

## Landing TLAR Procedure

### 1) **Before the flight:**

- a) You should decide on a reasonable pattern altitude for the day's conditions, then change this if warranted during the flight.
- b) Similarly, you should decide on a pattern airspeed that is appropriate for the day's conditions, then change it if warranted by a change of conditions during the flight.

### 2) **Approaching Pattern**, decision made to land:

- a) Pattern altitude: Start with the appropriate altitude AGL. Focus on thought pattern: Pattern Entry is XXX ft MSL; field elevation is YYY ft MSL; so my IP altitude is ZZZ ft .
- b) Announce on radio intention to land.
- c) Go through USTALL checklist (Undercarriage, Speed, Trim, Airbrake, Lookout, Land) before IP.
- d) Establish **level** flight at speed providing minimum sink rate if you desire to stay airborne the longest. This may come in handy in case you will be forced to give way to other aircraft or if you simply need time to determine the most appropriate site to land.

### 3) **At IP:**

- a) Will only check altimeter one more time after this (when opposite AIM\*\* point on downwind leg).
- b) Test air-brakes - we don't want any surprises later. Keep hand on air brake handle (should already be there after the "A" of "USTALL" and should stay there until on the ground.).
- c) Confirm pattern speed chosen before flight is still appropriate; change if needed.
- d) Roll onto Downwind Leg when lateral distance from runway is 2x height (30 degree angle).

### 4) **Downwind Leg:**

- a) The major decision on downwind is identifying when to turn base. Be ready to do an abbreviated approach (ie: not all 90 degree turns) in the event of being too low or conflicts with traffic.
- b) Check airspeed frequently (change target speed if needed, but always maintain minimum).
- c) Monitor variometer (typically, would be between 2-4 knots down; if heavy lift or sink, use air brakes to control sink rate, or modify pattern).
- d) Announce points A and B . "A" is perpendicular to AIM point (typically, 6-800 feet AGL); "B" is 45 degrees to AIM point, where turn to base leg is initiated. (typically, 5-600 feet AGL).
- e) Judge angle to AIM point -- (TLAR) High, low, about right?

### 5) **Turn to Base Leg:**

- a) "CAB" (Coordinate, Airspeed, Bank angle - maintaining sufficient airspeed and avoid skidding turns are primary concerns).
- b) Keep looking over at AIM point.
- c) TLAR? High, low, about right?

### 6) **Base Leg:**

- a) Judge angle to touchdown -- (TLAR) High, low, about right? Use air brakes to adjust.
- b) Keep looking over at AIM point.

7) **Turn to Final Approach:**

- a) "CAB" (Coordinate, Airspeed, Bank).
- b) Keep looking over at AIM point.
- c) TLAR? High, low, about right?

8) **Final Approach:**

- a) Maintain airspeed (very important). Anticipate possible effects of wind gradient. Add speed and/or altitude if there is a wind gradient or gusts or you run the **high** risk of landing short.
- b) Try to anticipate air brake requirements and apply/remove as early as possible. Try to avoid "full air brake" or "no air brake" situations, BUT **use what's needed**. The ideal final approach would be a vertical angle half way between High and Low with ½ air-brakes.
- c) If crosswind, then crab or slip as needed to maintain straight ground track.
- d) TLAR? High, low, about right? Use air brakes for rate of descent control; use pitch / stick for airspeed control.

9) **Transition to Landing Pitch Attitude:**

- a) Change focus from touchdown point to well down the runway.
- b) Back pressure on stick to transition to level-flight attitude, finish this transition low to runway (a few feet above the ground). If you have had heavy air braking up to this point it is good practice to reduce the air brakes to less than ½ before the transitioning to avoid a heavy landing.
- c) Normally, after the transition, just relax back pressure slightly and allow the glider to smoothly fly onto the ground in 3 or so seconds. Don't force it on abruptly. But, don't prolong the flare so long that the glider flies tail low. (In our ships, it is not permissible for the main wheel and tail wheel main touchdown simultaneously, or with tail wheel first, then main wheel)
- d) You may use minor adjustments in the air brakes to accommodate desired touchdown.

10) **Rollout:**

- a) Keep focus well down the runway.
- b) If "hot" or too fast, then use full air brakes to reduce speed below flying speed, then use wheel brake.
- c) Keep wings level with aileron, steer with rudder - anticipate effects of cross-wind and compensate for it as needed.
- d) Never roll towards an obstruction that requires the use of the wheel brake (with many sailplanes, there is high risk of wheel brake failure or ineffective braking).

\*\*The AIM point is an imaginary spot on the ground that you aim at during your final approach. If it seems to be rising in your view you are going to fall short and need to remove some of the air brakes. If it seems to be falling you are going to overfly it and you need to add air brakes. This is why it is so important to maintain steady approach speed. Otherwise, when your speed changes so does your pitch (remember pitch controls airspeed) and you get a false sense that the AIM point changed position.

The Aim point is the point at which you transition to level pitch attitude. The touch down point comes next followed by the stop point. So, you choose your AIM point by working back from where you want to stop.

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