2. Aircraft Overview

2.1 General Description

The Airbus A320 family is a series of narrow-body, twin-engine jet airliners designed for short- to medium-haul operations.

It includes:

- A318 (smallest variant)
- A319
- A320 (baseline model)
- A321 (largest variant)

All aircraft share a common cockpit design, allowing pilots to operate multiple variants with minimal additional training.

2.2 Key Characteristics

The A320 family introduced several innovations that define modern airliner operations:

Fly-By-Wire System

The aircraft is controlled electronically rather than mechanically.

Pilot inputs via the sidestick are interpreted by flight control computers, which:

- Enhance stability
- Prevent excessive maneuvers
- Protect the aircraft from exceeding limits

Sidestick Control

Instead of a traditional control column, the A320 uses a sidestick.

Characteristics:

- Located on the side of each pilot
- Not mechanically linked between pilots
- Inputs are processed electronically

ECAM (Electronic Centralized Aircraft Monitoring)

The ECAM system provides:

- System status information
- Automatic failure detection
- Step-by-step guidance in abnormal situations

This reduces pilot workload and improves situational awareness.

2.3 Cockpit Philosophy

The Airbus cockpit is designed around the concept of:

“Manage the flight path, monitor the automation.”

Key ideas:

- Automation handles routine tasks
- Pilots supervise and intervene when necessary
- Clear system feedback is always available

2.4 Differences within the A320 Family

While cockpit operation remains largely identical, there are operational differences:

- **A318 / A319**
  - Shorter fuselage
  - Lower passenger capacity
  - Better performance on shorter runways
- **A320**
  - Standard reference model
  - Balanced performance and capacity
- **A321**
  - Longer fuselage
  - Higher passenger capacity
  - Different handling characteristics (especially during takeoff and landing

2.5 Typical Operations

The A320 family is commonly used for:

- Short-haul routes
- Medium-haul routes
- High-frequency operations

Typical cruise altitude:

- FL320 – FL390

Typical cruise speed:

- Mach 0.76 – 0.80

2.6 Summary

The Airbus A320 family combines:

- Advanced automation
- High commonality across variants
- Efficient and reliable performance

Understanding its philosophy is essential before applying operational procedures.