GENERAL

airbus a320 guide du pilote

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Introduction

The **airbus a320 guide du pilote**is an indispensable resource for every pilot who wishes to master one of the most popular narrow body airliners in the world. Whether you are a student pilot on the flight deck for the first time, an experienced captain preparing for a new type rating, or an instructor looking to refresh your knowledge, this guide will walk you through the essential procedures, systems, and performance calculations that define the A320 family. By combining concise explanations, step by step checklists, and practical tips, it offers a clear, human friendly reference that complements the official flight manual and training syllabus.

Overview of the Airbus A320 Family

Evolution and Variants

The A320 family began with the original A320 in 1988, a pioneering aircraft that introduced fly by wire technology and a glass cockpit to commercial aviation. Since then, the family has expanded to include the A318, A319, A320neo, and A321, each tailored to different market needs while retaining a common core of avionics and flight control systems. This uniformity simplifies pilot training and maintenance, making the family a favorite among airlines worldwide.

Key Features that Pilot Guides Emphasize

- Fly by wire flight control system – replaces conventional mechanical linkages with electronic signals.
- Side stick controller – offers intuitive handling and reduced pilot workload.
- Integrated Modular Avionics (IMA) – centralizes data processing for navigation, communication, and surveillance.
- Fly by wire envelope protection – automatically limits aircraft attitude and speed to prevent overstressing.
- Advanced engine indicating and crew alerting system (EICAS) – consolidates engine monitoring and alerts.

Pilot’s Guide Overview

The **airbus a320 guide du pilote**is structured to mirror the typical flight cycle: pre flight, take off, climb, cruise, descent, approach, landing, and post flight. Each phase is broken down into the essential tasks, system checks, and decision points that pilots must master. The guide also includes quick reference tables for performance calculations, a comprehensive list of standard operating procedures, and a set of troubleshooting scenarios that cover both routine and emergency situations.

Pre Flight Preparation

Flight Planning Essentials

Before you even touch the cockpit, the A320 guide reminds pilots to review the flight plan, weather, NOTAMs, and any applicable airspace restrictions. The A320’s advanced Flight Management System (FMS) can ingest these data points, but the pilot must verify that the input is correct and that the planned route complies with regulatory requirements.

Weight and Balance

Accurate weight and balance calculations are critical for safe operation. The guide provides a step by step method for determining the aircraft's center of gravity, ensuring it remains within the permissible limits for the selected flight configuration. A small miscalculation can lead to increased take off distance or reduced climb performance.

Pre Flight Checklist Review

Before the aircraft is powered on, the pilot should run through the **pre flight checklist** to verify that all systems are functional and that the aircraft is ready for a safe flight. This includes checking the hydraulic systems, electrical power, engine start procedures, and ensuring that the FMS database is up to date.

Flight Deck Familiarization

Layout and Controls

The A320's cockpit is designed for ergonomic efficiency. The side stick controller, integrated flight director, and the large multifunction displays (MFDs) provide a streamlined interface. The guide walks pilots through the layout, highlighting the location of critical controls such as thrust levers, flaps selector, and the autopilot engagement panel.

Flight Deck Systems Overview

Understanding the interaction between the flight deck systems is key to mastering the aircraft. The guide covers:

- Flight Control Laws – including normal, alternate, and direct modes.
- Engine Management – how the Electronic Engine Control (EEC) interfaces with the flight deck.
- Navigation and Communication – the role of the IFD, VHF radios, and the ADS B system.
- Surveillance and ATC Interaction – how the aircraft's radar and transponder work with air traffic control.

Systems Overview

Electrical System

The A320 uses a dual bus electrical architecture: the main bus and the backup bus. The guide explains how to monitor bus voltage, isolate faults, and use the Emergency Power Unit (EPU) if required.

Hydraulic System

Hydraulic power drives the flight controls, landing gear, and brakes. The guide details how to check hydraulic fluid levels, pressure, and the operation of the dual hydraulic pumps.

Fuel System

With a large fuel tank capacity, the A320's fuel management is sophisticated. The guide explains how to read the fuel quantity indicators, manage fuel transfer between tanks, and monitor fuel consumption during flight.

Environmental Control System (ECS)

The ECS provides cabin pressurization, temperature control, and airflow. The guide outlines how to check cabin altitude, temperature settings, and troubleshoot ECS alarms.

Engine Indicating and Crew Alerting System (EICAS)

EICAS consolidates engine data, system status, and fault alerts. The guide emphasizes the importance of familiarizing oneself with the EICAS display to detect early signs of malfunction.

Flight Operations

Take Off Procedure

1. Set the correct thrust setting based on weight, runway length, and environmental conditions.
2. Engage the take off configuration: flaps 15°, gear down, and spoilers retracted.
3. Monitor the flight director and autopilot for the first few seconds of the climb.
4. Apply thrust and monitor the thrust lever position to ensure it stays within the prescribed envelope.
5. Once at the desired altitude, retract the flaps and gear according to the standard climb profile.

Climb and Cruise

During the climb, the pilot must maintain a smooth pitch attitude and keep the aircraft within the designated climb performance parameters. The guide stresses the importance of using the Flight Management System to track the aircraft's altitude and speed against the planned profile.

Descent and Approach

The descent phase is governed by the aircraft's descent performance charts. The guide includes a step by step approach to configuring the aircraft for the approach: setting the appropriate flaps, adjusting the thrust for descent, and managing the autopilot to maintain the glide slope and localizer.

Landing

Landing requires precise control of the approach path and speed. The guide covers:

- Final approach speed calculations.
- Flap configuration for short field or soft field operations.
- Use of spoilers and thrust reversers upon touchdown.
- Post landing checks, including gear retraction and flaps retraction.

Performance Calculations

Take Off Distance

Using the A320's performance charts, the guide shows how to calculate required take off distance based on weight, wind, temperature, and runway conditions. A quick reference table is included for common scenarios.

Climb Gradient

The climb gradient determines how quickly the aircraft can rise above obstacles. The guide explains how to compute the required gradient and compare it against the aircraft's capabilities.

Fuel Planning

Fuel calculations consider trip fuel, reserve fuel, and contingency fuel. The guide provides formulas and a sample calculation for a typical 1500 kilometer flight.

Landing Distance

Similar to take off, landing distance is calculated using performance charts. The guide includes a table that correlates landing weight, wind, and runway conditions to required landing distance.

Emergency Procedures

Engine Failure

In the event of an engine failure, the guide outlines the immediate actions: maintain control, reduce thrust on the operating engine, configure the aircraft for a single engine approach, and prepare for an emergency landing.

Electrical Failure

For a total electrical failure, the guide explains how to switch to the emergency power unit, maintain flight controls, and use the backup systems to manage navigation and communication.

Hydraulic Failure

In case of hydraulic loss, pilots must rely on the manual backup system. The guide provides instructions on operating the manual flight controls and managing landing gear in such a scenario.

Uncontained Engine Failure

While rare, this catastrophic event requires immediate evacuation. The guide details the procedures for declaring an emergency, initiating evacuation, and coordinating with the cabin crew.

Checklist Management

Pre Flight Checklist

The guide includes a printable pre flight checklist that covers all critical items from engine start to taxi. It emphasizes the importance of systematic completion to avoid omissions.

Before Take Off Checklist

This checklist ensures that all systems are correctly configured for departure. It includes items such as flaps, gear, autopilot settings, and flight director engagement.

Before Landing Checklist

Prior to landing, the pilot must verify landing configuration, approach speed, and ensure that all systems are ready for the landing phase.

Post Flight Checklist

After landing, the pilot completes the post flight checklist to shut down engines, secure the aircraft, and report any anomalies to maintenance.

Maintenance and Airworthiness

Regular Inspections

The guide highlights the importance of scheduled inspections, including daily checks, monthly checks, and annual overhauls. It explains how to interpret the aircraft’s maintenance logs.

Software Updates

Airbus periodically releases updates to the flight control laws and avionics software. The guide explains how to apply these updates and verify their successful installation.

Common Maintenance Issues

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