

4.2 Engine Start

Objective

To safely start the engines while ensuring proper coordination with ground crew and maintaining full control of the aircraft during pushback or stand departure.

General Principle

Engine start must only be performed when:

- Aircraft is correctly configured
 - Area around aircraft is clear
 - Ground crew confirms readiness
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Mandatory Condition

☐ Engine start is only permitted after “CLEAR TO START” from ground crew

Engine Start WITH Pushback

Preconditions

- Pushback clearance received
- Ground crew connected (headset)
- Beacon → ON
- APU BLEED → ON

- Fuel Pumps → ON
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Procedure

PF:

- “Request pushback and start”

PM:

- Communicates with ground
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Pushback Initiation

- Parking Brake → RELEASE (on instruction)
 - Pushback begins
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Engine Start Sequence

After **“CLEAR TO START”**:

PF: “Start Engine 1”

PM: “Starting Engine 1”

PM:

- ENG MODE Selector → IGN/START
 - ENG 1 MASTER → ON
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ECAM Monitoring (PM)

- N2 rotation
- Fuel Flow at ~20% N2

- EGT rise
 - Stable parameters
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Callouts

- “N2 increasing”
 - “Fuel Flow”
 - “EGT rising”
 - “Engine 1 stabilized”
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- Repeat for Engine 2
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During Pushback

- Monitor aircraft movement
 - Maintain communication with ground crew
 - Avoid distractions during engine start
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After Pushback

- Parking Brake → SET (on instruction)
 - Ground crew disconnect confirmed
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Engine Start WITHOUT Pushback (Self Maneuvering Stand)

Preconditions

- Area around aircraft visually confirmed clear
 - No ground crew in hazard area
 - Beacon → ON
 - APU BLEED → ON
 - Fuel Pumps → ON
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Procedure

PF:

- Confirms: “Area clear”
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Engine Start

PF: “Start Engine 1”

PM: “Starting Engine 1”

PM:

- ENG MODE Selector → IGN/START
 - ENG 1 MASTER → ON
-

ECAM Monitoring

- N2 rotation
 - Fuel Flow
 - EGT rise
 - Stabilization
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- Repeat for Engine 2
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Key Difference

- No pushback coordination required
 - PF responsible for visual clearance
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After Start Actions (Both Cases)

PM Flow:

- ENG MODE Selector → NORM
 - APU BLEED → OFF
 - APU → OFF (if not required)
 - Anti-Ice → AS REQUIRED
 - Flaps → SET
 - Pitch Trim → SET
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Key Principles

- Engine start is a controlled and monitored process
 - Ground crew safety has priority
 - Standard sequence must always be followed
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Core Rule

“No clear area - no engine start.”

Outcome

- Engines started safely
- Aircraft ready for taxi
- Full coordination between cockpit and ground

Single Engine Taxi Policy

To improve fuel efficiency and reduce engine wear, single engine taxi should be used when operationally feasible.

Application

Single engine taxi is required when:

- Expected taxi time exceeds **10 minutes**

Applicable airports are defined in the respective **airport briefing**.

Procedure

- Start **Engine 1 only** during engine start phase
 - Keep **Engine 2 OFF**
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Considerations

- Maintain sufficient thrust for taxi
 - Monitor aircraft handling (asymmetric thrust)
 - Use additional thrust carefully if required
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