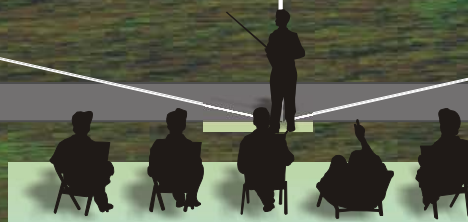


# MAAC Precision Aerobatics JUDGES TRAINING PRESENTATION

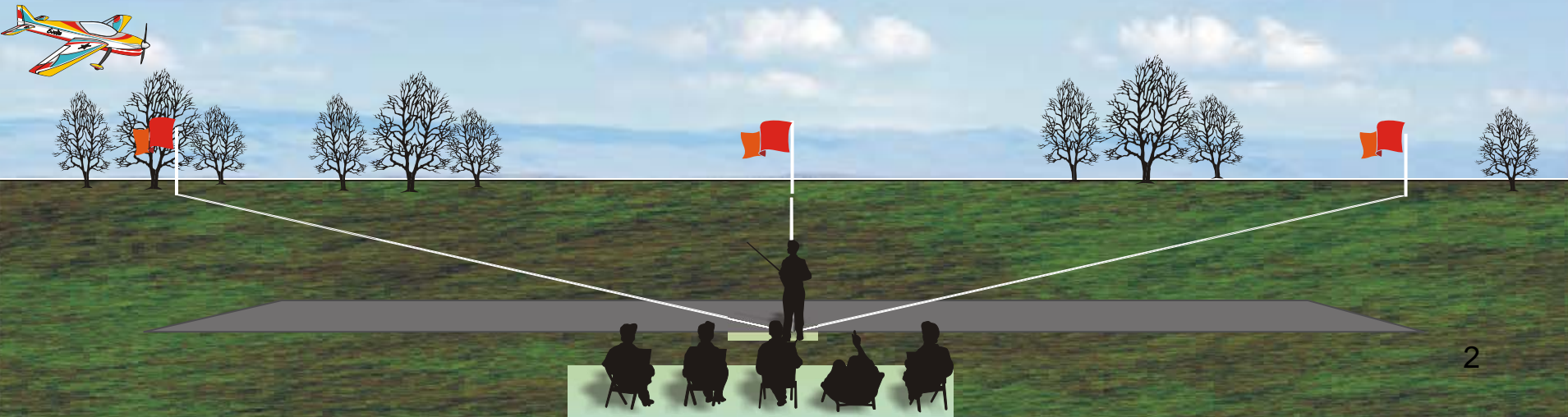
## 2008





# SCHEMATIC MANEUVER DIAGRAMS

# SPORTSMAN



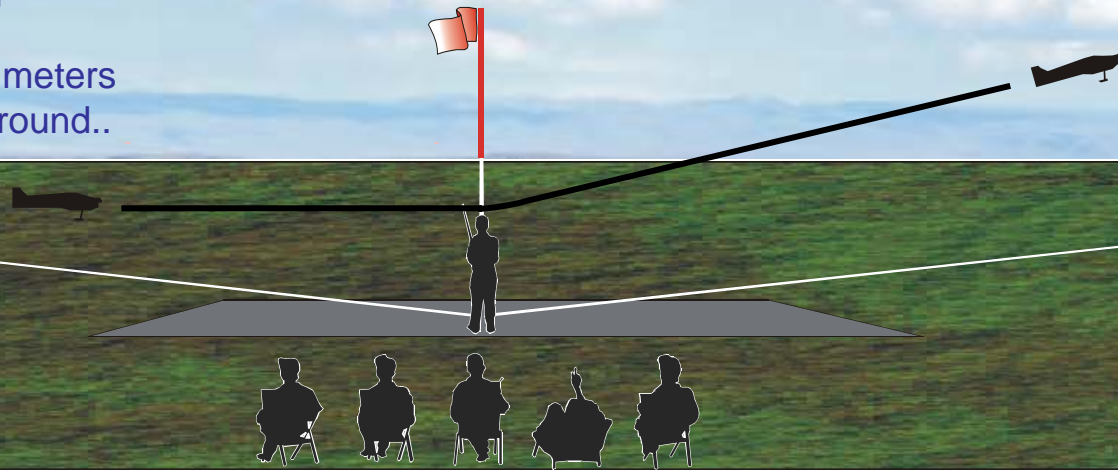
# 1 – Takeoff

- ✎ It is not necessary for the model to stand still on the ground with the engine running without being held before the takeoff begins.
- ✎ It is also not necessary for the model to reach 2 meters in the same distance as the takeoff roll.
- ✎ The takeoff should not be downgraded for wing dips caused by air turbulence unless the wings are not immediately leveled.
- ✎ The lift off should be within two (2) meters of center for maximum points




The maneuver is complete when the model is approximately two (2) meters (6-1/2 feet) from the ground..


## Downgrades

- ✎ Model jumps from the ground.
- ✎ Retouches the ground after becoming airborne.
- ✎ Steep climb angle.
- ✎ Gallops in elevation during climb.
- ✎ Wings not level at any time.
- ✎ Model does not accelerate smoothly.
- ✎ Model passes behind the judges line, scored zero (0) points.



## 2 – (U) Straight Flight Out

-  Track of plane deviates left or right.
-  Does not hold constant altitude.
-  Gallops in yaw, roll, or pitch.

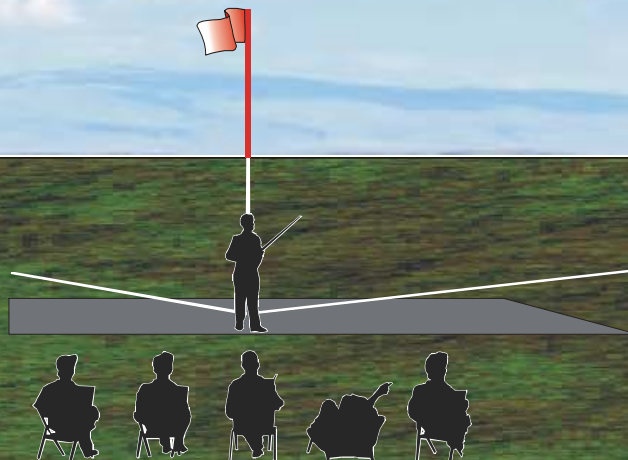
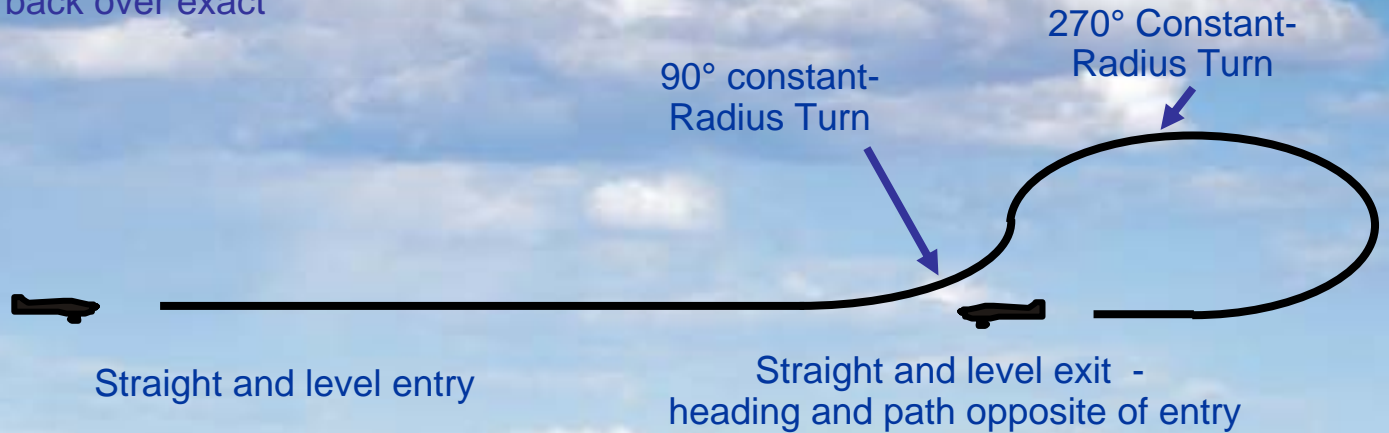
 The model must be brought exactly parallel to the flight path and flown in an absolutely straight and level path for a distance of approximately 100 meters centered on the judges (distance does not have to be accurate.).

   
Straight and level entry      Straight and level exit



# 3 – Procedure Turn

- ✎ First turn not exactly 90°.
- ✎ Opposite turn not exactly 270°
- ✎ Changes in altitude during turns.
- ✎ Turns not smooth and circular.
- ✎ Does not head back over exact outgoing path.








## 4 – (D) Straight Flight Back (Exit Box)

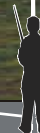
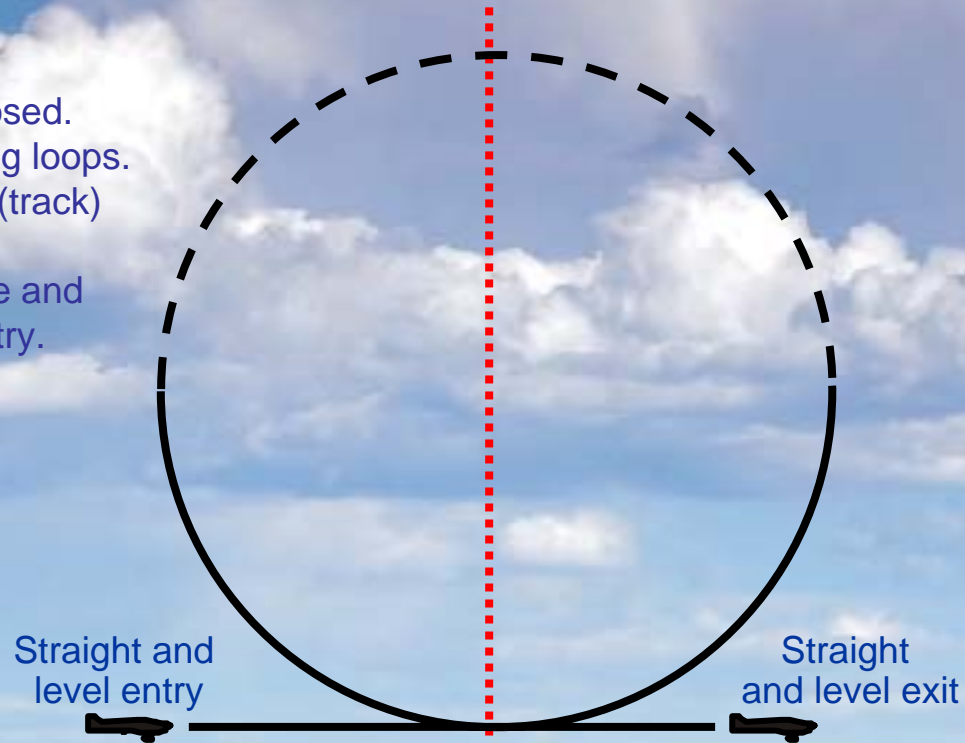
- ✎ Track of plane deviates left or right.
- ✎ Does not hold constant altitude.
- ✎ Gallops in yaw, roll, or pitch.
- ✎ Flight path not along straight flight out path

- ✎ The model shall fly back along the same line as the outgoing path.
- ✎ The model must be brought exactly parallel to the flight path and flown in an absolutely straight and level path for a distance of approximately 100 meters centered on the judges (distance does not have to be accurate.).



# 5 – (U) (Enter Box) One Inside Loop

-  Loops not round.
-  Loops not superimposed.
-  Wings not level during loops.
-  Changes in heading (track) during loops.
-  Exit not same altitude and heading (track) as entry.



# 6 – Immelman Turn

Straight and level exit

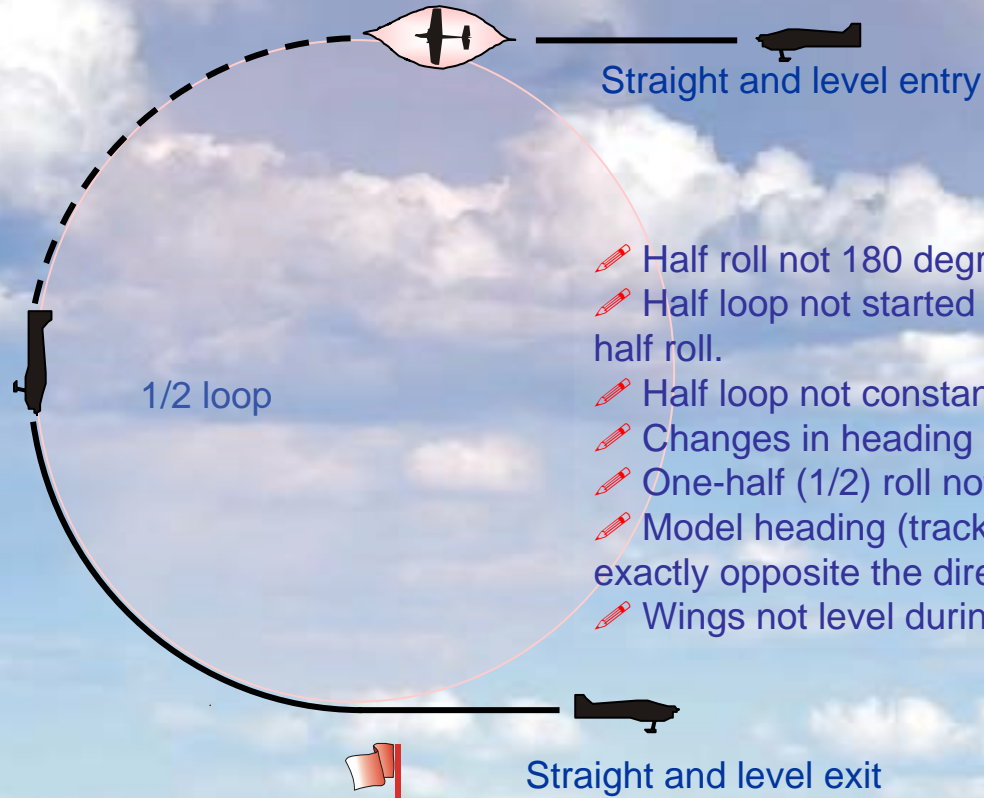
1/2 loop

Straight and level entry

- ✎ Model not level at start or finish.
- ✎ Roll not immediately after half loop.
- ✎ Changes in heading (track) after half loop or prescribed roll.
- ✎ Model track does not finish exactly opposite direction of entry.
- ✎ Half loop not round.
- ✎ Over or under rotation on prescribed roll, one point per 15-Degree rule.

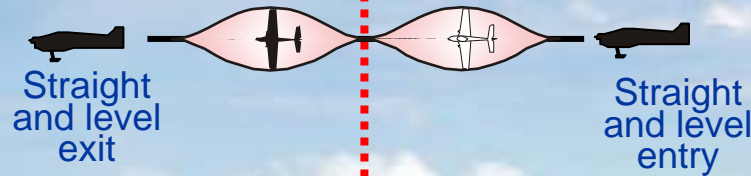


# 7 – Split S (Exit Box)

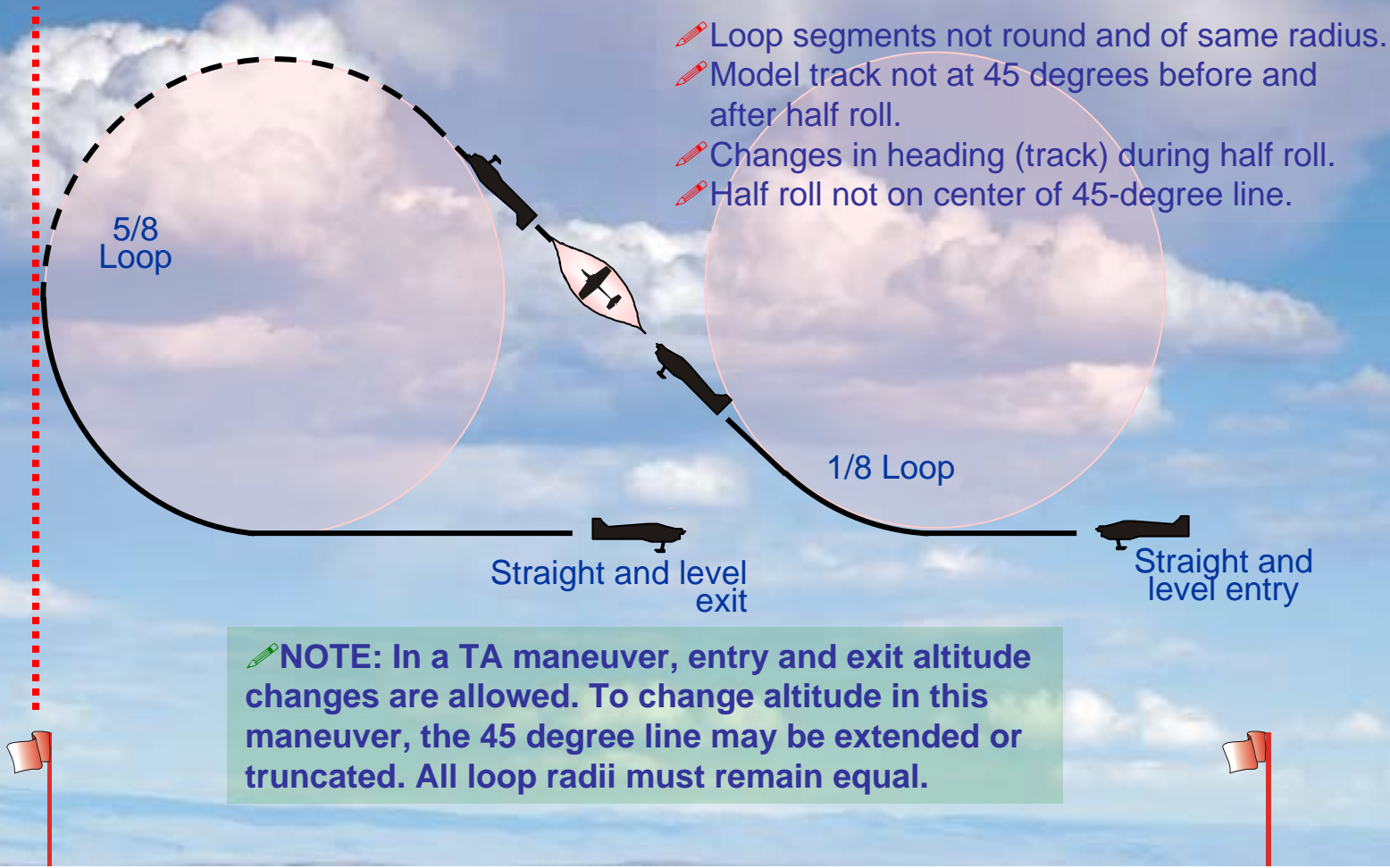


# 8 - (D) One Horizontal Roll

- ✎ Changes in heading (track) during rolls.
- ✎ Changes in altitude during rolls.
- ✎ Roll rate not constant.
- ✎ Model does do exactly one roll (1 pt/15° rule)

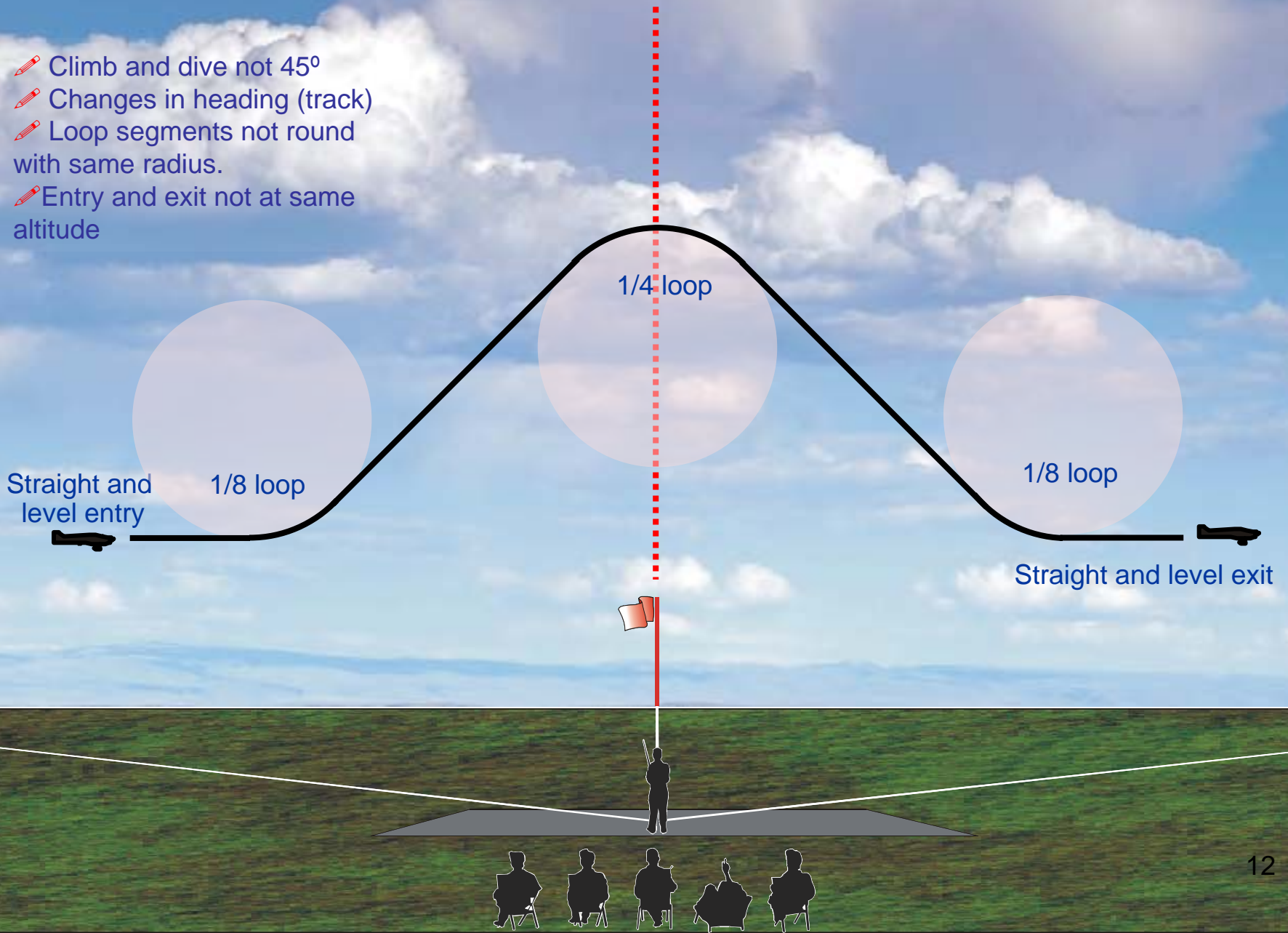


# 9 – Half Reverse Cuban 8







# 10 – (U) Cobra Without Rolls (Exit Box)

- ✎ Climb and dive not  $45^\circ$
- ✎ Changes in heading (track)
- ✎ Loop segments not round with same radius.
- ✎ Entry and exit not at same altitude



# 11 – (D) (Enter Box) Straight and Level Flight

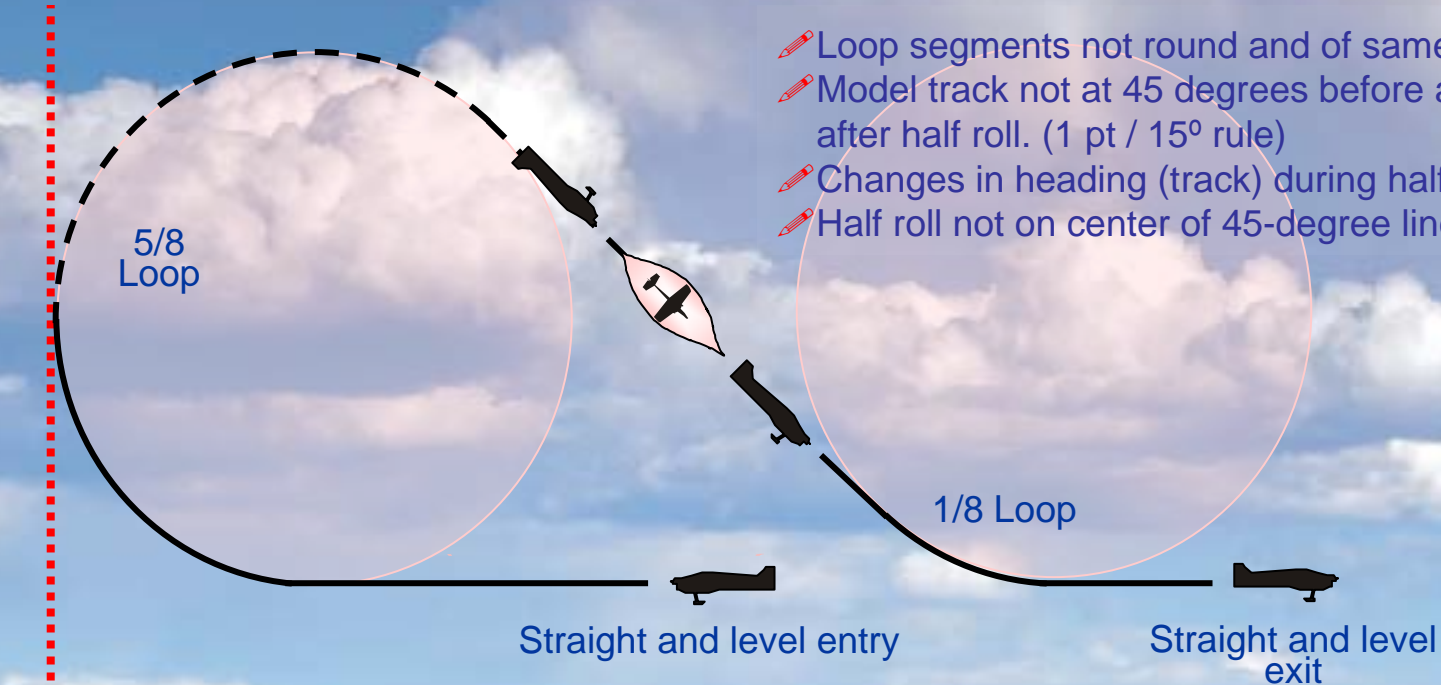
-  Track of plane deviates left or right.
-  Does not hold constant altitude.
-  Gallops in yaw, roll, or pitch.
-  Maneuver off-center


Straight and level exit

Straight and level entry



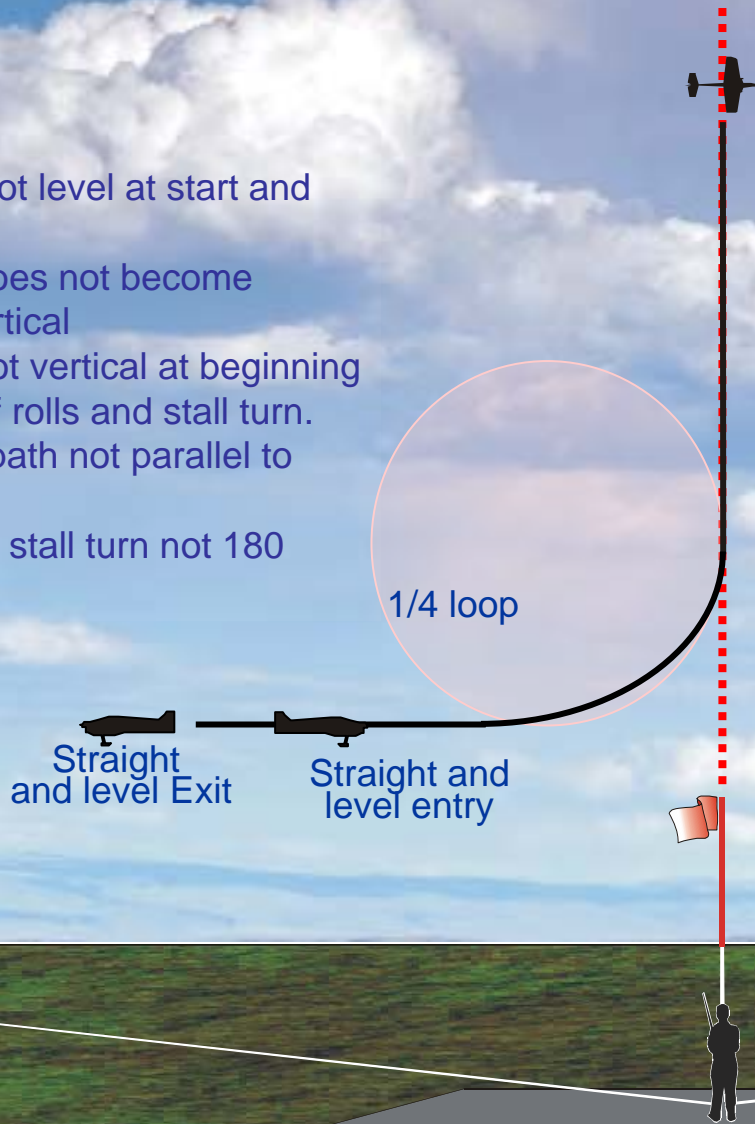
# 12 – Half Cuban 8



 **NOTE:** In a TA maneuver, entry and exit altitude changes are allowed. To change altitude in this maneuver, the 45 degree line may be extended or truncated. All loop radii must remain equal.

# 13– (U) Stall turn (Exit Box)

- ✎ Model not level at start and finish
- ✎ Track does not become exactly vertical
- ✎ Track not vertical at beginning and end of rolls and stall turn.
- ✎ Return path not parallel to entry path
- ✎ Track of stall turn not 180 degrees.

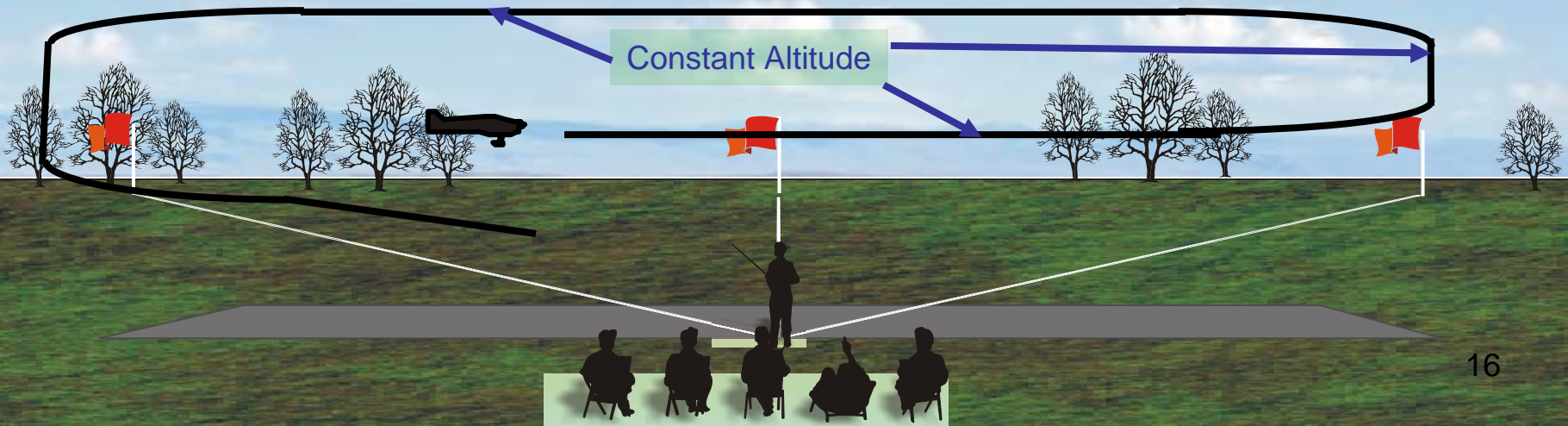


✎ Stall turn direction is pilot's options

- ✎ Pivot radius greater than 1/2 wingspan.
- ✎ Loop segments not round and of equal radius.
- ✎ Pendulum movement after stall.
- ✎ Exit not same altitude and heading (track) as entry.

# 14 – (Enter Box) Rectangular Approach

- ✎ The manoeuvre commences with the model flying straight and level into wind over the takeoff line, a turn of 90 degrees, a crosswind leg, a second turn of 90 degrees, a downwind leg, a third turn of 90 degrees, a crosswind leg, a fourth turn of 90 degrees and straight flight towards the point of touchdown
- ✎ The first three legs will be at constant altitude
- ✎ Descent to touchdown will commence after the second crosswind leg.
- ✎ The manoeuvre is completed just prior to two meters from the ground.



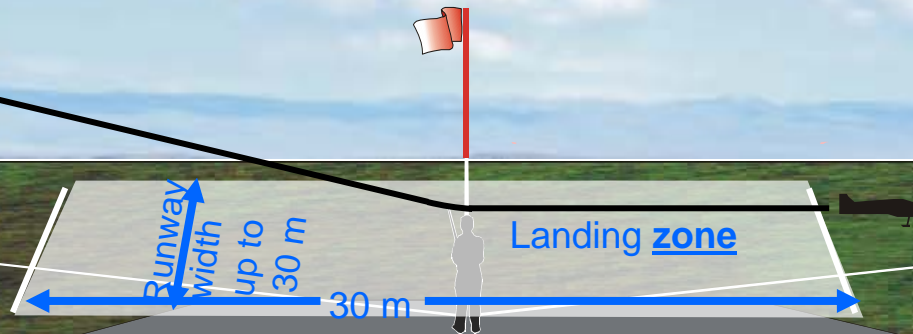
# 15 – Landing

## The landing will not be downgraded if:

- ✎ The model rolls to a controlled stop within 10 meters.
- ✎ Wing dips which are caused by air turbulence unless they are not immediately corrected.
- ✎ The pilot “slips to a landing” to handle a crosswind condition in which case a wing will be low
- ✎ Displacement of the touchdown point left or right as long as the landing is in the landing zone
- ✎ Landing zone is 30 m long centered on the judges BUT not more than 30 M wide.

Landing begins when the model is approximately two (2) meters (6-1/2 feet) from the ground.

Landing area:  
the entire  
defined runway



- ✎ Model passes behind the judges line, zero (0) points.
- ✎ Model impacts the runway due to lack of flare.
- ✎ Model bounces.
- ✎ Changes in track.
- ✎ Model ends on its back, zero (0) points.
- ✎ Model lands outside landing zone (but still on runway).
- ✎ If any undercarriage retracts before the landing is complete, zero (0) points.
- ✎ Aircraft “porpoises” and/or wanders during approach or flare.
- ✎ Aircraft lands outside the landing area or runway, zero (0) points.
- ✎ Aircraft touches down while not straight to runway and ground track.

