

Citabria Maneuver Guide

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Straight and Level Flight

1. While established in a climb, note the vertical speed
2. While established in a climb, note the vertical speed
3. Multiply $.10 \times$ vertical speed to determine the number of feet to begin the level off before the desired altitude.
Example $500 \text{ FPM} \times .10 = 50 \text{ feet}$
4. Begin level off at calculated altitude before target altitude
5. Lower the pitch attitude to stop the climb
6. Verify that the altimeter is at the target altitude and not moving
7. Allow the airspeed to increase
8. Throttle to 2300 RPM
9. Observe that the wing tips are parallel to the horizon and each one is the same distance above the horizon
10. Observe that the glare-shield is parallel to the horizon and the distance between them is consistent
11. Observe if the airplane is yawing and correct with appropriate rudder input
12. Verify that the heading indicator is not moving
13. Verify that the inclinometer has the ball in the middle
14. Remove control pressures with trim

Normal Climb

1. Determine desired climb airspeed
 - a. $V_x = 60$ MPH
 - b. $V_y = 70$ MPH
 - c. Cruise Climb = Speed that allows for greater forward visibility and engine cooling: 80-90 MPH
2. Apply full throttle
3. Apply elevator back pressure
 - a. Cowling on the horizon
4. Level wings with aileron
5. Stop yaw with appropriate right rudder
6. Establish desired airspeed
 - a. Adjust airspeed with pitch
7. Eliminate control pressure with trim

Descents

1. Reduce throttle to 500 RPM less than cruise RPM
 - a. Apply carb heat below 2000 RPM
2. Reduce pitch attitude
3. Establish a 90 MPH airspeed descent
4. Note the decent rate with the vertical speed indicator (if equipped)
5. Trim off control pressures
6. Identify the point in the windscreen that is not moving
7. Return to level flight at an identified altitude
8. Increase throttle to full power
9. Apply elevator back pressure to achieve level flight
10. As airspeed reaches cruise speed, reduce throttle to 2300 RPM
11. Eliminate control pressures with trim

Medium Bank Turns

1. Clear the area. Identify emergency landing areas
2. 2300 RPM, 95 MPH
3. Begin turn with coordinated aileron and rudder inputs
4. Use aileron to establish desired bank angle
 - a. 20-30 degrees
5. Use elevator to maintain altitude
6. Use rudder to eliminate adverse yaw
7. Apply throttle to maintain airspeed
8. Lead the roll out by $\frac{1}{2}$ of the bank angle used
9. Roll out of the turn using coordinated aileron and rudder
10. Use elevator to maintain altitude
11. Adjust throttle to maintain airspeed

Slow Flight

1. Clear the area. Identify emergency landing areas
2. Reduce power to 1500 RPM.
3. Carburetor Heat on below 2000 RPM
4. Maintain altitude with elevator back pressure
5. Slow airplane to 40-45 MPH
6. Apply necessary throttle input to maintain 40-45 MPH
7. Trim off control pressures
8. Note decreased effectiveness of control inputs
9. Maintain a constant heading, straight ahead
 - a. Compass heading or
 - b. Visual landmark
10. Perform a level 90-degree turn to the left.
 - a. Additional throttle will be required to maintain altitude
 - b. No more than 5 degrees of bank angle
11. Perform a level 90 degree turn to the right
 - a. Additional throttle will be required to maintain altitude
 - b. No more than 5 degrees of bank angle
12. Re-establish straight and level flight
13. Apply full power
14. Stick forward as airspeed increases
 - a. Do not climb
15. Re-establish straight and level flight
 - a. 2300 RPM, 95 MPH

Power Off Stalls

1. Clear the area. Identify emergency landing areas
2. Begin maneuver at 3000 feet AGL minimum
3. Straight and level, coordinated flight
4. Select a reference point in front of the airplane
5. Throttle to idle
6. Carburetor heat on
7. Establish a 70 MPH glide
8. Begin applying elevator back pressure
9. Continue applying back pressure until symptoms of a stall appear
 - a. Buffeting
 - b. Ineffective, “mushy” controls
 - c. Usually no stall horn!
10. Allow airplane to fully stall
 - a. Nose drops
11. Recover from the stall by releasing elevator back pressure and lowering the angle of attack
12. Apply full throttle
13. Carburetor heat off
14. Required right rudder to offset left yaw
15. Control wing drop with rudder
 - a. “Step on the high wing”
 - b. Not ailerons!
16. Observe a positive rate of climb
17. Return to cruise configuration
 - a. 2300 RPM, 95 MPH

Power on Stalls

1. Clear the area. Identify emergency landing areas
2. 3000 feet AGL minimum altitude
3. Slow the airplane to 70 MPH
 - a. 1500 RPM
 - b. 70MPH
4. Apply full throttle
 - a. Carburetor heat off
5. Pitch up to 2X normal Vx Climb attitude
 - a. @ 25 degrees above level
6. Maintain coordination with increased right rudder pressure
7. Continue to apply increasing elevator back pressure
8. Maintain wings level and control coordination
9. Recognize and announce the symptoms of an approaching stall
10. Elevator control full back
11. After nose pitches down, release elevator back pressure
12. Maintain wings level with coordinated rudder
13. Resume normal flight attitude, power, and airspeed with a minimum loss of altitude

Accelerated Stalls

1. Clear the area. Identify emergency landing areas
2. Begin maneuver at 3000 feet AGL minimum
3. 1500 RPM Carburetor heat
4. Slow to 70 MPH in straight and level flight
5. Establish a coordinated 45 degree bank turn
6. Smoothly and firmly increase elevator back pressure
7. Continue applying back pressure until symptoms of a stall appear
 - a. Buffeting
 - b. No stall horn!
8. Allow airplane to fully stall
 - a. Nose drops
 - b. One wing stalls before other
9. Recover from the stall by releasing elevator back pressure and lowering the angle of attack
10. Correct roll with rudder
 - a. "Step on the high wing"
 - b. No aileron!
11. Apply full throttle and carburetor heat
12. Return airplane to level flight.
13. Establish cruise flight
 - a. 2300 RPM. 95 MPH

Normal Take Off

1. All pre-take off checklists completed
2. Line up on runway centerline
3. Identify/verify crosswind direction and velocity
4. Stick to neutral elevator position
5. Aileron deflection into crosswind as necessary
6. Apply power smoothly and fully
7. Confirm proper engine operation
 - a. RPM 2225-2425
 - b. Oil pressure in the green
8. Confirm proper flight instrument operation
 - a. Airspeed indicator moving and increasing
9. Manage airplane pitch attitude
 - a. Tail will rise as airspeed increases
 - b. Maintain neutral to slightly tail low attitude
10. Compensate for left turning tendencies
 - a. Right rudder to maintain runway centerline
 - b. Left turning tendencies will increase as tailwheel breaks contact with runway surface
11. Compensate for drift
 - a. Aileron input into the crosswind
12. Allow airplane to lift off the runway
13. Establish a 70 MPH climb
14. Crab into the wind as necessary while in climb
 - a. After positive rate of climb established
 - b. NO NOT climb with one wing low (slip)
15. Adjust for drift as necessary

Three Point Landings

1. Enter traffic pattern at TPA
2. 1800 RPM, Carb heat on, slow to 80 MPH
3. Landing Checklist
4. Power to idle abeam of touchdown point
5. Maintain altitude with aft stick pressure
 - a. Airspeed will decrease
6. Determine and Establish approach speed
 - a. 70 MPH with 2 persons aboard
 - b. 65 MPH with one person aboard
 - c. Adjust for wind gusts
 - i. Increase approach speed $\frac{1}{2}$ of the gust factor
7. Initiate base turn
 - a. 45 degrees past touchdown point
 - b. Turn sooner if wind is present
8. Evaluate altitude
 - a. Correct with power as necessary
9. Turn for final approach
10. Maintain stabilized approach
 - a. Pitch for airspeed
 - b. Power to adjust altitude
11. Power slowly to idle when runway is made
12. Round out with back stick
 - a. Arrest descent @ 15 feet above the runway
13. Flare
 - a. Smoothly bring stick back until 3 point attitude is achieved and hold
14. Allow aircraft to settle onto the runway
15. Smoothly bring stick back after tailwheel touchdown
16. Brake as necessary
17. Depart runway at safe speed
18. After landing checklist

Wheel Landings

1. Enter traffic pattern at TPA
2. 1800 RPM, Carb heat on, slow to 80 MPH
3. Landing Checklist
4. Power to idle abeam of touchdown point
5. Maintain altitude with back stick pressure
 - a. Airspeed will decrease
6. Determine and Establish approach speed
 - a. 70 MPH with 2 persons aboard
 - b. 65 MPH with one person aboard
 - c. Adjust for wind gusts
 - i. Increase approach speed $\frac{1}{2}$ of the gust factor
7. Initiate base turn
 - a. 45 degrees past touchdown point
 - b. Turn sooner if wind is present
8. Evaluate altitude
 - a. Correct with power as necessary
9. Turn for final approach
10. Maintain stabilized approach
 - a. Pitch for airspeed
 - b. Power to adjust altitude
11. Maintain a slightly tail low pitch attitude
 - a. "Fly the airplane onto the runway"
12. Decrease the descent rate with power
13. Touchdown with nose aligned to centerline and without sideways drift
14. Upon touchdown, apply forward stick
 - a. Establish a slightly nose down pitch attitude
15. Power to idle
16. Maintain runway centerline with rudder.
17. Allow tail to settle onto runway
18. Smoothly bring stick back after tailwheel touches down
19. Brake as necessary
20. Depart runway at a safe speed
21. After landing checklist

Short Field Take Off

1. Consult POH for short field take off performance
2. All pre-take off checklists completed
3. Line up on centerline as close to the end of the runway as possible
4. Apply full brakes
5. Confirm stick full back
6. Identify/verify crosswind direction and velocity
7. Aileron deflection into crosswind as necessary
8. Smoothly apply full throttle
9. Confirm proper engine operation
 - a. RPM 2225-2425
 - b. Oil pressure in the green
10. Release brakes
11. Stick to neutral elevator position
12. Confirm proper flight instrument operation
 - a. Airspeed indicator moving and increasing
13. Manage airplane pitch attitude
 - a. Tail will rise as airspeed increases
 - b. Maintain neutral to slightly tail low attitude
14. Compensate for left turning tendencies
 - a. Right rudder to maintain runway centerline
 - b. Left turning tendencies will increase as tailwheel breaks contact with runway surface
15. Compensate for drift
 - a. Aileron input into the crosswind
16. Allow airplane to lift off the runway
17. Establish a 60 MPH climb (V_x)
18. Clear simulated 50 foot obstacle
19. Lower pitch attitude and climb at 70 mph (V_y)
20. Crab into the wind to adjust for drift
 - a. After positive rate of climb established
 - b. NO NOT climb with one wing low (slip)

Short Field Landing

1. Devote full attention to airplane control and traffic avoidance
2. Slow to 80 MPH prior to entering the downwind leg of the traffic pattern
3. Complete before landing checklist
4. Enter the traffic pattern at TPA
5. When ready to descend from TPA, reduce throttle to 1500 RPM.
6. Apply Carb heat
7. On base leg, establish a pitch attitude to maintain 70 MPH and trim off control pressures
8. On final approach, establish a pitch attitude to maintain 60 MPH and trim off control pressures
9. Within 15 of the ground begin flare to arrest decent rate.
10. Close throttle slowly during flare
11. Touchdown at the intended touchdown point with little or no floating
12. Stick all the way aft after touchdown.
13. Use maximum braking as necessary to stop in desired distance

Soft Field Take Off

1. Consult POH for take off performance
2. All pre-take off checklists completed
3. Keep the aircraft moving while taxiing onto runway
4. Stick slightly aft of neutral
5. Identify/verify crosswind direction and velocity
6. Aileron deflection into crosswind as necessary
7. Apply throttle smoothly and fully
8. Confirm proper engine operation
 - a. RPM 2225-2425
 - b. Oil pressure in the green
9. Confirm proper flight instrument operation
 - a. Airspeed indicator moving and increasing
10. Manage airplane pitch attitude
 - a. Tail will rise as airspeed increases
 - b. Maintain neutral to slightly tail low attitude
11. Compensate for left turning tendencies
 - a. Right rudder to maintain runway centerline
 - b. Left turning tendencies will increase as tailwheel breaks contact with runway surface
12. Compensate for drift
 - a. Aileron input into the crosswind
13. Allow airplane to lift off the runway at slowest possible airspeed
14. Pitch forward to keep airplane level and within 10 feet of runway
15. Accelerate to 60 MPH
16. Pitch up and climb at 70 MPH
17. Crab into the wind as necessary while in climb
 - a. After positive rate of climb established
 - b. NO NOT climb with one wing low (slip)
18. Adjust for drift as necessary

Soft Field Landing

1. Devote full attention to airplane control and traffic avoidance
2. Slow to 80 MPH prior to entering the downwind leg of the traffic pattern
3. Complete before landing checklist
4. Enter the traffic pattern at TPA
5. When ready to descend from TPA, reduce throttle to 1500 RPM.
6. Apply Carb heat
7. On base leg, establish a pitch attitude to maintain 75 MPH and trim off control pressures
8. On final approach, establish a pitch attitude to maintain 70 MPH and trim off control pressures
9. Within 15 of the ground begin flare
10. Place the airplane into the 3 point pitch attitude
11. Use the throttle to arrest the decent rate
12. Touchdown as softly as possible
13. Power to idle
14. Stick all the way back
15. Use absolute minimum braking
16. Keep the airplane moving all the way to the tie down position.

Forward Slip to Landing

1. Landing checklist complete
2. Throttle to idle
3. Trim for desired approach speed
4. Lower the windward (upwind) wing with aileron
5. Simultaneously apply opposite rudder to prevent airplane from turning
6. Maintain desired approach speed
7. Adjust inputs to maintain desired ground track
8. Note vertical decent speed for reference
9. Recover from forward slip with enough altitude to become stabilized before landing

Side Slip

Counteract drift during crosswind landing

1. Landing checklist complete
2. Establish and stabilize approach speed
3. Apply aileron to bank wings into the wind
4. Apply opposite rudder input to prevent turn and align airplane with runway centerline
5. Monitor and maintain approach airspeed
6. Maintain adequate inputs to eliminate drift
 - a. During round out
 - b. During flare
 - c. During touchdown
 - d. During roll out

Crosswind Take Off

1. Complete all appropriate pre-take off checklists
2. Line up on runway centerline
3. Select reference point downrange on runway centerline
4. Deflect ailerons fully into the wind
5. Smoothly apply full throttle
6. Track runway centerline with rudder input
7. Confirm proper engine operation
8. Adjust amount of aileron input to avoid drifting/skidding
9. Keep the upwind wing down as speed increases and the tail comes up.
10. Maintain upwind wing down to maintain alignment on down range reference point during rotation and initial climb out
11. Establish and confirm a positive rate of climb up to and through 200 feet
12. After 200 feet crab airplane into the wind and continue climb out
13. Maintain ground track toward reference point.

Crosswind Landing

1. Landing checklist completed
2. Estimate the amount of crosswind while on the downwind leg of traffic pattern
3. Make the base turn based on crosswind estimate
4. Compensate for crosswind when making the turn to final
5. Determine final approach speed based on gust factor (70 mph + $\frac{1}{2}$ gust speed)
6. Input appropriate crab angle to maintain ground track alignment with runway
7. At approximately 300' AGL, transition from the crab to a sideslip
8. Maintain power and fly the airplane to onto the runway
9. Touchdown with the upwind wheel first
10. Smoothly close throttle
11. Allow the other wheels to settle onto the runway
12. Maintain appropriate control deflections while on roll out, exit from runway, and taxi

Emergency Approach to Landing

1. Clear the area. Identify emergency landing areas
2. Establish best glide speed V_g 70 mph
3. Determine gliding distance limitations
4. Select a suitable landing area
 - a. Size, shape, surface, slope, surroundings
5. Determine wind direction
6. Set up to arrive over the landing area at the high key position
7. Arrive at the high key position (crosswind) at 2000-1500 feet AGL
8. Arrive at the normal key position (touchdown point abeam) at 1000 feet AGL
9. Configure airplane for landing, as appropriate for conditions
10. Consult appropriate checklist as time allows

Steep Turns

1. Clear the airspace and identify emergency landing areas
2. 2200 RPM, 95 MPH
3. Altitude no lower than 1500 feet AGL
4. Identify a reference point in front of the aircraft or note the heading
5. Roll into a coordinated 45 - 50 degree bank turn
6. Maintain bank, altitude, and airspeed
 - a. Maintain Bank angle with Aileron
 - b. Maintain altitude with elevator
 - c. Maintain speed with throttle
7. Remain coordinated
8. Begin the roll out 25 degrees before the 360 degree point
9. Wings level at entry airspeed and altitude at the 360 degree point
10. Slight decrease in throttle
11. Roll into a 45 - 50 degree bank turn in the opposite direction
12. Repeat maneuver in the opposite direction.

Emergency Descents

1. Clear the area. Identify emergency landing areas
2. 2200 RPM. 95 MPH
3. Start maneuver 5000 feet AGL minimum altitude
4. Identify the emergency
5. Establish a 30-45 degree descending turn
6. Throttle to idle
7. Establish appropriate airspeed
 - a. $V_a = 120$ MPH @ 1650 lbs
 - b. $V_{ne} = 153$ MPH
8. If making an emergency landing, Utilize emergency approach to landing procedure
9. Consult appropriate checklist/troubleshoot problem as time allows

Rectangular Courses

1. Clear the airspace. Identify emergency landing areas
2. 2000 RPM, 95 KIAS, between 600-1000AGL
3. Enter the course at a left 45 on the downwind leg
4. Stay $\frac{1}{4}$ - $\frac{1}{2}$ mile from the course boundary
5. Base turn: highest groundspeed, greatest bank angle, more than 90 degree turn
6. Base leg: crabbed to the inside of the course
7. Upwind turn: medium bank becoming shallow, slowest ground speed, less than 90 degree turn
8. Upwind leg: into the wind wind, little correction, maintain distance
9. Crosswind turn: Shallow turn becoming medium bank, prevent drift by crabbing, less than a 90 degree turn
10. Cross wind leg: continue crab, nose away from the course line, into wind
11. Downwind turn: medium bank turn becoming steep, ground speed will increase
12. Exit the course on a 45

S Turns Across a Road

1. Clear the airspace, identify emergency landing areas
2. Select a straight line reference at least 1 ½ miles in length that is perpendicular to the wind
3. Establish an altitude between 600-1000 AGL
4. RPM 2300, 95 MPH (below V_a)
5. Enter down wind
6. First turn: Steep bank angle and high roll rate. Fastest ground speed
7. Establish appropriate wind correction angle
8. Bank will become more shallow as the turn progresses
9. Time arrival over the road so that wings are level
10. Second turn: Begin a shallow turn in the opposite direction
11. Establish the appropriate wind correction angle
12. Bank angle will steepen as the turn progresses due to increased ground speed
13. Exit maneuver down wind

Turns Around a Point

1. Select an obvious point on the ground (Water tower, intersection, etc.)
2. Clear the airspace
3. Establish an altitude between 600-1000 AGL
4. RPM 2300, 95 MPH (below V_a)
5. Enter downwind, $\frac{1}{2}$ mile away and abeam the pylon
6. Turn begins, steep bank angle, highest ground speed
7. Base turn segment, medium bank, nose crabbed inside of the circle, wing behind the pylon
8. Down wind turn segment, shallowest bank, lowest ground speed
9. Cross wind turn segment, medium bank, nose crabbed outside the circle, wing in front of the pylon
10. Exit maneuver on the down wind

Unusual Attitudes

1. Clear the area. Identify emergency landing areas
2. 2300 RPM. 95 MPH
3. Recognize and evaluate unusual attitude
 - a. Instructor will place airplane in unusual attitude
4. Evaluate airspeed indicator
5. Determine if airplane is gaining airspeed or losing airspeed
6. Evaluate attitude indicator
7. Determine if airplane is nose down or nose up
8. Determine if and/or how the airplane is banked
9. Gaining airspeed:
 - a. Throttle to idle, level the wings, raise the pitch attitude
10. Losing airspeed:
 - a. Throttle to full power, lower the pitch attitude, level the wings
11. Return airplane to straight and level flight
12. Return throttle to cruise configuration, 2300 RPM at 95 MPH