

Airbus A-320 POH

Pilot's Operating Handbook:

This section includes performance data on the A-320. Information consists of:

- 1. Critical Airspeeds**
- 2. Operating NOTAMS**
- 3. Fuel Loading Formula**

Checklists:

This section includes checklists for each phase of flight.

- 1. Pre-Flight**
- 2. Pre-Engine Start**
- 3. Engine Start**
- 4. Pre-Taxi**
- 5. Pre-Takeoff**
- 6. Takeoff**
- 7. Post-Takeoff**
- 8. Climb**
- 9. Cruise**
- 10. Descent**
- 11. Pre-Approach**
- 12. Approach**
- 13. Landing**
- 14. Post-Landing**
- 15. Parking**

1. Critical Airspeeds

Taxi:

- Max. 22 Knots on straight taxiways
- Max. 16 Knots in turns
- Max. 12 Knots approaching gates/parking areas

Takeoff:

- V1 - Decision Speed = 105 Knots
- Vr - Rotate Speed = 115 Knots

Climb Rate:

- Climb Rate: Set to 1,800 ft./min. (Higher rates of climb, up to 2,500 ft./min. are permitted.)
 - **Note:** Climb rate is normally dictated by airspeed - that is, you fly a certain airspeed that yields a certain climb rate. This POH specifies a climb rate instead to give you, the pilot in command, a guide to climb performance of this aircraft.

Climb Airspeed:

- Departure Altitude to 10,000 ft. - no greater than 250 KIAS
- Above 10,000 ft. - Fly Mach Number = .62 to .70
- Vne/Mmo - Never Exceed/Maximum Mach Number = .74

Cruise Airspeed:

- Mach .62 to .70

Descent Information:

- To calculate **Top Of Descent** point (the point at which you need to begin your descent to reach the desired altitude at the desired time): Use 6.5 miles per minute (at Mach .65 in descent - 250 KIAS below 10,000 ft. MSL) as the basis. If you are cruising at 30,000 ft. and wish to descend to 5,000 ft. at the next waypoint, at a descent rate of 1,800 ft./min., you need to figure the time to descend 25,000 ft. (30,000 - 5,000). Divide 25,000 ft. by 1,800 ft./min. and you will get 13.89 minutes. At 6.5 miles per minute, you need to begin your descent at 91 miles from the next waypoint (13.89 minutes multiplied by 6.5 miles per minute). This is a "No Wind" calculation. If you have a tailwind, the miles per minute will be greater; if you have a headwind, the miles per minute will be lower.
- Descend with Auto-throttle set to hold Mach .65 to 10,000 ft. MSL - set to 250 KIAS below 10,000 ft. MSL.
- Set descent rate to 1,800 ft./min

Approach Information:

- Approach Airspeed:
 - Initial Phase - 200 KIAS
 - Approach Course Intercept - 160 to 180 KIAS
 - Final Approach (Stabilized on ILS or Visual Approach) - Begin to decrease airspeed to landing airspeed of 135 KIAS.
- Flaps: Safe Deployment Airspeed: 210 KIAS
 - Begin to configure the aircraft for the approach with flaps deployment beginning at 180 KIAS. To provide for a stabilized approach, have the aircraft fully configured for landing (gear down, spoiler armed, full flaps) at 5 NM from landing.
- At Outer Marker: Deploy Landing Gear

Landing:

- Minimum Runway Length: 4,000 ft.
- Target Landing Airspeed: 135 KIAS
 - Landing Speed can be decreased to 115 KIAS for shorter runways. When landing at speeds lower than 135 KIAS, you will need to maintain a higher power setting and steeper body angle to prevent excessive rate of descent.
- Check flaps full and gear down at 500 ft. above airport altitude.
- Upon landing (all gear on runway)
 - Apply brakes as needed to safely exit runway
- Exit runway at 15 Knots or less.

2. Operating NOTAMS:

- None at this time.

3. Fuel Loading Formula

- Range = 1,100 NM
- Fuel Burn Rate Factor = 0.4945652
- Fuel Base Amount = 798 gallons (this is the basic fuel load per flight and includes fuel for taxi, climb, descent and reserves)

NOTAM: You can always use a full fuel load if you expect headwinds or want an extra measure of safety. Note that the Fuel Loading Formula is specific for No Wind conditions. A tailwind will decrease the amount of fuel consumed. A headwind will increase the amount of fuel consumed. Note that fuel consumption varies with your cruising settings. Expect separate sheet with critical data to come.

$((\text{Fuel Base Amount}) + (\text{Trip Distance} * \text{Fuel Burn Rate Factor})) / 2 = \text{Fuel Load Per Tank}$

Checklists:

Pre-Flight:

- Select departure airport and position aircraft at gate
- Engines off
- Set airspeed indicator to read Indicated Airspeed
- Flight plan completed
- Fuel Load computed and loaded
- Departure procedures reviewed and charts/documents at hand
- Weather for flight set
- Log sheet ready

Pre-Engine Start:

- Parking Brake Set
- Waypoints loaded into FMS (Flight Management System)
- Nav Radios Set
- Com Radios Set
- Copy ATIS

Engine Start:

- Parking Brake Set
- Engine Area Clear
- Throttle Set to Idle
- Start Fuel Flow
- Start Engines
- Check Engine Operating Normally

Pre-Taxi:

- Flaps 1 (NOTAM: Flaps are "0" when retracted and "3" when fully deployed. Flaps "3" indicates the third detent.)
- Check Control Continuity:
 - Confirm Full Aileron Movement
 - Confirm Full Rudder Movement
 - Confirm Full Elevator Movement
- Push Back
- Release Parking Brake
- Taxi to departure runway - set parking brake when holding short of departure runway

Pre-Takeoff:

- Check parking brake set
- Check Set to Flaps 1
- Check engine operating normally
- Auto Pilot On (*Do not engage individual A/P functions until airborne.*)
- Airspeed set to 250 KIAS
- Departure heading set (Runway Heading Unless Otherwise Directed or Necessary For Safe Departure.)
- "Cleared to" altitude set (This is the altitude you received during your departure)
- Taxi into position and hold

Takeoff:

- Release Parking Brake
- Set power to maximum thrust (full throttle)
- V1 = 105 Knots (Decision Speed)
- Vr = 115 Knots (Rotate Speed)
- Initial climb at 10_ BA (Body Angle)
- Positive Rate Of Climb - Gear Up
- Retract Flaps:
 - Flaps Two: 150 KIAS
 - Flaps One: 165 KIAS
 - Flaps Retracted: 180 KIAS

Post Takeoff:

- Engage Auto-throttle
- Engage Heading Hold
- Engage Altitude Hold
- Check gear up
- Check flaps up
- Check A/P Functioning Properly

Climb:

- Rate of Climb - 1,800 ft./min. (Set to 2,200 ft./min. for expedited climb.)
- Airspeed
 - 250 KIAS under 10,000 ft.
 - Mach .72 to .82 above 10,000 ft.
- Increase throttle as needed to hold published climb airspeed

Cruise:

- Airspeed
 - Mach .62 to .70
 - Vne/Mmo - Mach .74 (Never Exceed/Maximum Mach Number)
- Ensure On Course Navigation
- Log TO data and cruise data continuously

Descent:

- Set Auto-Throttle to desired airspeed - not to exceed 250 KIAS below 10,000 ft.
- "Cleared To" Altitude Set (the altitude to which you will be descending)

Pre-Approach

- Approach Plate Out
- Approach Brief (Brief yourself on the approach, how you plan to execute it, missed approach procedures, approach and landing configuration review - when to set flaps and lower gear, altitude at approach fixes and any other relevant information to ensure full understanding of approach)
- ILS Freq. Set (Once turned/cleared for approach - do not set ILS freq. if you are still tracking an en-route or approach procedure NAV Aid)

Approach:

- Spoiler Armed
- Fly published approach as briefed.
- Normal Approach Airspeed:
 - 135 KIAS (Short Field Landings - 115 KIAS)
- Landing Configuration set at outer marker
 - Gear Down
 - Flaps Full

EXECUTE MISSED APPROACH if you can not establish a stabilized approach or if you deviate significantly from the ILS localizer and/or glideslope.

Landing:

- Target Airspeed: 135 KIAS (Short Field Landings - 115 KIAS)
- After touchdown:
 - Apply Brakes as needed to safely exit runway
 - Exit Runway at 15 Knots or less

Post Landing:

- Flaps Ups
- Taxi To Terminal/Ramp

Parking:

- Parking Brake Set
- Flaps Up
- Spoilers Retracted
- Engines Off

Debriefing:

- Log into dESPair logbook
- Log/Close your flight and don't forget to enter any aircraft relevant data