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## A320 Engine Start Sequence

### Introduction

The A320 engine start sequence has been revised with immediate effect. This amendment aligns the procedure with Airbus OEM procedures and standardises the process for both dual-engine taxi and OETD operations.

The revised procedure text is provided below and will be incorporated into the FCOM at the next revision.

### AUTOMATIC ENGINE START

Applicable to: A318

Use the automatic engine start procedure in most circumstances. However, if the start aborts due to insufficient starter inlet air pressure (e.g. on high airfields, or in case of low pressure from an external pneumatic power group), it is recommended to use the manual start procedure, instead the automatic procedure.

If, during the engine start, the ground crew reports a fuel leak from the engine drain mast, run the engine at idle for 5 min. If the leak disappears during these 5 min, the aircraft can be dispatched without maintenance action. If the leak is still present after 5 min, maintenance action may be required before the flight.

ENG MODE selector ..... IGN/START

The lower ECAM displays the ENG SD PAGE.

ENGINE 1 START ..... ANNOUNCE

Engine 1 is usually started first.

ENG 1 MASTER sw ..... ON

- Do not turn the ENG 1 MASTER sw ON before all amber crosses and messages have disappeared on the engine parameters (upper ECAM display).
- Parameter callouts are not mandatory.
- In case the electrical power supply is interrupted during the start sequence (indicated by the loss of ECAM DUs), abort the start by switching OFF the ENG 1 MASTER sw. Then, perform a 30 s dry crank.

ON ECAM UPPER DISPLAY	ON ECAM LOWER DISPLAY
N2 increases	Corresponding start valve in line. Bleed pressure indication green. Oil pressure increases.

At 16% N2	Indication of the active igniter (A or B).
At 22% N2  - FF increases  15 s (maximum) after fuel is on  - EGT increases - N1 increases	
At 50% N2	Start valve starts closing (it is fully closed between 50% and 56% N2).  Igniter indication off.

- **When idle is reached (AVAIL indication is displayed):**  
ENG IDLE PARAMETERS .....CHECK

At ISA sea level: N1 about 19.5%  
N2 about 58.5%  
EGT about 390 °C  
FF about 275 kg/h (600 lb/h)

Grey background on N2 indication disappears.

ENGINE 2 START .....ANNOUNCE  
ENG 2 MASTER sw.....ON

Same procedure as for engine 1.

Both pack valves reopen with 30 s delay after the second engine N2 is above 50%.

Note: A PTU FAULT is triggered if the second engine is started within 40 s following the end of the cargo doors operation.

## AUTOMATIC ENGINE START

**Applicable to: A319, A320, A321**

Use the automatic engine start procedure in most circumstances. However, if the start aborts due to insufficient starter inlet air pressure (e.g. on high airfields, or in case of low pressure from an external pneumatic power group), it is recommended to use the manual start procedure, instead the automatic procedure.

If, during the engine start, the ground crew reports a fuel leak from the engine drain mast, run the engine at idle for 5 min. If the leak disappears during these 5 min, the aircraft can be dispatched without maintenance action. If the leak is still present after 5 min, maintenance action may be required before the flight.

ENG MODE selector ..... IGN/START

The lower ECAM displays the ENG SD PAGE.

ENGINE 1 START .....ANNOUNCE

Engine 1 is usually started first.

ENG 1 MASTER sw .....ON

- Do not turn the ENG 1 MASTER sw ON before all amber crosses, except on N1 and N2, and messages, have disappeared on the engine parameters (upper ECAM display).

- Parameter callouts are not mandatory.
- In case the electrical power supply is interrupted during the start sequence (indicated by the loss of ECAM DUs), abort the start by switching OFF the ENG 1 MASTER sw. Then, perform a 30 s dry crank.

ON ECAM UPPER DISPLAY	ON ECAM LOWER DISPLAY
N2 increases	Corresponding start valve in line. Bleed pressure indication green. Oil pressure increases.
30 s after ENG 1 MASTER sw is ON: - FF increases	Indication of the active igniter (A or B).
20 s (maximum) after fuel is on - EGT increases - N1 increases prior to 34% N2	
At 43% N2	Igniter indication off.
Slightly above 43% N2	Start valve crossline.

Note: When the FADEC detects an impending hung start or hot start, the FADEC applies an automatic recovery sequence without an ECAM message. The crew will notice that dual ignition (A+B) is applied, and that fuel will be commanded OFF, and then re-commanded ON within 0.5 s. It is not necessary for the crew to shut down the engine.

● **When idle is reached (AVAIL indication is displayed):**

ENG IDLE PARAMETERS .....CHECK

At ISA sea level: EPR about 1.01  
N1 about 21.4%  
N2 about 57.8%  
EGT about 414 °C  
FF about 350 kg/h (775 lb/h)

ENGINE 2 START .....ANNOUNCE  
ENG 2 MASTER sw.....ON

Same procedure as for engine 1.

Note: A PTU FAULT is triggered if the second engine is started within 40 s following the end of the cargo doors operation.

**AUTOMATIC ENGINE START**

**Applicable to: A320NEO and A321NEO**

Use the automatic engine start procedure in most circumstances. However, if the start aborts due to insufficient starter inlet air pressure (e.g. on high airfields, or in case of low pressure from an external pneumatic power group), it is recommended to use the manual start procedure, instead the automatic procedure.

If, during the engine start, the ground crew reports a fuel leak from the engine drain mast, run the engine at idle for 5 min. If the leak disappears during these 5 min, the aircraft can be dispatched without maintenance action. If the leak is still present after 5 min, maintenance action may be required before the flight.

ENG MODE selector .....IGN/START

The lower ECAM displays the ENG SD PAGE.

ENGINE 1 START .....ANNOUNCE

Engine 1 is usually started first.

ENG 1 MASTER sw .....ON

- Do not turn the ENG 1 MASTER sw ON before all amber crosses, except on N1 and N2, and messages, have disappeared on the engine parameters (upper ECAM display).
- Parameter callouts are not mandatory.
- In case the electrical power supply is interrupted during the start sequence (indicated by the loss of ECAM DUs), abort the start by switching OFF the ENG 1 MASTER sw. Then, perform a 30 s dry crank
- Depending on the engine thermal state, the FADEC can command an automatic dry cranking before the start of the engine. The dry cranking may last up to approximately one minute. During the dry cranking, the FADEC logic limits the maximum N2 to 30%. During the dry cranking, the vibration level increases but remains below the amber display limit in normal operating conditions.

ON ECAM UPPER DISPLAY	ON ECAM LOWER DISPLAY
N2 increases	Corresponding start valve in line. Bleed pressure indication green. Oil pressure increases.
Above 20% N2 when the automatic dry cranking is completed:  - FF increases 15 s (maximum) after fuel is on:  - EGT increases - N2 increases	Indication of the active igniter (A or B).
At 55% N2  At 63% N2	Igniter indication off.  Start valve starts closing

● **When idle is reached (AVAIL indication is displayed):**

ENG IDLE PARAMETERS .....CHECK

At ISA sea level: N1 about 19%  
N2 about 68%  
EGT about 520 °C  
FF about 290 kg/h (650 lb/h)

Grey background on N2 indication disappears.

ENGINE 2 START .....ANNOUNCE

ENG 2 MASTER sw .....ON

Same procedure as for engine 1.

Both pack valves reopen with 60 s delay after the second engine thrust is at or above idle.

Note: A PTU FAULT is triggered if the second engine is started within 40 s following the end of the cargo doors operation.