CHI Maneuvers Guide Cessna 172 Skyhawk

Note: ACS Standards listed below are a brief SUMMARY and are not 100% complete. The key takeaway standards are listed. Be sure to review ACS Standards in full for each maneuver.

Slow Flight (Clean)

1. Cruise flight above 1500ft AGL
2. Clearing turns (Clear traffic and find an emergency landing area)
3. Power to 2000-2100 rpm
4. Keep nose up to reduce speed and maintain altitude
5. Adjust pitch to maintain airspeed around 55-60 Knots
6. Adjust power to maintain altitude
7. Proceed to make turns, climbs, and descents using minor power adjustments
8. Recover by increasing power to full and simultaneously lowering the nose to build speed
9. Resume cruise flight (cruise checklist)

ACS Standards: (+10 -0 for airspeed meaning 55+10), +-10 degrees on desired heading, +-100 feet on altitude.

Slow Flight (Dirty)

1. Cruise flight above 1500ft AGL
2. Clearing turns (Clear traffic and find an emergency landing area)
3. Reduce power below the green arc and pull carb heat.

4. Keep pitch attitude up to reduce speed and maintain altitude.

5. Below 110, lower flaps to 10 degrees. Below 85 KTS 10-30 degrees.

6. Increase power and pitch accordingly to maintain altitude around 55-60 knots.

7. Proceed to make turns, climbs, and descents using minor power adjustments

8. Recover by increasing power to full and simultaneously lowering the nose to build speed

9. Retract flaps incrementally.

10. Resume cruise flight (cruise checklist)

ACS Standards: (+10 -0 for airspeed meaning 55+10), +-10 degrees on desired heading, +-100 feet on altitude.

Stalls

Power-Off Stall (Landing stall)

1. Cruise flight above 1500ft AGL

2. Clearing turns (Clear traffic and find an emergency landing area)

3. Reduce power (apply carb heat) and adjust pitch to slow down to maneuvering speed (90 KTS) while maintaining altitude.

4. Flaps 10 below 110 (100 in 59V), then flaps 10-30 below 85 knots.

5. Apply gradual nose up pressure keeping the aircraft coordinated with use of rudder until the aural stall horn has sounded.

6. Gently lower the nose to a slight descent to gain airspeed while removing carb heat and adding full throttle.

7. Pitch up to start a climb while removing flap settings in a 10 degree increment when positive rate of climb is assured.

8. Resume cruise flight (cruise checklist)

ACS Standards: Stabilized descent established, +-10 degrees on desired heading, proper configuration/procedures completed

properly in accordance with POH/AFM, Vx or Vy established in recovery.

Power-On Stall (Takeoff stall)

1.Cruise flight above 1500FT

2. Do one 180 or two 90 degree clearing turns.

3. Carb Heat on, power to 1500RPM

4. Hold altitude with pitch, heading with rudder.

5. At 55KIAS Carb Heat off, full power, right rudder.

6. Gradually continue to increase pitch.

7. At stall buffet, lower pitch below the horizon, then smoothly raise pitch to climb attitude and transition to cruise (Cruise checklist)

ACS Standards: +-10 degrees on desired heading, proper configuration/procedures

completed properly in accordance with POH/AFM, Vx or Vy established in recovery.

Steep Turns

1. Cruise flight above 1500ft AGL

2. Clearing turns (Clear traffic and find an emergency landing area)

3.Reduce speed to VA (maneuvering speed 90 KTS)

4. Establish a 40 to 45 degree banked turn, focusing on the cowling/horizon.

5. If low, rollout the bank slightly and increase the backpressure.

6. If high, roll in steeper and reduce backpressure.

7. 20 degrees before the desired rollout heading, begin a smooth rollout with rudder and ailerons. Hold pitch down and dial out the nose up trim

ACS Standards: +-10 degrees on desired heading, +-10 from initial airspeed, +-100

from initial altitude

Takeoffs and Landings

Forward Slip to Landing

1. Complete pre-landing checklist (no flaps)

2. Once aligned with the runway reduce power to idle and smoothly apply full rudder in the direction opposite of the wind

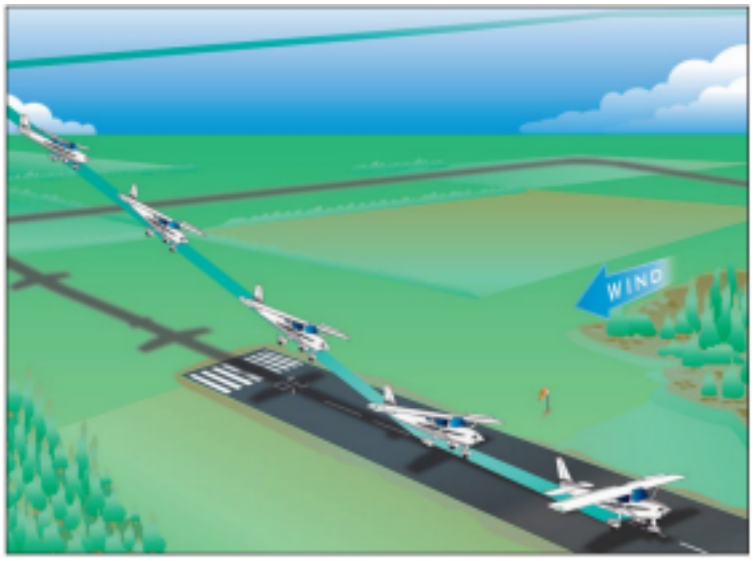
3. Counteract rolling tendency with opposite aileron (wing down into the wind). 4. Maintain 60-65kts in descent

5. Use ailerons to maintain centerline of the runway

6. When approaching flaring point, smoothly reduce rudder input and maintain control over the runway

7. Proceed with planned landing

8. Complete after landing checklist



ACS Standards: Configure the airplane correctly. Correlate crosswind with direction of forward slip and transition to side slip before touchdown. Touch down at a proper pitch attitude, within 400 feet beyond or on the specified point, with no side drift, and with the airplane's longitudinal axis aligned with and over the runway center/landing path. Maintain a ground track aligned with the runway center/landing path.

Soft-Field Takeoff

1. Complete before takeoff checklist with first 10 degrees of flaps.

2. Hold stick full back taxiing onto the runway and apply crosswind correction as necessary

3. Increase throttle to full as aircraft is aligned with center of the runway (Check engine indications)

4. Adjust nose pitch to maintain an attitude in which the nose wheel is off the ground but tail is not scraping

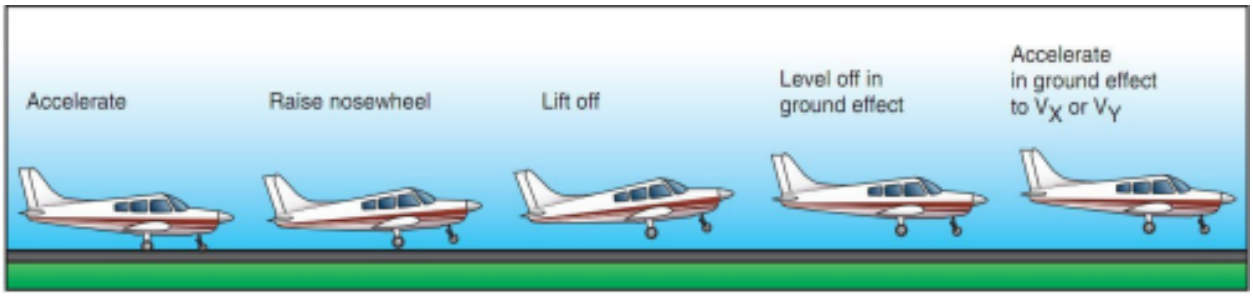
5. When the aircraft lifts off (Will be prior to Vr) lower nose slightly to maintain ground effect and accelerate to Vx or Vy

6. Establish a climb at Vx if clearing an obstacle or Vy if no obstacles are ahead

7. Once clear of obstacles pitch for Vy and retract flaps

8. Complete climb checklist

ACS Standards: Lift off at the lowest possible airspeed and remain in ground effect while accelerating to VX or VY , as appropriate. Establish a pitch attitude for VX or VY , as appropriate, and maintain selected airspeed +10/-5 knots during the climb.



Soft-Field Landing

1. Complete normal Pre-Landing checklist

2. Abeam touch down point at pattern altitude, set power below 1900 rpm and adjust as needed for glide.

3. Below 110 lower flaps to 10 Degrees.

4. Establish a normal descent at 70-75kts in the base and final.

5. On the final approach maintain 5 knots above the normal approach speed (70 kts) and enter ground effect. (Might need a touch of power before entering ground effect)

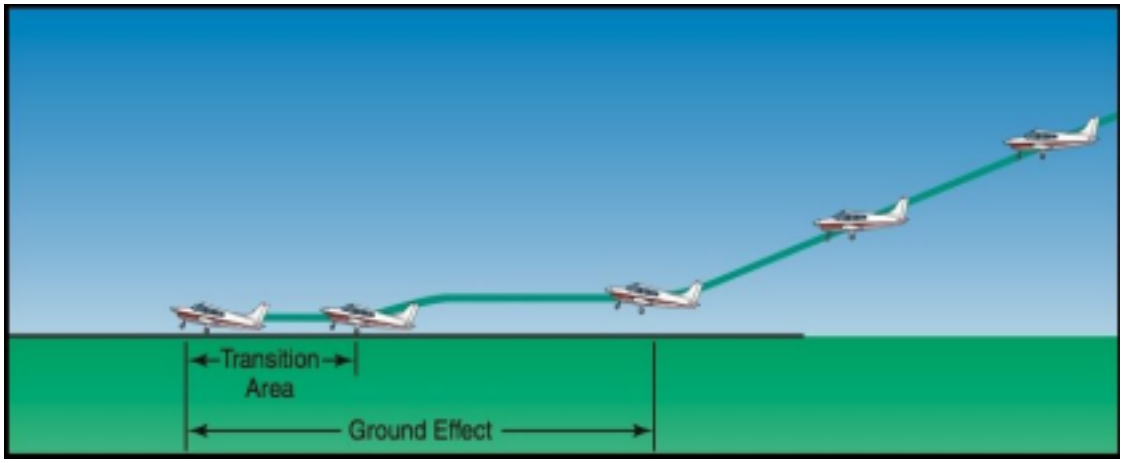
6. In ground effect, slightly raise the nose to continue to lose speed so the aircraft touches down at the slowest possible speed with the nose high off the ground (most likely hear the stall warning).

7. After touchdown, gradually apply full stick back to keep weight off the nosewheel as long as possible.

8. Use minimal brakes to slow to taxiing speed

9. Once clear of the runway, complete after landing checklist

ACS Standards: Maintain approach speed. Touch down at a proper pitch attitude with minimum sink rate, no side drift, and with the airplane's longitudinal axis aligned with the center of the runway. Keep the nose wheel off the surface until loss of elevator effectiveness. Maintain safe taxi speed that would preclude the aircraft from sinking into the "soft" surface.



Short- Field Takeoff

1. Complete before takeoff checklist. Flaps 10 degrees.

2. Align aircraft on the runway utilizing all available runway

3. Once aligned, hold brakes firmly and apply full power (check engine instruments

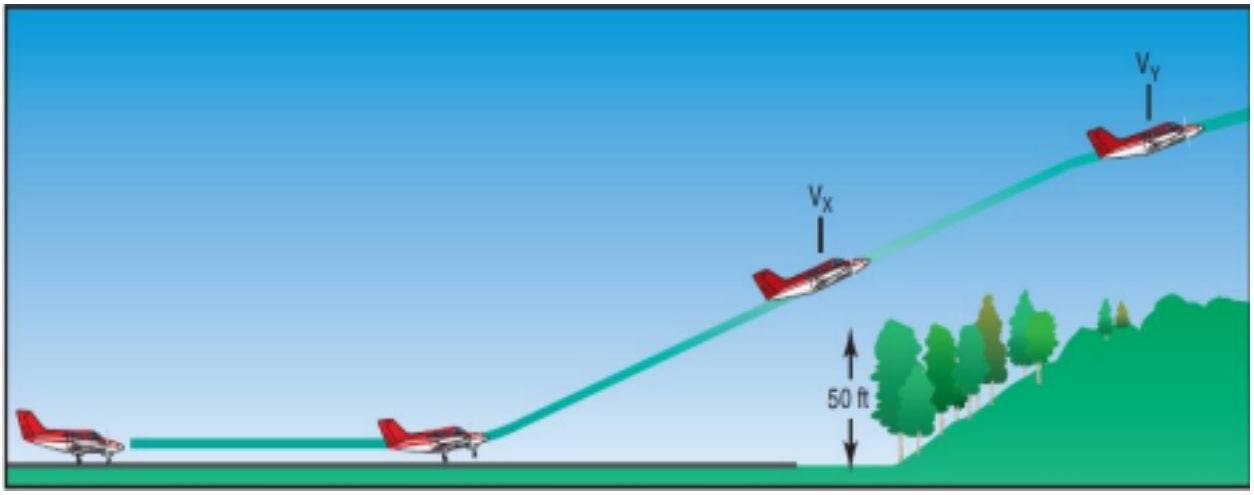
4.Release the brakes

5. Rotate at 50 knots and continue pitch up to maintain a Vx climb of 53 knots.

6. Once obstacles are clear lower the nose for Vy and retract flaps

7. Complete climb checklist

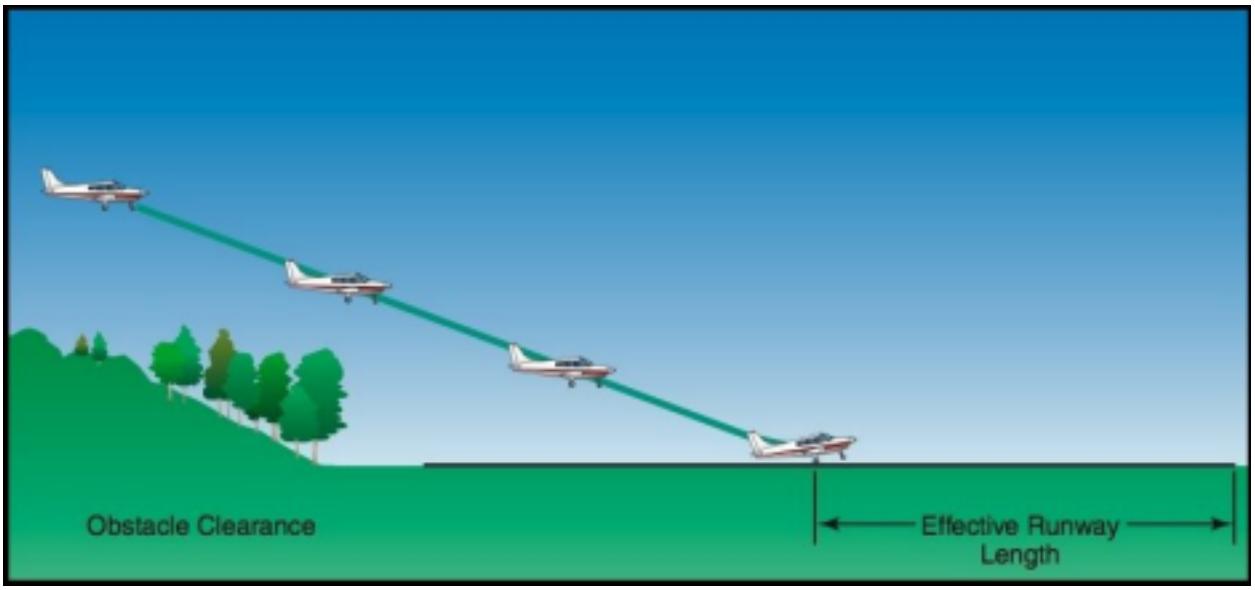
ACS Standards: Runway centerline established. Maximum amount of runway used for takeoff. Power set with brakes held and engine/flight instruments in check. Rotate at the recommended airspeed and maintain Vx after liftoff within +10-5 airspeed until obstacle is cleared or until 50 AGL. Vy established after obstacle or 50 AGL if simulated obstacle.



Short-Field Landing

1. Complete Pre-Landing checklist
2. Select a touch down point
3. Abeam touch down point at pattern altitude, set power around 1900 rpm and adjust as needed for glide.
4. Below 110 KTS lower flaps to 10 degrees.
5. Establish a descent at 85 Knots on the downwind until touch down point is 45° over your shoulder then turn base.
6. 75 Knots and 20 degrees of flaps on base turn.
7. 65 Knots and 30 degrees down on final approach.
8. When touch down point is achieved and obstacles cleared, power to idle and lower nose to maintain 60-65 knots.
9. Begin flaring to achieve a touch down at or around stall speed
10. Once wheels are down, smoothly increase braking intensity, retract flaps, then add full stick back for aerodynamic braking
11. Once clear of the runway complete after landing checklist

ACS Standards: Select and aim for a suitable touchdown point, maintain manufacturers recommended approach speed +10/-5, touch down at a proper pitch attitude within 200 feet beyond or on the specified point. Use manufacturer's recommended procedures for airplane configuration and braking (Flaps retract upon touchdown, maximum braking without skidding, and stick back for aerodynamic braking)



Ground Reference Maneuvers

S-turns Across A Road

1. Complete cruise checklist
2. Select a road that is 90° to wind direction
3. Establish an altitude between 600ft and 1000ft AGL (Depends on landing area and obstacles)
4. Clear the area by overflying the road and selecting an emergency landing area
5. Set up to enter the maneuver on the downwind at 90kts
6. Upon crossing the road, enter the steepest bank of the maneuver (cannot exceed 40° of bank)
7. As the aircraft changes direction relative to wind groundspeed changes and less bank is

required to ensure equal distance to the road

8. Cross the road perpendicular with wings level

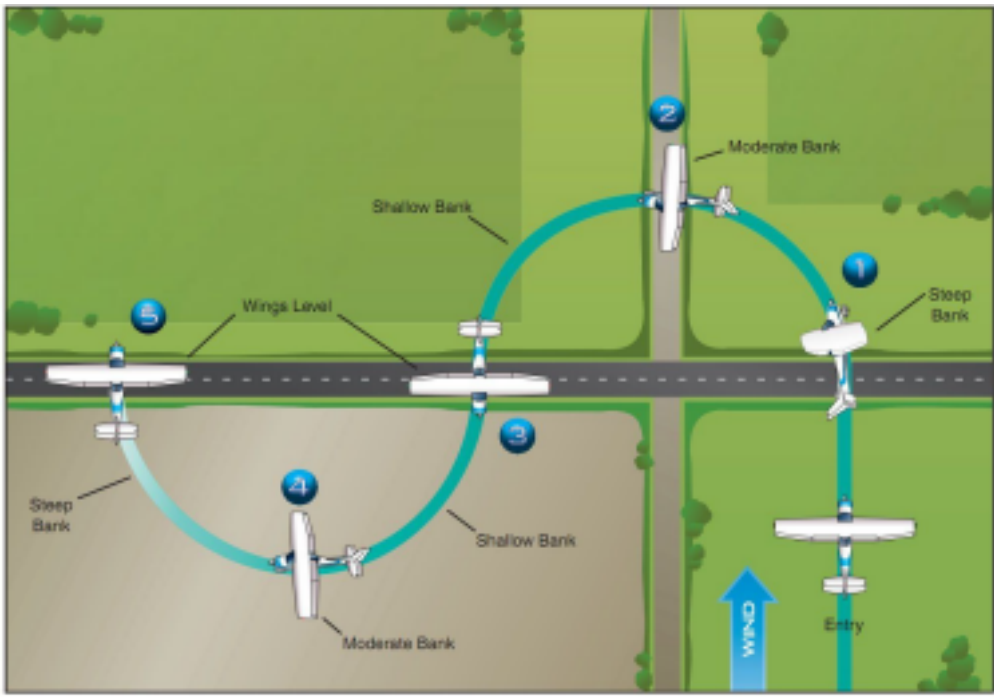
9. Begin opposite turn with shallowest bank of the maneuver

10. As the aircraft changes direction relative to the wind ground changes and more bank is required to ensure equal distance to the road

11. Cross the road perpendicular with wings level

12. Once complete, resume more turns or exit on the downwind and resume cruise flight

ACS Standards: Maintain altitude ±100 feet; maintain airspeed ±10 knots. Reverse the turn directly over the selected reference line. Maintain a constant radius turn on each side of a selected reference line. Max bank of 45 degrees according to AFH (not listed in ACS). Enter and exit on a downwind.



Turns Around A Point

1. Complete cruise checklist

2. Select a point in open space to maneuver around

3. Establish an altitude between 600ft and 1000ft AGL (Depends on landing area and

obstacles)

4. Clear the area by overflying the point and selecting an emergency landing area

5. Set up to enter the maneuver on the downwind at 90kts

6. Upon passing the point enter the steepest bank of the maneuver (cannot exceed 40° of bank)

7. As the aircraft changes direction relative to wind, groundspeed changes and less bank is required to ensure equal distance to the point

8. Adjust bank as necessary to maintain equidistant from the selected point

9. Complete a full 360° around the point

10. Once complete, resume more turns or exit on the downwind and resume cruise flight

ACS Standards: Maintain a constant radius turn on each side of a selected reference point. Maintain altitude ±100 feet; maintain airspeed ±10 knots. Enter on a downwind and exit on downwind.