORMATION	AEROBATICS	SCORE	PLACE
AIR POINTS 1						
AIR POINTS 2						
AIR POINTS 3						
GROUND POINTS 1						

GROUND POINTS 2									
GROUND POINTS 3									
AIR POINTS 1									
AIR POINTS 2									
AIR POINTS 3									
GROUND POINTS 1									
GROUND POINTS 2									
GROUND POINTS 3									
GROUND POINTS 1									
GROUND POINTS 2									
GROUND POINTS 3									
GROUND POINTS 4									
GROUND POINTS 5									
GROUND POINTS 1									
GROUND POINTS 2									
				TOTAL POINTS					

**Notes**