

Landing Events Penalties

General

- Judges should use airport diagrams, satellite pictures or other means to determine, as accurately as possible, assessments of landing pattern penalties. Judges should be in a position on the airport to view the geographic positions selected from the diagrams or photos to determine when there is an airplane deviation that results in a penalty. If possible, have the D and E card Judges positioned under or near the downwind and base leg, respectively, of the landing pattern depiction presented to the teams.
- The geographic track that defines a proper landing pattern track should be distributed to all contestants prior to the scheduled landing practice periods using airport diagrams and/or satellite pictures
- In the event of a landing that could have possibly damaged an airplane (hard landing, porpoise, tail strike, nose wheel first, wheel barrow, etc.), the Landing Judge shall communicate this to the Chief Judge, Safety Judge and Staging Judge to make sure the airplane is inspected and released for flight, according to school procedures/policies and FARs, before the airplane is allowed to continue participating in flying events."

A Card

- Enter the distance scores on the contestant's card for landings 1, 2, and 3 (if 3 landings are made). Assign 400 points if the touchdown was outside of the landing box. In the event of a go-around (due to the contestant's fault) the judge may write the words "Go Around" or "GA" in place of a distance score. The penalty points for a go-around will be assessed on the G card.
- Scoring criteria for crosswind landings:
If a crosswind exists, crosswind rules as outlined in the NIFA Red Book are in effect. Contestants in the active landing heat will not be notified that crosswind rules are in effect as has been done in the past. Pilots should make every landing according to PTS: fly a stabilized approach to a touchdown with no drift and with the airplane's longitudinal axis aligned with and over the runway centerline. The judges will determine the landing distance score based on winds at the time of touchdown. Landing Judges shall have a flag (s) or other means to give an accurate wind direction and approximate wind speed in the touchdown area
- See the diagrams at the end of this manual for judging position locations

B Card –Takeoff Roll

Centerline Deviation (25 points)

- If the main gear on either side of the aircraft crosses the width of the runway stripe centerline on landing or takeoff roll, the penalty should be assessed. This penalty should not be combined with a G-Card Landing off Runway Centerline penalty if a correction is made back to centerline on the ensuing takeoff or landing roll out. B and G card judges should check for duplicate penalties at the time of landing.

Improper Crosswind Technique (50 points)

- Failure to use proper crosswind correction techniques. (NOTE: Upwind aileron should be up and downwind aileron should be down) and control deflection should gradually be taken out as airplane speed increases to prevent a rapid wing drop at lift-off.

Improper Flap Setting (25 points)

- Flaps must be fully retracted before liftoff or as recommended by the aircraft manufacturer. If an aircraft manufacturer in the POH requires a normal takeoff with other

than flaps full up, this shall be brought to the attention of the chief judge, in writing, before the event so that landing judges can be informed.

Poor Spacing (50 points)

- This penalty is given to contestants who began their takeoff rolls early, or are too close to the aircraft ahead of them.

Unnecessary Delay (25 points)

- There should not be a delay of more than 25 seconds between the initial takeoff rolls of aircraft in a heat unless the aircraft which is on takeoff roll has not become airborne. The interval is usually briefed.

B Card – Rotation and Liftoff

Erratic Takeoff (25 points)

- The takeoff should be a smooth operation with no erratic changes in attitude

B Card – Landing Roll

Centerline Deviation (25 points)

- If the main gear on either side of the aircraft crosses the width of the runway stripe centerline on landing or takeoff roll, the penalty should be assessed. This penalty should not be combined with a G-Card Landing off Runway Centerline penalty if a correction is made back to centerline on the ensuing takeoff or landing roll out and remains on centerline. B and G card judges should check for duplicate penalties at the time of landing.

B Card – Disqualifications

Unsafe, careless, or hazardous operation

- Placing the aircraft, occupants, or ground personnel in such a position as to be exposed to potential harm, injury, danger, damage, or risk.

Aircraft too close to edge of runway on takeoff

- As long as the wingtips of the aircraft do not cross over the runway centerline on landing, the contestant should be given the opportunity to return the aircraft to within the accepted position (see appendix D, diagrams) before being judged on his/her next takeoff roll. If the wingtips cross over the centerline, the aircraft should be disqualified for safety reasons. The criteria of wingtips crossing the centerline may be modified in the event the competition is held on an unusually narrow runway. In this case, the criteria should be briefed prior to the start of the landing event.

Full flap takeoff

- Unless prescribed by the POH, takeoff with full flaps is prohibited.

Other

- Used for any unsafe action taken by the contestant that is not listed in any of the above penalties or disqualifications.

C Card – Climb out

Erratic pitch changes (25 points)

- Improper use of the elevator resulting in quick or erratic changes in pitch attitude.

Poor tracking (25 points)

- When the fuselage of the aircraft goes outside the extended runway edge line for 3 seconds with no correction back to centerline.

C Card – Turn to Crosswind

Erratic & uncoordinated flight (25 points)

- Improper use of the elevator, ailerons, and rudder resulting in noticeable slipping, skidding, or erratic changes in pitch and/or bank angle. NOTE: Some pilots do roll into and out of turns more rapidly than others. No penalty should be assessed if good coordination is indicated and the degree of bank angle is not in excess of that required to fly a normal landing pattern. Note: In a high-wing airplane, a wing raised in the direction of the turn is permitted to ensure the area is clear before turning.

Excessive bank angle (25 points)

- An obvious over bank in excess of that required to fly a normal traffic pattern. A bank of 45 degrees or greater is considered excessive.

Low turn to crosswind (400 points)

- When a turn is made below 400 ft AGL.

Poor spacing – too close (50 points)

- When the turn is made too soon, and may result in the aircraft coming too close or overtaking the aircraft ahead. Since contestants are briefed to take interval upwind, be careful not to penalize an aircraft that may be taking extra interval upwind because the aircraft ahead is wide on downwind.

C Card – Crosswind

Fishtailing (400 points)

- Slowing an aircraft by causing the tail to move rapidly from side to side.

Irregular pattern (25 points)

- Not crabbing for wind or flying headings that do not keep the aircraft in a standard pattern which results in significant deviation from a rectangular track over the ground. A significant deviation is considered 20 degrees or more from a rectangular track. Crabbing for a cross wind should not be taken as a deviation from a rectangular pattern as long as the track over the ground is within parameters.

“S” turns (400 points)

- Maneuvering the aircraft in shallow turns from side to side to attempt to gain additional spacing behind the aircraft ahead.

C Card – Disqualifications

Critical spacing

- When an aircraft has made a turn to crosswind too soon where continued flight on the crosswind leg may result in a near miss with any aircraft.

Unauthorized 360° turn

- Executing any 360° turn that was not specifically requested by the event judge or the control tower.

Unsafe, careless, or hazardous operation

- Placing the aircraft, occupants, or ground personnel in such a position as to be exposed to potential harm, injury, danger, damage, or risk.

Other

- Used for any unsafe action taken by the contestant that is not listed in any of the above penalties or disqualifications.

D Card – Turn to Downwind

Constant turn to downwind (25 points)

- Not squaring the pattern. The track on crosswind should be 90° to the runway heading. Look for wings level and a proper crab for wind.

Erratic pitch changes (25 points)

- Improper use of the elevator resulting in quick or erratic changes in pitch attitude.

Excessive bank (25 points)

- An obvious over-bank in excess of that required to fly a normal traffic pattern. A bank of 45 degrees or greater is considered excessive.

Late turn to downwind (100 points)

- When the turn to downwind from crosswind is made so far past the established downwind leg for that heat, that it may cause spacing problems for following aircraft.

D Card – Downwind

Irregular pattern (25 points)

- Not crabbing for wind or flying headings that do not keep the aircraft in a standard pattern which results in significant deviation from a rectangular track over the ground. A significant deviation is considered 20 degrees or more from a rectangular track. Crabbing for a cross wind should not be taken as a deviation from a rectangular pattern as long as the track over the ground is within parameters.

Wide downwind (200 points)

- Flying wide on the downwind leg of the landing pattern. Guidelines for downwind distance from the runway should be a maximum of 3/4 nm. Flight outside these guidelines without correcting back toward the proper downwind distance within 5 seconds will receive the penalty.

D Card – Power Reduction

Addition of power after reduction (200 points)

- Except for a short power burst on base leg, for a maximum of 2 seconds to clear the engine, contestants should not add power once it is reduced.

Erratic pitch changes (25 points)

- Improper use of the elevator resulting in quick or erratic changes in pitch attitude.

Fishtailing (400 points)

- Slowing an aircraft by causing the tail to move rapidly from side to side.

Irregular pattern (25 points)

- Not crabbing for wind or flying headings that do not keep the aircraft in a standard pattern which results in significant deviation from a rectangular track over the ground. A significant deviation is considered 20 degrees or more from a rectangular track.

Crabbing for a cross wind should not be taken as a deviation from a rectangular pattern as long as the track over the ground is within parameters.

Late (100 points)

- Failure to reduce power until after passing the point abeam the target line on the downwind leg.

“S” Turns (400 points)

- Maneuvering the aircraft in shallow turns from side to side to attempt to gain additional spacing behind the aircraft ahead.

D Card – Disqualifications

Critical spacing

- Positioning the aircraft in the heat so as to create an unsafe condition.

Excessively wide, causing others to follow

- A disqualification should be given to an airplane that starts an excessively wide pattern that forces other airplanes to follow; causing the pattern to become elongated from abeam the point of touchdown to final. The airplane attempting to maintain a safe interval should not be penalized. Additional landings may be authorized by the Chief Judge or Landing judge. This should be checked by judges reviewing the scored Landing Cards. THIS DISQUALIFICATION SHOULD BE GIVEN UNDER “OTHER” ON THE LANDING CARDS.

Unauthorized 360° turn

- Executing any 360° turn that was not specifically requested by the event judge or the control tower.

Unsafe, careless, or hazardous operation

- Placing the aircraft, occupants, or ground personnel in such a position as to be exposed to potential harm, injury, danger, damage, or risk.

Other

- Used for any unsafe action taken by the contestant that is not listed in any of the above penalties or disqualifications.

E Card – Turn to Base Leg

Erratic pitch changes (25 points)

- Improper use of the elevator resulting in quick or erratic changes in pitch attitude.

Excessive bank (25 points)

- An obvious over-bank in excess of that required to fly a normal traffic pattern. A bank of 45 degrees or greater is considered excessive.

Skidding turn (25 points)

- A turn in which excess rudder is used to attempt to not overshoot. The tail will appear to skid to the outside of the turn.

E Card – Base Leg

Addition of power after reduction (200 points)

- Except for a short power burst on base leg, for a maximum of 2 seconds to clear the engine, contestants should not add power once it is reduced.

Constant turn to final (25 points)

- While on base leg, all aircraft must at some point have wings level.

Fishtailing (400 points)

- Slowing an aircraft by causing the tail to move rapidly from side to side.

Irregular pattern (25 points)

- Not crabbing for wind or flying headings that do not keep the aircraft in a standard pattern which results in significant deviation from a rectangular track over the ground. A significant deviation is considered 20 degrees or more from a rectangular track. Crabbing for a cross wind should not be taken as a deviation from a rectangular pattern as long as the track over the ground is within parameters.

Too late (400 points)

- Turning late which causes a long final leg. This could be judged a disqualification for an "Excessively Long Approach" if it causes the following aircraft to extend their pattern excessively or to close the interval between airplanes and create a hazard. See "Other" under "E-Card Disqualifications" paragraph below.

"S" turns (400 points)

- Maneuvering the aircraft in shallow turns from side to side to attempt to gain additional spacing behind the aircraft ahead.

E Card – Disqualifications

Descent to a dangerously low altitude before adding power

- This penalty should be given if the visually projected flight path of the aircraft places the apparent touchdown point short of the runway, or 500 feet from the short line if a mid-runway landing box is used, with power addition delayed beyond what is considered safe.

Excessively Wide Pattern

- A disqualification should be given to an airplane that starts an excessively wide pattern that forces other airplanes to follow; causing the pattern to become elongated from abeam the point of touchdown to final. The airplane attempting to maintain a safe interval should not be penalized. Additional landings may be authorized by the Chief Judge or Landing judge. This should be checked by judges reviewing the scored Landing Cards. THIS DISQUALIFICATION SHOULD BE GIVEN UNDER "OTHER" ON THE LANDING CARDS

Failure to go around when an unsafe interval occurs

- A following airplane that closes to a potentially unsafe interval with the preceding airplane and does not properly go around. An airplane executing a proper go-around should safely clear and maintain visual contact with the airplane ahead.

Slips to lose altitude

- This is a pronounced forward slip with the airplane nose well off the centerline with opposite wing down held for 2 seconds or more. An increase in rate of descent or loss of energy should be observed. If the forward slip is not pronounced, other penalties can be given for over-controlling and attempting to lose energy on final like the "S" turn or fishtailing. A forward slip should not be confused with a side slip performed to correct for a cross wind. In a forward slip the airplane's nose is pointed to the left or right of the direction of flight, whereas in a side slip the airplane's nose is pointed in the direction of flight,

Turning too soon

- If an aircraft has turned so early that it may cause a near miss situation to develop with an aircraft already on base or long final, the judge, if possible, should advise either the landing judge, chief judge, or tower (if one is operating) IMMEDIATELY of the situation.

Unsafe, careless, or hazardous operation

- Placing the aircraft, occupants, or ground personnel in such a position as to be exposed to potential harm, injury, danger, damage, or risk.

Other

- Used for any unsafe action taken by the contestant that is not listed in any of the above penalties or disqualifications.

F Card – Final Turn

Diving for the line (400 points)

- An obvious lowering of the nose and resulting gain in airspeed by the contestant in an attempt to salvage a high approach and land on the target line. Usually results in floating.

Over / undershooting (50 points)

- An overshoot is defined as passing the plane of the extended centerline. An undershoot is defined as rolling out wings-level before reaching the extended centerline.

Rapid / radical change in attitude (200 points)

- Any abrupt change in attitude of the aircraft that is not necessary when flying a normal traffic pattern.

Skidding turn (25 points)

- A turn in which excess rudder is used to attempt to not overshoot. The tail will appear to skid to the outside of the turn.

F Card – Final Approach to 100' AGL

Addition of power after reduction (200 points)

- Should be judged on both sound and a performance increase. Sound changes alone can be caused by change in RPM because of changes in airplane speed and if the airplane has a constant speed prop, the prop pitch change can cause a sound change. Also, on a power-off landing a no-flap flat approach should not be interpreted solely as adding or leaving power on.

Drift off centerline (25 points)

- When the fuselage of the aircraft breaks the plane of either runway edge. The wing tip may touch the plane with no penalty given.

Excessive interval (50 points)

- Intervals on the final approach leg should be between 30-50 seconds. An interval of 80 seconds or more on final is considered excessive.

Fishtailing (400 points)

- Slowing an aircraft by causing the tail to move rapidly from side to side.

Insufficient flaps (short field ONLY) (100 points)

- Maximum flaps will be used, on an airplane so equipped, from the point the airplane is at 100' AGL on final approach and not retracted until after landing. With the head wind component above 15 kts, gusts in excess of 8 knots, or crosswind landing procedures in effect, less than full flaps are allowed.

Retraction of flaps (200 points)

- Once a contestant had added flaps, they may not be retracted until after landing.

“S” turns (400 points)

- Maneuvering the aircraft in shallow turns from side to side to attempt to gain additional spacing behind the aircraft ahead.

F Card – Disqualifications

Completion of turn below 200' AGL

- When a turn is completed below 200' ft AGL.

Descent to a dangerously low altitude before adding power

- This penalty should be given if the visually projected flight path of the aircraft places the apparent touchdown point short of the runway, or 500 feet from the short line if a mid-runway landing box is used, with power addition delayed beyond what is considered safe.

Excessively slow, fast, or long approach

- The judgment of what is considered excessively slow can be determined by observing an excessively high angle of attack and/or aircraft controllability deterioration. Fast can be determined by a very low angle of attack without any attempt to correct. Long can be determined by comparing the final approach distance to others flying a normal pattern and could, also, result in an “Excessively Wide” disqualification if the pattern becomes elongated as a result of others following in an attempt to maintain a safe interval.

Failure to go around when an unsafe interval occurs

- A following airplane that closes to a potentially unsafe interval with the preceding airplane and does not properly go around. An airplane executing a proper go-around should safely clear and maintain visual contact with the airplane ahead.

Slips to lose altitude

- This is a pronounced forward slip with the airplane nose well off the centerline with opposite wing down held for 2 seconds or more. An increase in rate of descent or loss of energy should be observed. If the forward slip is not pronounced, other penalties can be given for over-controlling and attempting to lose energy on final like the “S” turn or fishtailing. A forward slip should not be confused with a side slip performed to correct for a cross wind. In a forward slip the airplane’s nose is pointed to the left or right of the direction of flight, whereas in a side slip the airplane’s nose is pointed in the direction of flight,

Unsafe, careless, or hazardous operation

- Placing the aircraft, occupants, or ground personnel in such a position as to be exposed to potential harm, injury, danger, damage, or risk.

Other

- Used for any unsafe action taken by the contestant that is not listed in any of the above penalties or disqualifications.

G Card – Final Approach below 100' AGL

Diving for the line (400 points)

- An obvious lowering of the nose and resulting gain in airspeed by the contestant in an attempt to salvage a high approach and land on the target line. Usually results in floating.

G Card – Touchdown

Adding flaps below 100' AGL (400 points)

- Watch for pitch changes of the aircraft, which can give the appearance of a change in flap settings, even though there is none.

Addition of power (200 points)

- Should be judged on both sound and a performance increase. Sound changes alone can be caused by change in RPM because of changes in airplane speed and if the airplane has a constant speed prop, the prop pitch change can cause a sound change. Also, on a power-off landing a no-flap flat approach should not be interpreted solely as adding or leaving power on. The landing cards should be checked to make sure that the G Card Judge and the F Card Judge did not give an "Addition of Power" penalty for the same power addition.

Ballooning (50 points)

- A significant airplane altitude increases while transitioning to or after entering the landing round-out.

Bouncing (100 points)

- All 3 wheels come off the runway surface.

Dragging (200 points)

- The penalty should be awarded when the airplane, during the round-out, maintains a constant altitude with power where the nose of the aircraft goes from a nose down attitude through a nose level attitude or higher and power is left on. The penalty for dragging is to prevent adjusting for a low, flat glide slope by leaving power on during the round out and leveling off in an attempt to make the landing box. The penalty is similar to floating except dragging is with power on and floating is with power off.

Erratic pitch changes (400 points)

- Improper use of the elevator resulting in quick or erratic changes in pitch attitude.

Excessive float (200 points)

- Floating in excess of 5 seconds from the point at which the airplane is no longer in a descending flight path on final approach until touch down. A penalty for floating is to prevent adjusting for a fast and/or flat final approach by leveling off in ground effect in order to make the landing box. A float with less than full flaps can easily result in a tail strike.

Go-around (Own fault) (300 points)

- Go-around due to poor planning or spacing by the contestant. This will be the score given if a contestant does a go-around during a scored landing and it is the contestant's fault.

No landing score will be written on A Card. At least one scored landing touchdown must be made and used to get a landing score. If one scored landing touchdown is not made, a "Did Not Land" (DNL) score shall be entered for that contestant who would appear in the rankings ahead of disqualifications (DQ), but with no points. A very late go-around just to avoid landing long out of the landing box, in order to get the reduced penalty points, defeats the purpose of the Own Go-around penalty change. Reducing the own go-around penalty was to give an incentive to go-around rather than pushing over for the box, or landing fast with a resultant unsafe touchdown. This "gaming" of the touchdown by a last second go-around is unprofessional and could be judged as unsafe and a disqualification given.

Improper crosswind technique (200 points)

- Failure to use proper crosswind correction techniques. Upwind aileron should be up and downwind aileron should be down. Additionally, if there is a crosswind, the upwind main landing gear wheel must touch down first with no drift and the airplane's longitudinal axis aligned with and over the runway centerline..

Jamming/hard landing (400 points)

- Jamming is intentionally forcing the airplane on the runway. A hard landing is caused by an excessive sink rate and/or a steep glide slope angle caused by improper control of pitch and/or power.

Landing in a crab (100 points)

- The aircraft should have the fuselage aligned with the runway centerline with no drift at touchdown.

Landing off runway centerline (100 points)

- This penalty will be given when both main wheels touch down left or right of the centerline stripe.

NO Three-point touchdown (conventional gear aircraft ONLY) (400 points)

- All 3 wheels shall contact the runway at the same time.

Power left on at touchdown (200 points)

- The airplane should have power at idle at touchdown in a short-field or power-off landing. Landing with other than idle power will result in this penalty being assessed. This penalty should be assessed only when obvious to judges along the landing line and the G-card judge. Judges should determine this penalty by engine sound and airplane observed performance. The penalty should not be combined with an Addition of Power penalty when power is added and left on at touchdown to prevent a hard landing or a Dragging penalty where power is left on in a short field landing to make the landing box.

Three-point touchdown (tricycle gear aircraft only) (400 points)

- All 3 wheels shall not contact the runway at the same time.

Touchdown not in full stall attitude at minimum controlled airspeed (MCA) (200 points)

- An airplane with a fast airspeed and flat attitude on landing touch down should receive this penalty. A distinct nose-up attitude at an appropriately slow speed where the airplane is solidly on the runway with both main wheels at touch down is appropriate (or one main wheel if crosswind rules are in effect).

G Card – Disqualifications

(Those with * are all grouped together on the Landing Card just before "Other" to conserve space)

Dangerously low airspeed

Descent to a dangerously low altitude before adding power

- If the visually projected flight path of the aircraft places the apparent touchdown point short of the runway, or 500 feet from the short line if a mid-runway landing box is used, with power addition delayed beyond what is considered safe.

*Excessively hard landing**

- Excessively hard landing that causes a bounce of more than two feet or a blown tire.

Failure to go around when an unsafe interval occurs

- A following airplane that closes to a potentially unsafe interval with the preceding airplane and does not properly go around. An airplane executing a proper go-around should safely clear and maintain visual contact with the airplane ahead.

*Hitting tail skid**

- If the tail skid or the tail tie-down ring contacts the runway on landing.

*Nose wheel first**

- Touchdown must occur on the main landing gear first.

*Porpoising**

- Porpoising is usually caused by a hard landing or three-point landing and the pilot allows the nose to pitch down and the nose gear contacts the runway before the main landing gear.

Retracting flaps below 100' AGL

- Once a contestant had added flaps, they may not be retracted until after landing.

Slips to lose altitude

- This is a pronounced forward slip with the airplane nose well off centerline with opposite wing down held for 2 seconds or more. An increase in rate of descent or loss of energy should be observed. If the forward slip is not pronounced, other penalties like the "S" turn or fishtailing can be given for over controlling and attempting to lose energy on final. A forward slip should not be confused with a side slip performed to correct for a cross wind. In a forward slip the airplane's nose is pointed to the left or right of the direction of flight, whereas in a side slip the airplane's nose is pointed in the direction of flight,

Unsafe, careless, or hazardous operation

- Placing the aircraft, occupants, or ground personnel in such a position as to be exposed to potential harm, injury, danger, damage, or risk.

*Wheel barrow**

- Wheel barrowing is when the airplane is rolling down the runway on the nose gear and one or both main landing gear are off the runway.

Other

- Used for any unsafe action taken by the contestant that is not listed in any of the above penalties or disqualifications. A very late go-around just to avoid landing long out of the landing box, in order to get the reduced penalty points, defeats the purpose of the Own Go-around penalty change. Reducing the own go-around penalty was to give an incentive to go-around rather than pushing over for the box, or landing fast with a resultant unsafe touchdown. This "gaming" of the touchdown by a last second go-around is unprofessional and could be judged as unsafe and a disqualification given.