Disclaimer: This tutorial serves as a beginner's guide to utilizing LVFR Airbus A340 for MSFS and is not intended for real-world operational training purposes.

LVFR Airbus A340

Beginner's Guide and Tutorial

Version 1.0

05/01/2024

Table of Contents

1.   Introduction

This tutorial is designed to introduce the average Microsoft Flight Simulator (MSFS) user to the fundamental functionalities and operation of the Airbus A340 by LVFR in MSFS. It's important to note that this aircraft package is intended for simulation purposes and is categorized as an entry to mid-level simulation aircraft. However, operating the A340 can be more intricate due to its unique characteristics. We have endeavored to replicate most of the basic functions and aircraft handling to the best of our ability. It's anticipated that this tutorial may be subject to editing and updating as the aircraft systems are modified and further developed. We hope this tutorial serves as a valuable reference for achieving a successful flying experience. Please be aware that this tutorial cannot be used as a guide for operating the real-life Airbus A340. Furthermore, any distribution or modification of this tutorial by individuals other than LVFR is strictly prohibited.

1.1   Overview

Within this tutorial you will get introduced into:

- Introduction into the Airbus A340 and its characteristics.

- Aircraft limitations within this addon.

- Setting up your controllers

- Preflight planning with Simbrief

- Starting your flight at the gate/stand

- Powering up your aircraft

- Using the EFB to manage ground services.

- Loading your flight via the EFB

- Setting CDU for the departure procedures

- Starting the APU

- Planning your taxi route

- Removing ground services

- Starting pushback

- Starting engines

- Taxiing

- Takeoff

- Climb

- Cruise

- Descent

- Approach

- Landing

- Taxiing at destination.
- Shutdown.

2.   The Airbus A340-300

The Airbus A340 was developed by Airbus in the late 1980s as a long-range, wide-body commercial aircraft. Its development was driven by the demand for a larger capacity aircraft capable of flying long distances non-stop, particularly across oceans. Here's a brief history:

1. **Development**: The A340 program was officially launched in June 1987. It was developed alongside the twin-engine Airbus A330, which shares the same wing and other components. The A340 was designed to compete with other long-range aircraft like the Boeing 747 and McDonnell Douglas DC-10/MD-11.
2. **First Flight**: The first flight of the A340 took place on October 25, 1991. The aircraft performed well during its test flights, showcasing its range and efficiency.

2.1   First glance

Assuming your main knowledge of an airliner is the Default A320neo, or our Airbus A330neo the main differences the A340-300 will have:

- Aircraft has 4 engines and a centerline gear (bogie) and weights

    o 4 engines each similar to the used by the A320ceo (CFM 56)

    o Centerline gear is to allow for higher MTOW.

    o Has a higher weight. MTOW is 276.5 t Empty weight is 131 t.

    o Total power produced by engines is 34,000 pounds of thrust.

2.2   Airbus A340-300 Limitations
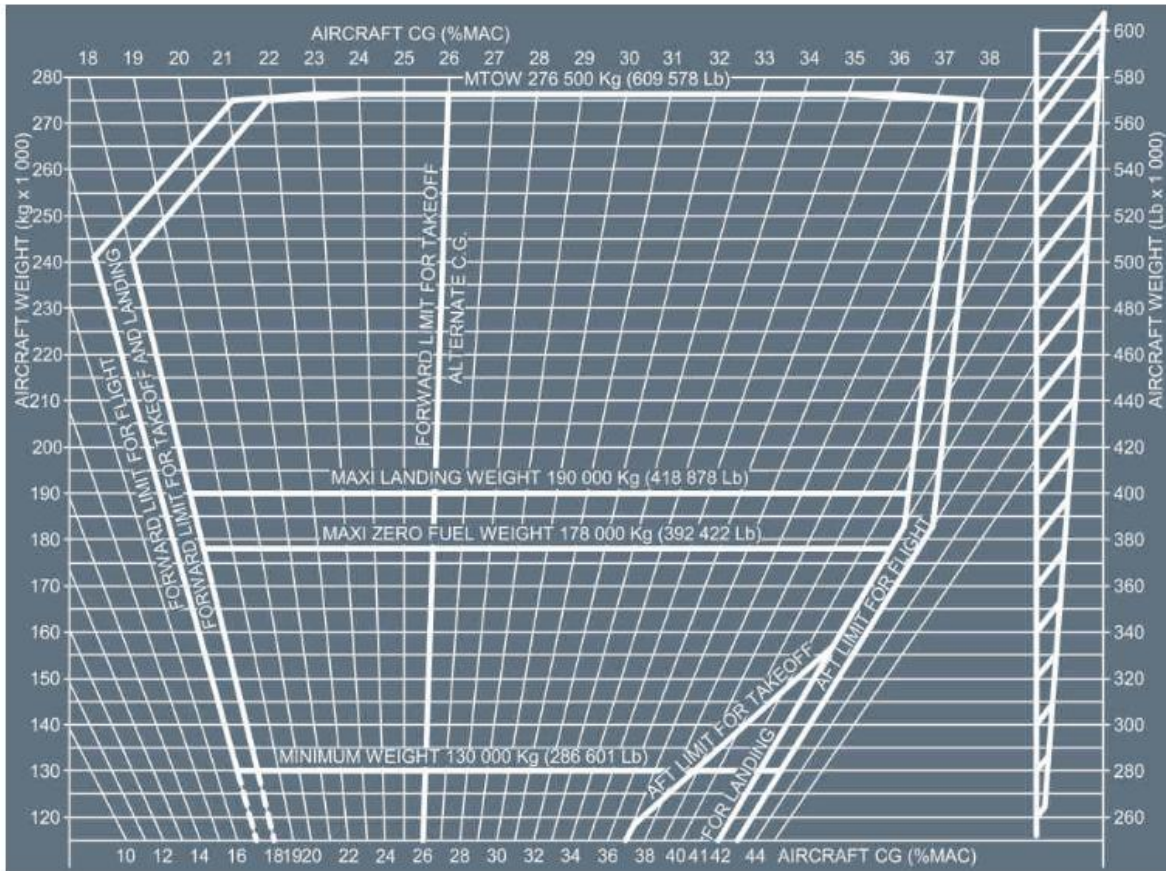
- CG limits are given in percentage of the reference chord length aft of the leading edge
- The reference chord length is 7.27 m (23.85 ft). It is 28.15 m (92.36 ft) aft of the aircraft nose
- The CG must always be within these limits regardless of fuel load.

[1]

---

[1] A340 QRH

LIMITATIONS

SPEEDS	
V_{MO}/M_{MO}	330 KTS/.86
MAX spd in Altn law	330 KTS/.82
MAX spd in direct law	330/.80
V_{FE}	CONF 1..................255 KTS
	CONF 1 + F............215 KTS
	CONF 1*.................205 KTS
	CONF 2..................196 KTS
	CONF 3..................186 KTS
	CONF FULL............180 KTS
V_{LE}/V_{LO}	250 KTS/.55
V_{LE}/V_{LO} (gravity)	200 KTS
MAX tyre spd	204 KTS (grnd spd)
MAX Speed Wipers	230 KTS
MAX Speed Window	
Open	230 KTS

WINDS

CROSSWIND
DRY RUNWAY OR GOOD BRAKING ACTION
TO (MAX certified)...................................37 KTS
LDG (MAX demonstrated)......................41 KTS
For other runway conditions refer to the table in QRH NP section.

TAILWIND:
MAX for TO and LDG ....15 KTS

MAX WIND
for doors operation ....40 KTS
A/C NOSE into WIND................................50 KTS

AUTOLAND:
MAX HEAD WIND..................................35 KTS
MAX CROSSWIND....................................20 KTS
MAX TAILWIND...10 KTS

SYSTEMS

PRESSURIZATION
ΔP Max Overpressure ....9.25 psi
ΔP Safety Valve Setting ....-1/8.85 psi
ΔP Normal Maximum...................................8.60 psi
ΔP Negative Maximum ....-1.0 psi
Max Cab Alt Wng ....9,550 (±350) FT
PAX Masks Drop Alt ....14,000 FT

BRAKES
Max temp for TO ....300°C

APU

MAX EGT :	START	: 1,250°C
	RUN	: 650°C
MAX RPM		: 107%
STARTING :	- A/C	- No limit
	- BAT	- 25,000 FT

STARTER LIMITATIONS:
- 3 cycles, then wait 60 MIN

| OPERATION : | - GEN | - No limit |
| | - GEN + BLEED | - 22,500 FT |

FUEL
MAX TEMP JET A, JET A1, JP5, JP8 ,
N°3 JET and TS-1...+60°C
MAX TEMP JP4 JET B ....+49°C
MIN TEMP (INR TK) .... FRZ PT + 5°C
MIN TEMP (OUTR + TRIM TANK)............................FRZ PT

FUEL FREEZE POINTS

JET A1	JET A	JP 5	JP 8
-47°C	-40°C	-46°C	-47°C
N°3 JET	TS-1	JP 4	JET B
-47°C	-50°C	-58°C	-50°C

MAX FUEL IMBALANCE

INNER TANKS		OUTER TANKS	
Tank content	Authorized Asymmetry	Tank content	Authorized Asymmetry
Full	2,900 KG	Full	1,480 KG
Half	4,800 KG	Half	1,580 KG
Empty	7,500 KG	Empty	1,730 KG

ENGINES

MAX EGT :	TOGA	: 950°C	: 5 MIN
			: 10 MIN In case of ENG fail
	MCT	: 915°C	
	CL	: 915°C	
	START	: 725°C	
MAX RPM :	N1	: 104.2%	
	N2	: 105%	

STARTER :
- 4 cycles (of 2 MIN max duration)
- After 4 cycles, wait 15 MIN

2

---

[2] A340 QRH

3.   Operating the LVFR A340-300

Prior to preparing for flight, it's crucial to understand the capabilities, limitations, and setup procedures of this addon. This involves comprehending what functionalities the addon provides, any constraints it may have, and the necessary steps to configure it before taking off.

3.1   Aircraft limitations within this addon

At the time of release of this aircraft there are certain limitations within this package. Most important on which are:

- Avionics used are modified version of the default A320neo, with custom VNAV

- Coordinates can only be injected into the CDU via simbrief flight plan

- No Autoland or RNAV approaches yet.

- Other customizable advanced settings within the CDU.

3.2.1

3.2.1   Setting up your controllers

Controllers are needed for setup if you are using a throttle quadrant. Sidesticks will be automatically compatible.

- TCA throttle quadrant. This is a great video on setting up the TCA quadrant for the A340, its based on the similar 4 engine 747 TCA 747 setup

3.2.2   Preflight Planning with Simbrief

Our A340-300, along with our other aircraft, is equipped with an Electronic Flight Bag (EFB) that enables you to directly download data from Simbrief. Simbrief is a website where you can plan your flights, generate realistic flight plans, adjust payload, and set fuel quantities based on your aircraft's performance and flight parameters. If you don't already have a Simbrief account, we highly recommend that you create one to enhance your flight planning experience. Visit simbrief, is free SIMBRIEF

Once you're in Simbrief and have obtained a Simbrief ID, be sure to note it down. This ID will be required to load your flight plans into the EFB.

In Simbrief, you'll create a new flight plan to replicate an old flight undertaken by the A340-300 with the Spanish airline Iberia. The purpose is to keep the flight duration short for training purposes, despite the A340-300 typically being used for longer missions lasting 8 to 12 hours. However, we'll also provide tips on handling the aircraft near Maximum Takeoff Weight (MTOW).

The flight route is from Madrid (LEMD) to Tenerife (GCXO), with an estimated flight time of approximately 2 hours and 30 minutes, along with 20 minutes for pre-flight planning and 10 minutes for taxiing.

When setting up the flight in Simbrief, designate LEMD as the departure airport and GCXO as the arrival airport. The airline code is "IBE," and the flight number is 952.

.

Since the A340-300 is a heavy aircraft, and we aim to simulate the physics, handling, and planning of a long-haul flight within the context of a short to medium route, we'll make certain assumptions for our flight to Tenerife. We'll depart with a full cargo load and carry fuel for our return journey, ensuring that we adhere to the maximum landing weight restrictions. It's essential not to overload with fuel, considering the aircraft's maximum landing weight limitations. Therefore, we'll only load the necessary fuel amount to return to Madrid.

For today's flight, we'll depart with a full cargo load of 44,820 kilograms and tanker more than 14,000 kilograms of fuel for our return flight to LEMD. This decision is driven by the high cost of fuel in the islands, and it will help expedite our turnaround time in Tenerife.

Tankering fuel is a common practice in commercial flying, often chosen when fuel prices are more favorable in certain locations. Typically, airlines will add only what's necessary for a flight, considering various factors. In this scenario, by carrying 14,000 kilograms of extra fuel, we're ensuring we have more than enough for our return to Madrid. If additional fuel is required, we can always request more.

For replicating the entire flight, please use the following route:

Departure: Runway 36L at Madrid-Barajas Airport (LEMD) Arrival: Runway 12 at Tenerife North Airport (GCXO) and copy paste this bellow:

LEMD/36L N0459F350 CCS4N CCS DCT ELVAR DCT BAROK UN873 SAMAR SAMA1L GCXO/12

3.3.1   Loading the flight in MSFS

To begin, launch Microsoft Flight Simulator (MSFS) and navigate to the aircraft selection menu. Choose the Airbus A340-300 from the available options. Then, select the Iberia livery, or any other livery of your preference.
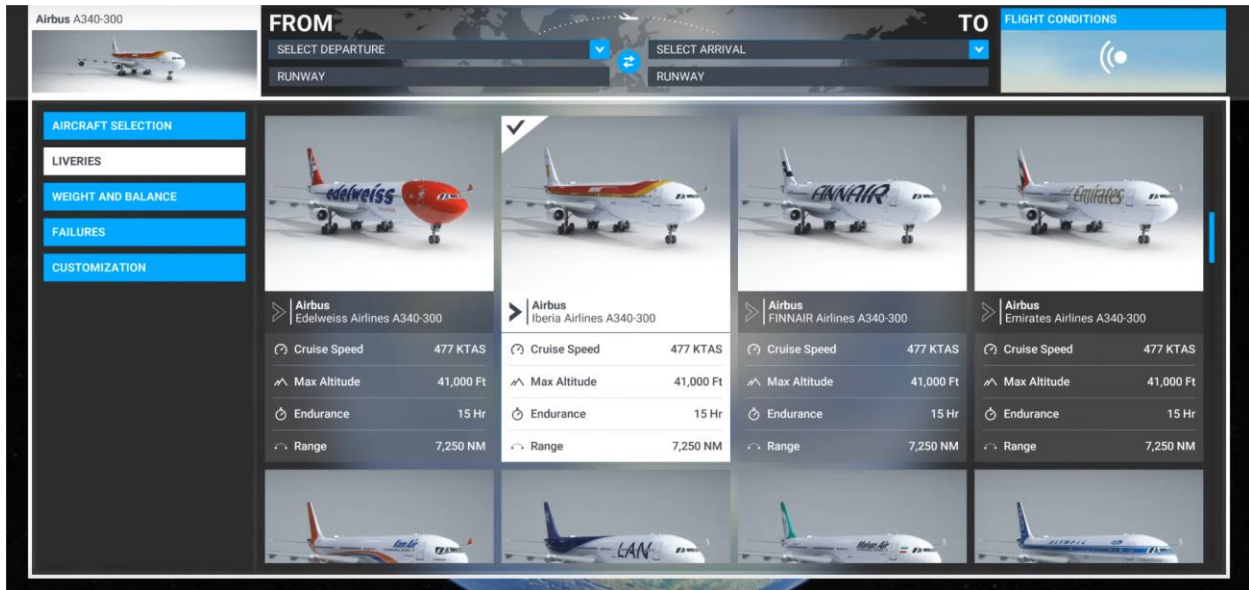
Then go to the world map, and type in LEMD. Once there select a gate of your preference, today we are selecting T4 at LEMD, in the Domestic section gate.

Upon loading at the gate, the aircraft will be in a cold and dark state, with all screens powered off except for the Electronic Flight Bag (EFB), which runs on battery power.

3.4.1   Powering up the aircraft

If you like to skip all these steps and not configure the plane from the apron, you can start on the departure runway, and load the simbrief flight plan from there. In this case we will start from the apron.

To initiate the process of powering up the aircraft, we'll start by activating the batteries located in the overhead panel.
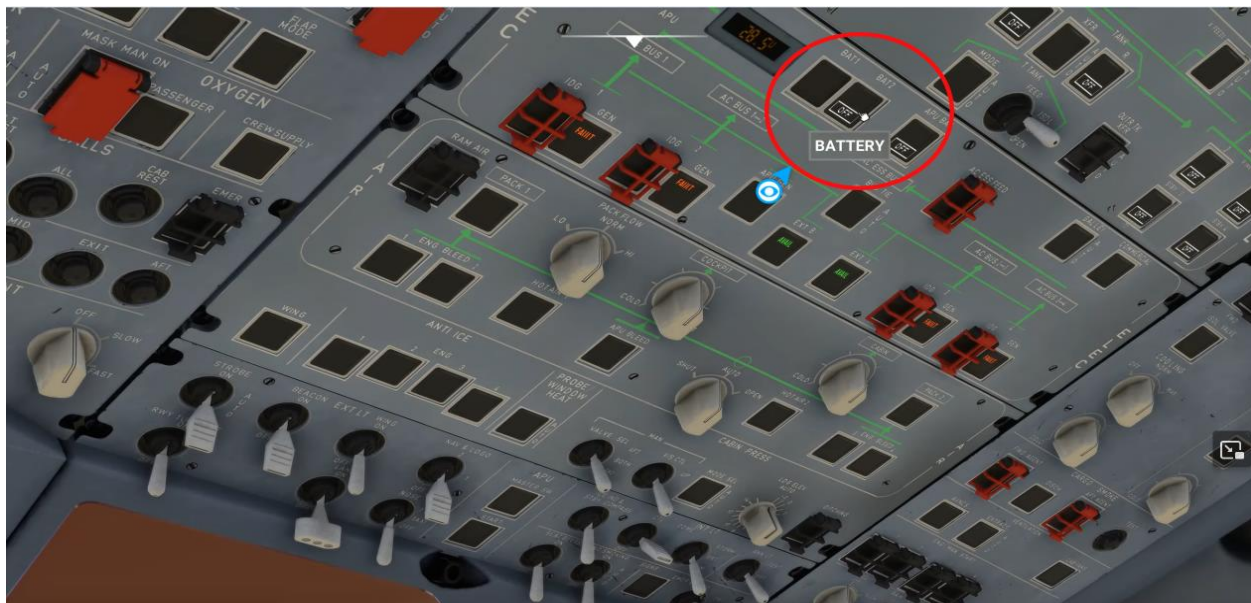
After activating the batteries, we'll proceed by illuminating the cockpit with the INT lights and adjusting the floodlights as necessary, considering the time of day.

Following that, we'll interact with the Electronic Flight Bag (EFB) and navigate to the ground services page. Positioned in front of the aircraft's nose, we'll select the jetway. Toggling it will prompt the jetway to connect to the aircraft, automatically opening either the first left or second left door.

Additionally, on the ground services page of the EFB, we can select the GPU cart. Then, we'll activate external power A and B in the overhead panel. This ensures that the aircraft is fully powered while at the gate before we later start the APU for pushback.
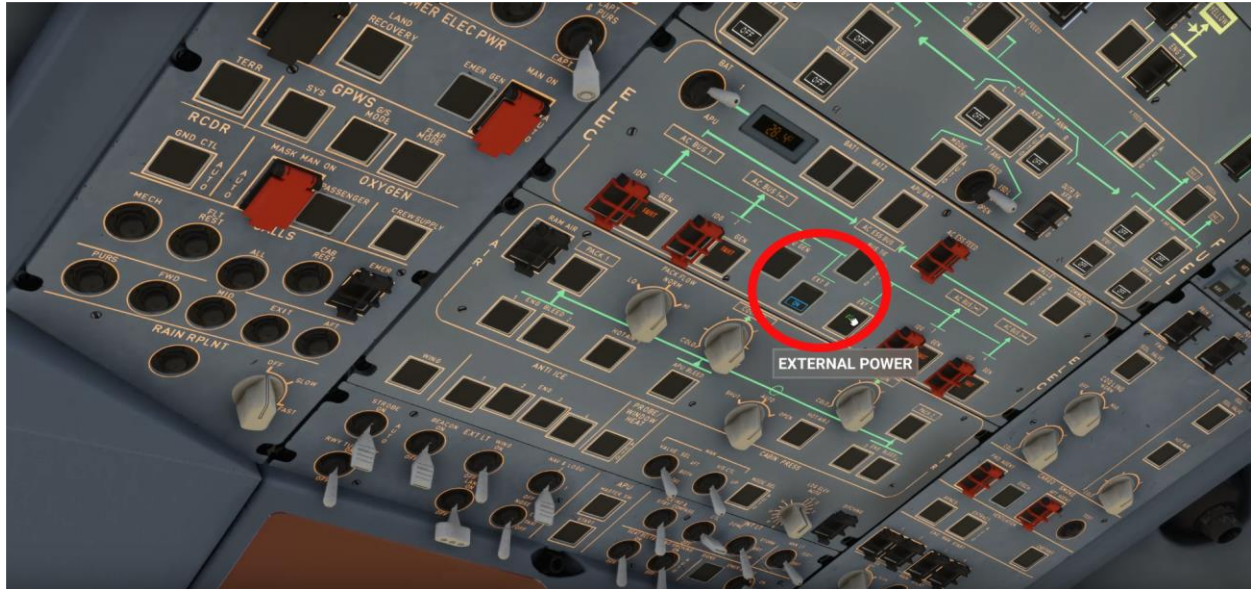
We go now again to the ground services section, and activate the rest of ground service equipment, such as cargo loaders and catering trucks, via selection:
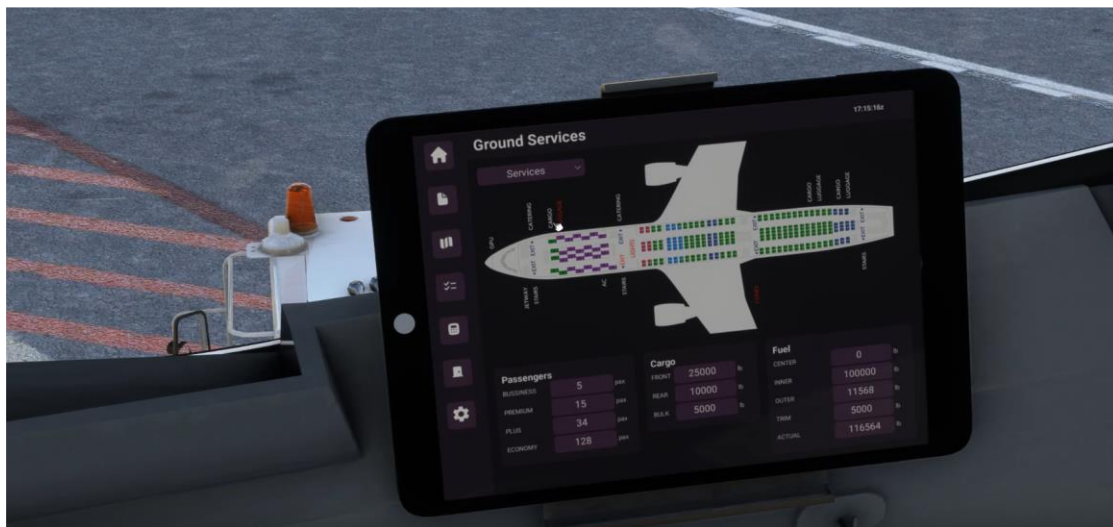
Let's check out how work is going on outside:

3.5.1   Loading flight plan using EFB

Next, we navigate to the "My Flight" section of the EFB, where the flight plan we recently created in Simbrief will be displayed. If you created the flight plan before loading the aircraft at the ramp in the simulation, it should appear automatically. However, if you created the flight plan after loading the aircraft, you may need to click "refresh" for it to appear. Keep in mind that the loaded flight plan will always be the one created before spawning at the apron.

Before proceeding, ensure that the information is accurate and corresponds to the intended flight. Confirm the initial cruise level you plan to fly at. **Simbrief may suggest step climbs; however, you will need to manually adjust the cruise level in the initialization page to match Simbrief's recommended cruise level.** Upon clicking "sync plan," "sync payload," and "sync fuel," this data is uploaded into the aircraft. Verify that the FOB (Fuel On Board) figure matches the planned fuel figure provided by Simbrief. You can still make changes to the flight plan after syncing by refreshing the plan. For this particular flight, Iberia 952, you will see "952" displayed at the top along with the origin and destination. When syncing payload and fuel, you may notice the aircraft moving; this is normal as everything is being loaded immediately. Now, navigate to the CDU (Control Display Unit) and click on "Flight Plan" to confirm that all details align with today's flight.
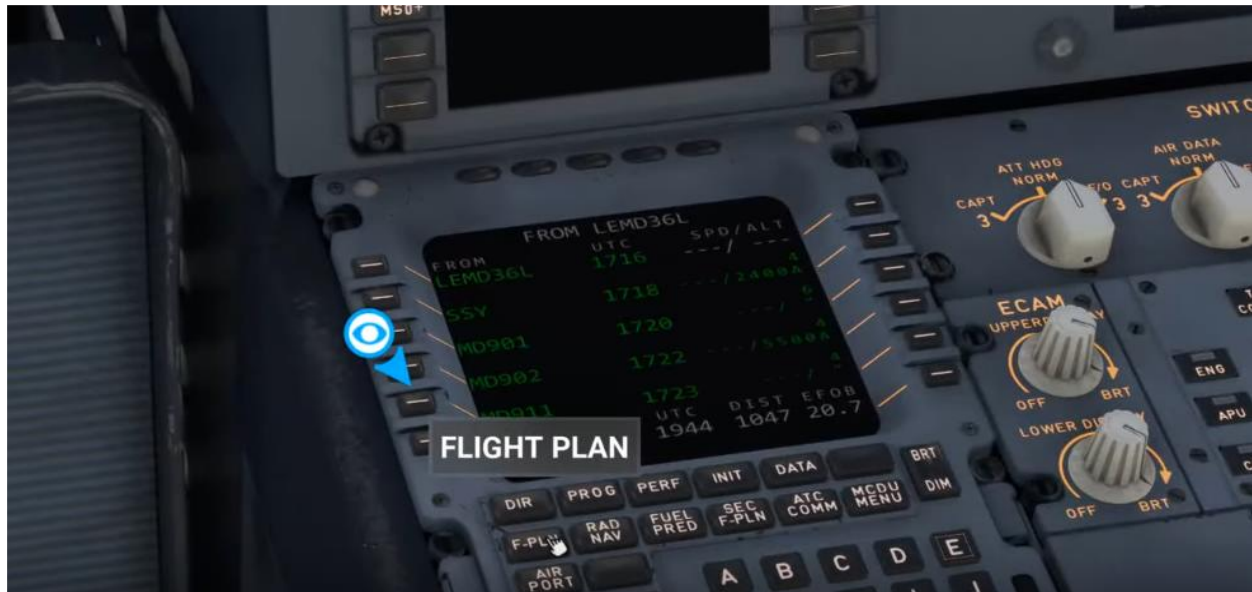
Downloading flight plans from Simbrief is the recommended method for creating flight plans as it provides accurate and realistic routes, along with operational performance data such as altitudes, fuel calculations, and payload weights. However, you still have the option to use the world map to create flight plans or to input them manually. **Keep in mind that when flying over oceans, manual CDU insertion of coordinates as waypoints won't be possible**, though this feature is expected to become available soon.

Additionally, it's important to cross-reference the Zero Fuel Weight (ZFW) values on the next INIT page with those provided in the Simbrief Operational Flight Plan (OFP).

For this flight, the Cost Index should be set to 15.

 Next up lets start setting up our ADIRS, move them all the nav position:

Then go to the INIT page on the CDU and click IRS init, and then click ALIGN on REF.

If you prefer to skip the previous step, you can go to the EFB settings and select the "APU started" option. This will activate the ADIRS, ensuring the aircraft is ready for pushback and engine start. The ADIRS alignment time is set to a realistic duration.

Additionally, ensure that exterior lights are turned on. The NAV lights should remain on whenever the aircraft is powered. Select the NAV and LOGO lights. (Note: the logo lights will turn off when the gear is up and compressed).

Lastly, check the Door ECAM page to verify which doors are open while the aircraft is being serviced.

Whilst its aligning, lets confirm we got the correct departure SID and runway setup on the CDU

3.5.2   Setting up CDU for departure

Since the Simbrief importer brings all procedures, including departures, arrivals, and approach plates, it's always advisable to double-check. Now that we know our departure Standard Instrument Departure (SID) provided by Simbrief, it's a good idea to verify our initial altitude when taking off from runway 36L at Madrid-Barajas Airport (LEMD) and our transition altitude.

Navigate to the charts section of our Electronic Flight Bag (EFB) , select Airports, input LEMD, and choose DEPARTURE. Look for the assigned SID, which in this case is CCS4N, with an initial altitude of 13000 feet and a transition altitude of 13000 feet as well. **Note you require a Navigraph subscription in order to have the EFB charts function.**

Proceed to set the initial altitude of 13000 feet on the Altitude section of the Flight Control Unit (FCU) to ensure it's configured before takeoff.
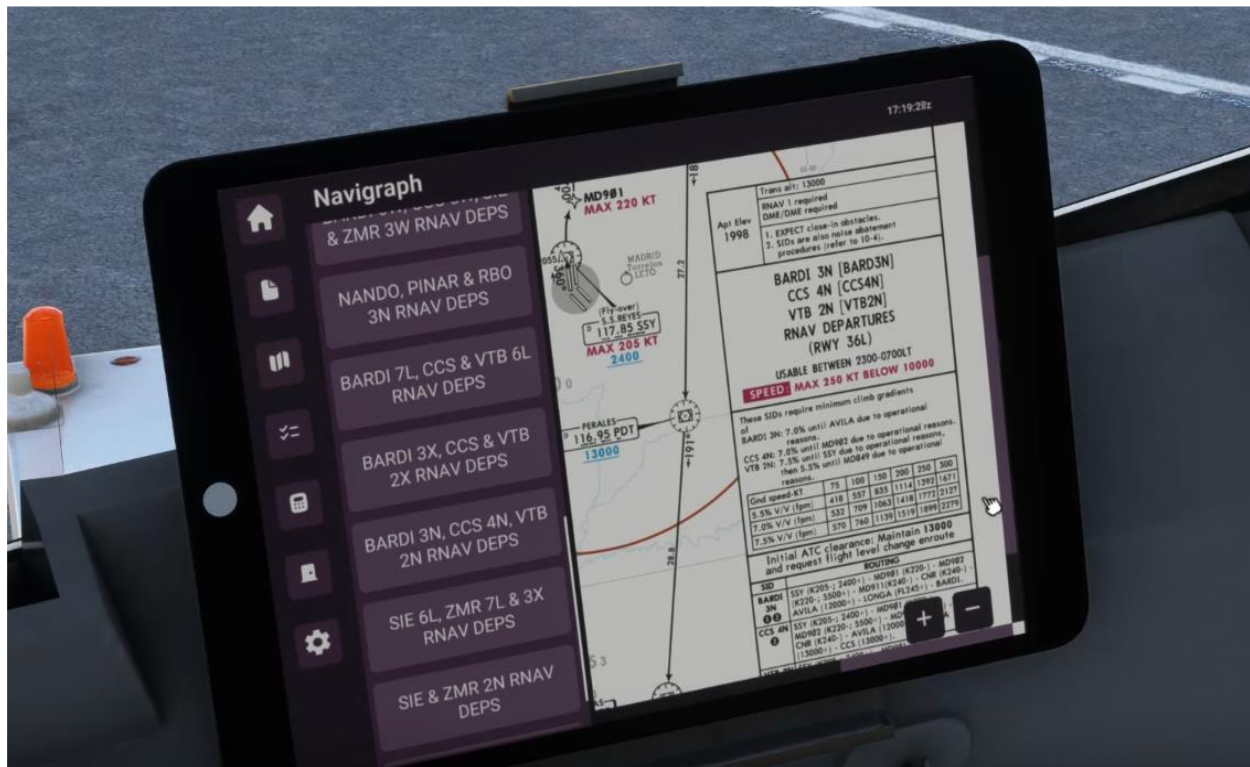
Then we proceed to the home page and go to the metar section to obtain the current weather for LEMD

After obtaining the METAR, we'll adjust the Altimeter setting on the EFIS (Electronic Flight Instrument System) control panel. Since the altimeter setting at Madrid-Barajas Airport (LEMD) is provided in hectopascals (hPa), we'll switch to this setting and input the current altimeter value in hPa as indicated in the METAR

To calculate our takeoff speeds, let's navigate to the EFB and click on the calculator icon. Then, click refresh on the aircraft configuration section to ensure accuracy. Proceed to the flap

configuration section and select flap 2, which is the standard flap setting for the A340-300. While flap 1 can be used for a very lightly loaded aircraft, flap 2 is typically used in most situations.

Please note that trim settings are not calculated in the current version, but this feature will be implemented soon. Therefore, it's recommended to leave the trim at 0 for takeoff, as the aircraft is very pitch up sensitive at present.

We'll continue by entering the airport data into the calculator. Input the ICAO code of our departure airport, which is LEMD, and specify the departure runway, in this case, 36L. The calculator will automatically populate information such as the runway length and elevation. If the runway condition is wet, you can adjust it accordingly.

Next, navigate to the weather section and refresh to ensure the calculations are based on the current weather conditions. Then, hit calculate to generate the takeoff speeds.

Finally, transfer these calculated speeds to the Control Display Unit (CDU) for reference, callouts and our V2 during takeoff.

Based on the values obtained from the takeoff calculator in the EFB, set the V1, VR, and V2 speeds. Additionally, revise the thrust reduction altitude (THR) and acceleration altitude based on the airport elevation. Also check the FLEX temperature for today, the higher the temperature, the more the aircraft will derate the engines for takeoff.

For Madrid-Barajas Airport (LEMD), with an elevation of 1998 feet, we'll use a THR reduction altitude and acceleration altitude of 1450 feet above ground level, totaling 3450 feet. However, you can adjust these altitudes to your preference if desired.

Around this time the IRS must be aligned, if not please wait a few minutes. Now is time to do the before start checklist:

BEFORE START

MEMO... CHECKED
SIGNS..ON/AUTO
FLT INST................................... CHECKED (PF/PM)
FUEL .... _____KG
....CHKS WITH FLT-PLN (PM)

We are almost ready now to close doors and begin our departure from the gate. Let's get the APU up and running to prepare to have our own power and disconnect the external power.

3.6.1   Starting APU

We proceed with the overhead panel, and click APU master switch and APU starter.

While the APU is starting, we can confirm that the cargo has been loaded and decide to keep only the jetway connected. To do this, navigate to the ground services section of the EFB. Click to close all doors except for the one connected with the jetway and the cones. This ensures that only necessary access points remain open during this phase.

We then have the ground crew confirm no catering, cargo loaders and such are still connected to the plane, we do an exterior view quickly.

We verify that the APU is now "AVAIL" in both in the button of the starter and in the ECAM message
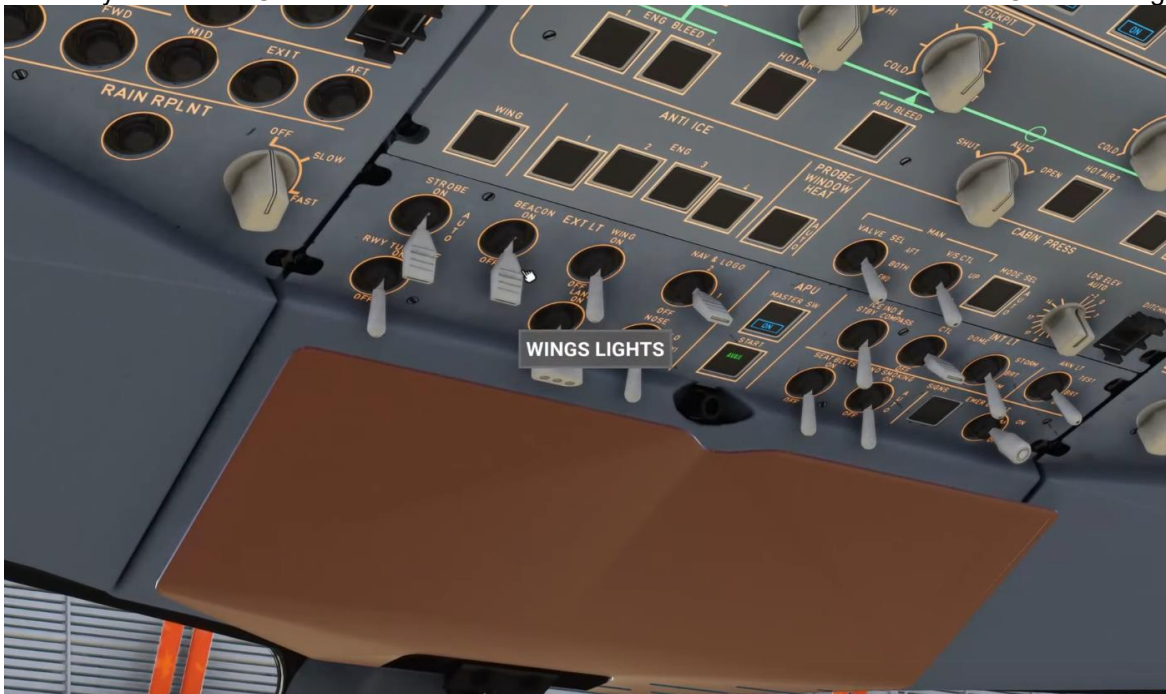
Once we receive clearance to close doors, we'll proceed to the EFB and toggle the 'jetway' option to disconnect it. This action will automatically close the connected door. Additionally, ensure that the cones are also toggled and removed, and they are no longer reds.

Next, navigate to the DOOR ECAM and verify that no door warnings are displayed and all doors are closed. The only red indication that should remain is the cabin lights, identified as 'LIGHTS'. **If any other red indication is present, you won't be able to remove the parking brake.**

We now proceed with the START checklist

START	
FMS.. COMPLETE (PF/PM)	
HARNESS.. SECURE (PF/PM)	
WINDOWS/DOORS......................CLOSED (PF/PM)	
BEACON..ON	
THR LEVERS ....IDLE	
PARKING BRAKE...ON/OFF	

Before departure, it's important to conduct a briefing on our current location at Madrid-Barajas Airport (LEMD), our taxi route to the runway after pushback, and the direction of our pushback. To do this, we'll consult the airport charts.

In the airport section of the charts, we'll locate the diagram that shows our position and taxi route. Since LEMD is a large airport with multiple charts, the TAXI routing chart for LEMD will provide us with a clear overview of our taxi routing. This chart will help us understand our taxi route and ensure a smooth transition to the runway

Before pushback, it's necessary to disconnect external power and prepare the aircraft for engine start. Begin by disconnecting external power B, followed by external power A. Additionally, ensure that the fuel pumps are turned on in preparation for engine start. This sequence ensures a smooth transition to engine start procedures.
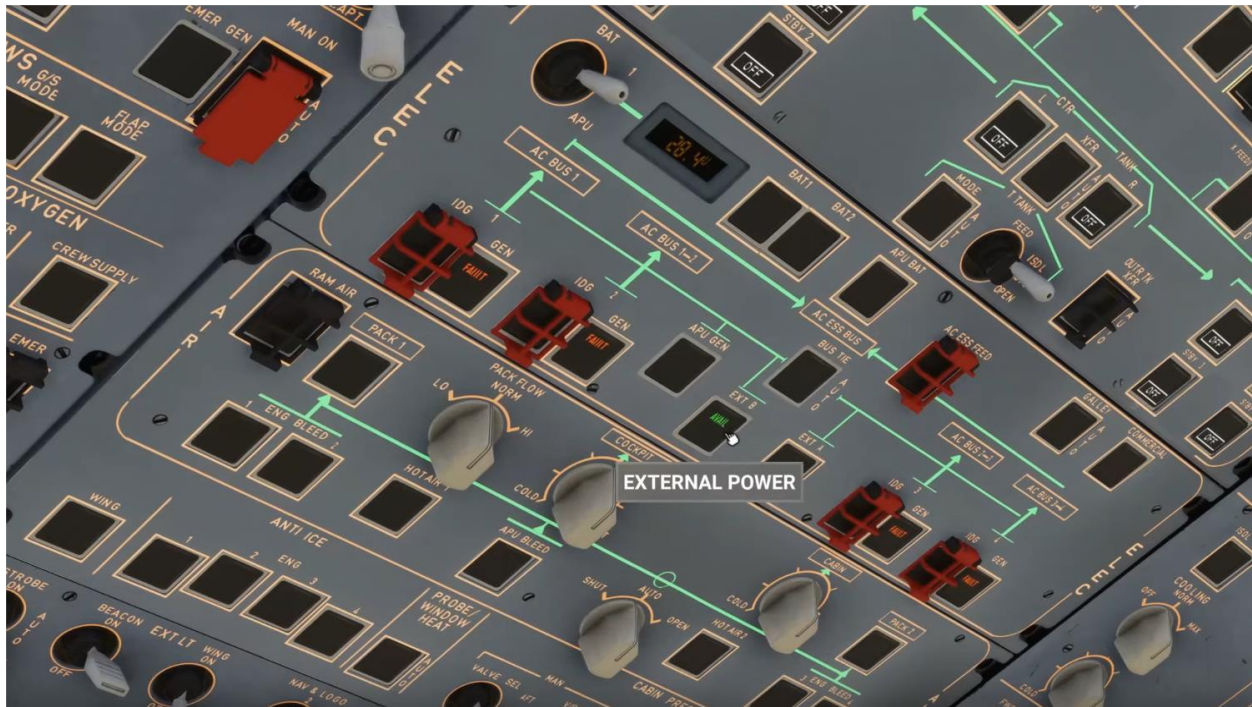
Then we turn on APU BLEED
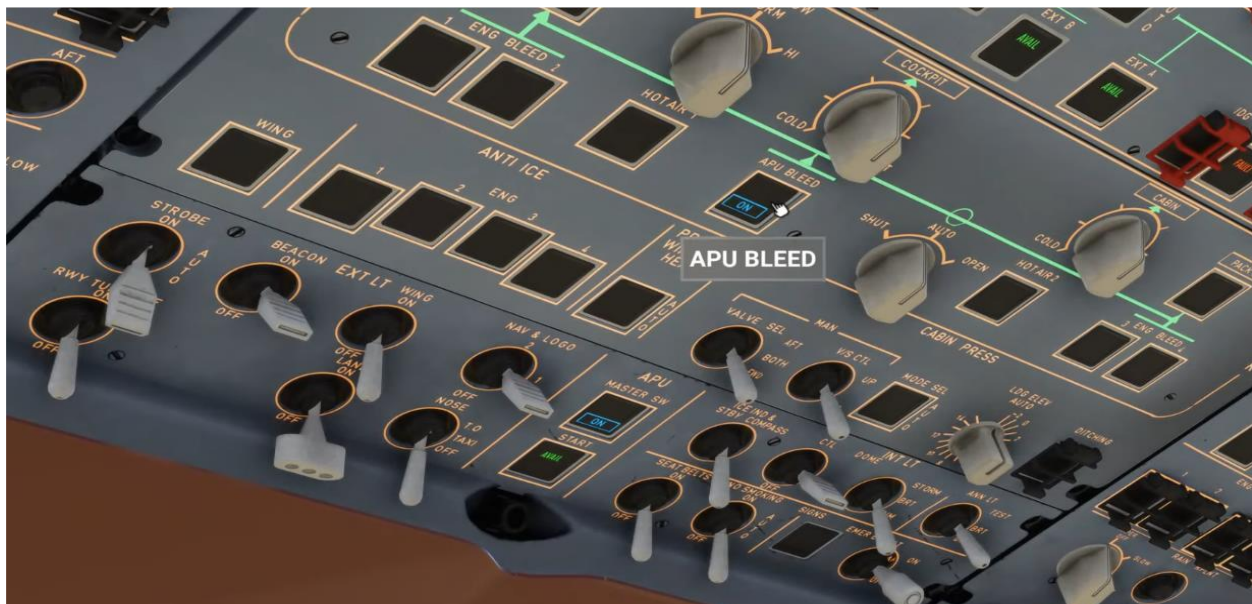
For engine start we need the fuel pumps, so turn on all the fuel pumps that are OFF, including the "standby pumps".
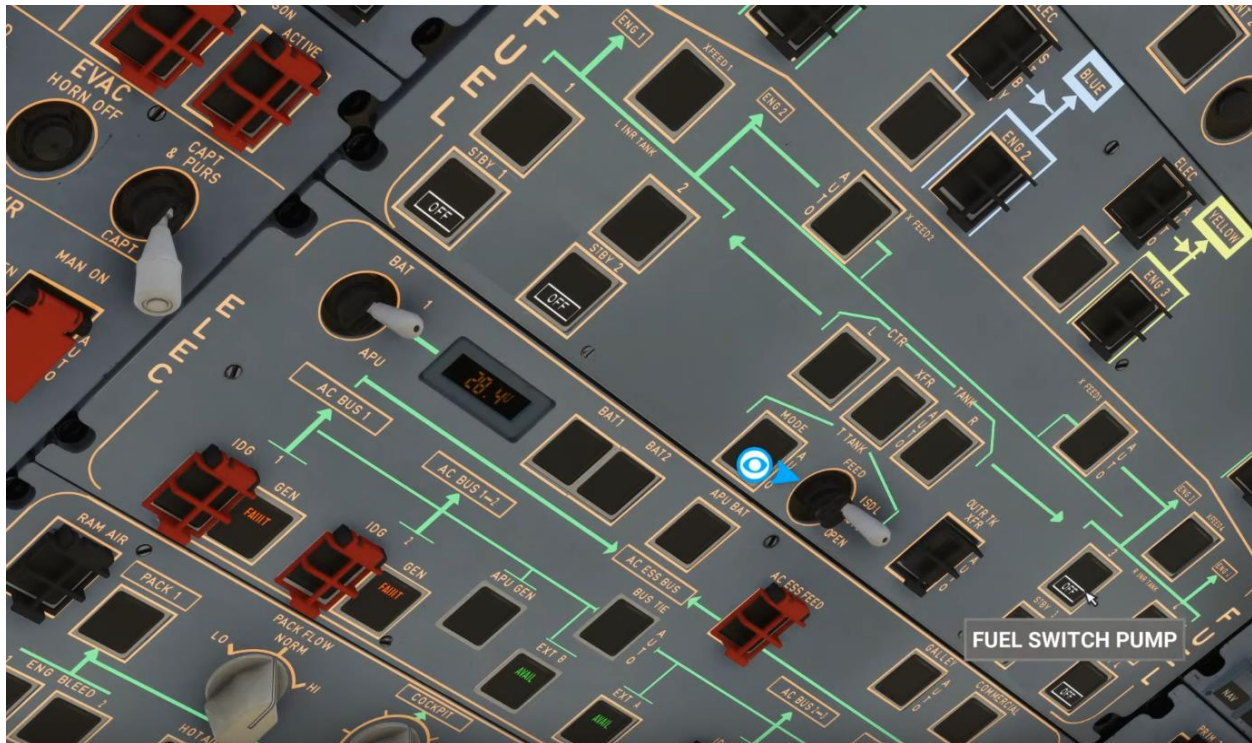
One last exterior check before pushback that we have nothing connected or near the plane, allowing us to safely push back.

To signal to the ground crew that we are almost ready for pushback, we'll turn on the Beacon light. Then, we'll navigate to the EFB and access the 'ground services' tab. From there, we'll select the 'push back' option to activate the pushback procedure.

After releasing the parking brake, we'll click the down arrow to initiate the pushback sequence. The pushback truck will connect and begin pushing the aircraft. Since we need to face north, we'll ensure that the nose of the aircraft is turned to the right during the pushback process.

We can check out in the external view how its going:

Since we need to face north for our taxi route, we are going to control the push by clicking on the left arrow, that way the plane's nose will move to the right.

Since we are in charge of the push we need to use the external to look and finish the push on the taxiway centerline

When we want the pushback to stop and have the aircraft positioned just backwards, we'll click on the down arrow to halt the pushback process. Once the pushback is completed and the aircraft is positioned where desired, we'll click on the Parking Brake to secure the aircraft in place.

After ensuring that the aircraft is safely stopped, we can click on 'Disconnect tug' to release the pushback truck from the aircraft. This completes the pushback procedure, and we are ready to proceed with engine start and taxiing. Make sure to have parking brake set.

3.6.2　Starting Engines

During the pushback procedure, we'll delay starting the engines until after the pushback is completed, considering the additional tasks required during manual push.

For today's starting sequence, we'll begin with engines 3 and 4 simultaneously. To initiate the start sequence, switch the ENG start knob to IGN/START for both engines. Then, click on the ENG 4 and ENG 3 switches to start the engines.

After both engines 3 and 4 are successfully started which is when N1 values reach 20% then we do the same with engines 1 and 2.

3.7.1   Taxiing

After successful engine start, we'll proceed to shut down the APU and turn off the APU bleed in the overhead panel to conserve fuel. We'll then set flap 2, which is our configuration for today's departure.

Immediately following the flap configuration, the Flight Control (FCTL) ECAM will appear. We'll conduct our flight control tests by moving the elevator, rudders, and ailerons to ensure that our control movements match the aircraft's response.

Once the flight control tests are completed, we'll arm the ground spoilers for takeoff to prepare for a potential rejected takeoff scenario. At this stage, we won't engage the autobrake system to MAX, as using the brakes during taxiing will deactivate it.

.

We then do our after start checklist:

```
┌──────────────────────────────────────────────┐
│                AFTER START                     │
├──────────────────────────────────────────────┤
│ ANTI ICE.....................................ON/OFF │
│ STATUS ...................................CHECKED │
│ TRIM...........................ZERO/_____UNITS │
│ APU BLEED........................................OFF │
│ ......................FINAL ITEMS................... │
│ GROUND CREW.............................CLEAR │
└──────────────────────────────────────────────┘
```

We are almost ready to taxi, but please read carefully the following:

The following text is from a Flight Crew Training manual of the A340-300, that applies to the A340-300 explaining the taxi techniques:

PRIOR TO BRAKE RELEASE

The Park Brake shall not be released until:

• Ground crew "thumbs up" signal has been received indicating all

personnel and equipment are clear.

• ATC taxi clearance has been received.

• The NOSE light is set to TAXI.

• Both pilots have visually confirmed and cross-checked, no obstructions in

the taxi path

THRUST USE

To begin taxi, release the brakes and, if required, smoothly increase thrust to the

minimum required for the aircraft to roll forward. If thrust above idle is required to

achieve taxi speed, be aware that engines are slow to accelerate from ground

idle and allow time for aircraft response before increasing thrust further. Engine

noise level in the flight deck is low and not indicative of engine thrust. Excessive

thrust application may result in exhaust blast damage or foreign object ingestion

(FOD). Thrust should normally be used symmetrically.[3]

---

[3] A340 FCTM

PILOT'S EYE LEVEL 19FT ABOVE GROUND

20°

53FT(16.15M) — 14FT(4.27M)
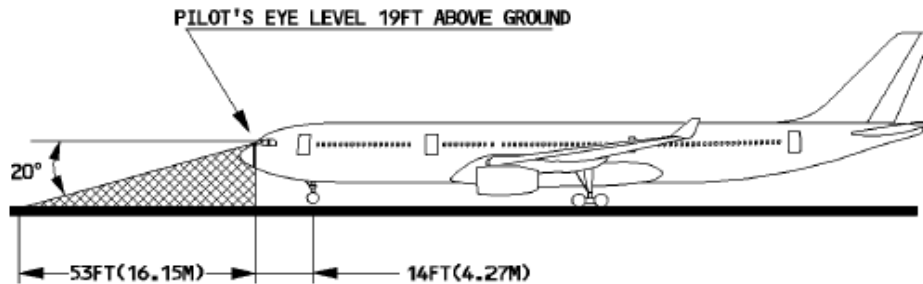
STEERING

The nosewheel steering system is "fly-by-wire" with no mechanical connection between the steering handwheel and the nosewheel. The relationship between steering handwheel deflection and nosewheel angle is non-linear and the steering handwheel forces are light and independent of deflection. Anticipation is required when entering or exiting a turn. Make a smooth input on the steering handwheel and hold that input for sufficient time to assess the outcome. If required, any correction should be smooth and progressive, as being over-active on the steering handwheel will induce uncomfortable oscillations.

On straight taxiways and for shallow turns, use the rudder pedal steering, but be prepared to use the steering handwheel if required.

When exiting a tight turn allow the aircraft to roll forward for a short distance before stopping to minimize the stress on the main gears. Asymmetric thrust may be used in order to initiate a tight turn and to keep the aircraft moving during the turn, but should not be used to tighten the turn. Avoid stopping the aircraft in a turn, as excessive thrust will be required to start the aircraft moving again. Simultaneous use of rudder pedal steering and steering handwheel inputs should be avoided.

STEERING TECHNIQUE AND VISUAL CUES

On straight taxiways, taxi as close to the centerline as possible while keeping the nosewheel off the taxiway centerline lights. Taxiing over the centerline lights, particularly at high speeds, is noisy and uncomfortable for the passengers. If the pilot displaces the aircraft such that his body is over the centerline, this should allow sufficient displacement from the taxiway centerline.

There are a number of factors that govern when a turn should be initiated. The main gear on the inside of a turn always cuts the corner and tracks inside of the nosewheel track. For this reason, the "over-steer" technique must be used. As the turn is commenced, steer the nosewheel far enough outside the centerline to keep the main gear evenly straddling the centerline. Be aware that the nose gear is 5m behind the flight deck and the main gear

behind the flight deck.

For turns of 90° or more, speed should be below 10 kt. Smoothly initiate the turn
as the intersecting taxiway centerline (or intended exit point) approaches the
center of the nearside window or aft edge of the offside windshield.[4]

This is how it looks from the Left hand seat just before starting a right turn on to the taxiway

Continuation of the turn

---

[4] A340 FCTM

TAXI SPEED AND BRAKING

On long straight taxiways and with no ATC or other ground traffic constraints,

allow the aircraft to accelerate towards 30 kt and then use one smooth brake

application to decelerate towards 15 kt. Do not "ride" the brakes. The ND ground

speed read out should be used to assess taxi speed.[5]

3.8.1   Takeoff

Before takeoff, it's crucial to prepare thoroughly as the takeoff phase occurs rapidly. If you aren't fully prepared, apply the parking brakes and take the time to study the takeoff procedure, especially since it's one of the most complex parts of flying the A340-300.

Once ready, activate the autobrake system and set it to MAX to ensure optimal stopping power in the event of a rejected takeoff at high speed.

Next, turn on the LANDING LIGHTS and set the STROBE lights to ON. Adjust the NOSE light to the TO position and activate the RWY TURN OFF lights for improved visibility.

Activate the Flight Director (FD) to assist with guidance after takeoff. Additionally, activate the Weather Radar by navigating to the pedestal and clicking on 2 on the SYS in the WX reader panel. This ensures that weather conditions are monitored throughout the flight.

 Important note on the throttle levers on the Airbus A340-300
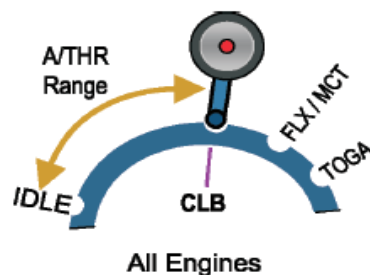
As with other airbus, the Autothrottle will engage after the levers pass CLB.

Now that we are lined up, parking brake off, increase thrust to 50% N1, and once stabilized set it to FLX. The standard takeoff thrust we use on the A340 is FLX, unless there is any environmental issues such as weather conditions ie: windshear, or wet runway we use TOGA. But to save engine life, and maintenance cost, the standard setting is FLX on the A340-300.

---

[5] A340 FCTM
[6] A340 FCTM

TAKE-OFF ROLL

On a normal take-off, to counteract the pitch up moment during thrust application, apply half forward sidestick at the start of the take-off roll until reaching 80 kt. At this point, gradually reduce the input to be zero by 100 kt. Use rudder to keep the aircraft straight. Nosewheel steering authority decreases as the groundspeed increases and the rudder becomes more effective. Normally, there should be no need to use the tiller once aligned with the runway centerline, but if it is needed, its use should be avoided above 20 kt. Normally there should be no requirement to use lateral sidestick. If its use is required however, avoid using an excessive application, as spoilers will deploy, decreasing the lift and increasing the tendency of the aircraft to turn into wind.

ROTATION

At VR, promptly and smoothly apply and hold approximately 2/3 aft sidestick to achieve a rotation rate of approximately 2 to 3°/sec, assessed primarily by outside visual reference. Avoid rapid and large corrections that will result in a sharp reaction in pitch from the aircraft. The rotation rate may take time to establish but for a given stick input, once it has developed it remains relatively constant. If the established pitch rate is not satisfactory, make a smooth correction on the sidestick, however avoid further aft sidestick inputs near the point of liftoff. The rotation rate is important as too low a rate would compromise take-off performance, whereas too high a rate would increase the risk of

tailstrike. It is also important to be well prepared for an engine failure case and

therefore it is appropriate to habitually rotate at a rate that would cater for the

engine failure case, i.e. about 2.5°sec. As the rotation progresses and the

runway environment disappears from view, transfer attention to the PFD to

establish the initial pitch attitude. The FD pitch bar is not to be used as an initial

target since it does not provide any pitch rate order, instead rotate initially

towards the following target pitch attitude of 12.5 degrees [7]

After a positive rate of climb is established on lift-off, select GEAR UP. You can engage autopilot at 100feet above the ground or 5 seconds after takeoff.

During the initial climb, the aircraft may naturally tend to pitch higher due to the power setting. However, it's essential to maintain the target pitch attitude of 12.5 degrees, at least until reaching the acceleration altitude. This pitch attitude ensures optimal climb performance while adhering to safety margins.

Although the vertical profile displayed on the flight director may not be accurate at this time, continue to maintain a pitch attitude of 12.5 degrees. Adjust as necessary to keep up with the desired speed, which should be V2 plus 10 knots, but never exceed 12.5 degrees of pitch.

Upon reaching the thrust reduction altitude, indicated by the FMA showing "LVR CLB," follow the flight director pitch commands before selecting the CL detent on the thrust levers. At this

---

[7] A340 FCTM

moment, the Autothrottle (A/THR) system will take over to manage speeds, ensuring a smooth transition to the climb phase of flight.

At acceleration altitude, the Flight Director (FD) pitch mode changes from Speed Reference System (SRS) to Climb (CLB) or Open Climb (OP CLB), depending on the aircraft's configuration. The speed target shifts to either the preset climb speed or the manage climb speeds.

When the aircraft is at heavy weights, the Green Dot speed is typically higher than the managed speed target. In this scenario, when Flaps 0 is selected, it's necessary to manually set the speed to Green Dot speed by changing to SELECTED speed, rather than managed speed.

The minimum speed for moving the flap lever to position 1 is displayed as "F" on the Primary Flight Display (PFD) speed tape. Similarly, the minimum speed for moving the flap lever to position 0 is displayed as "S" on the PFD speed tape.

Flaps 1 should only be selected when the aircraft is no longer in SRS mode, above the F speed, and accelerating. Likewise, Flaps 0 should only be selected when the aircraft is no longer in SRS mode, above the S speed, and accelerating, with the next speed target at least Green Dot speed.

It's common practice with the A340-300 to allow for flap auto-retraction before reaching 10 knots of flap limit speed. This ensures that the flaps are retracted to 0 closer to targeting the green dot speed, contributing to a smoother transition during the climb phase. The A340 FCTM states the following regarding heavy takeoff:

TAKE-OFF AT HEAVY WEIGHT

At heavy weights, F speed may be close to VMAX CONF 2 and S speed will be

above VMAX CONF 1+F (215 kt), which is displayed

on the PFD speed tape as a red and black strip in accordance with flap lever

position

The Automatic Retraction System

While in CONF 1+F, as the aircraft accelerates towards VMAX CONF 1+F, the

Automatic Retraction System retracts the flaps to 0º (CONF 1) (200kt). VMAX displayed on the PFD changes from VMAX CONF 1+F to VMAX CONF 1. As the aircraft accelerates above S speed, the flap lever can

be selected to 0, provided the target speed is Green Dot or greater. F and S

speeds are minimum speeds for flaps and slats retraction and not the speeds at

which the selection must be made. If IAS decreases below (200 kt), the flaps will not re-extend.[8]
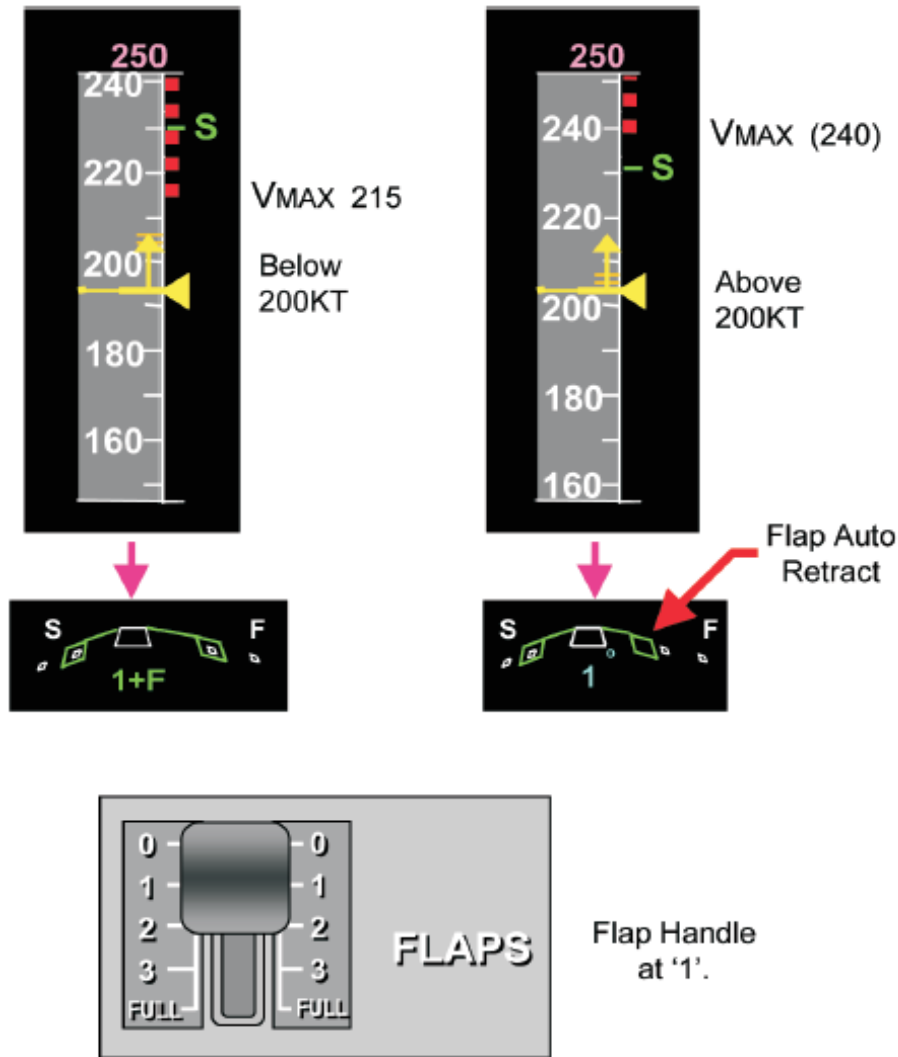
Flaps Auto Retraction Indications [9]

---

[8] A340 FCTM
[9] A340 FCTM
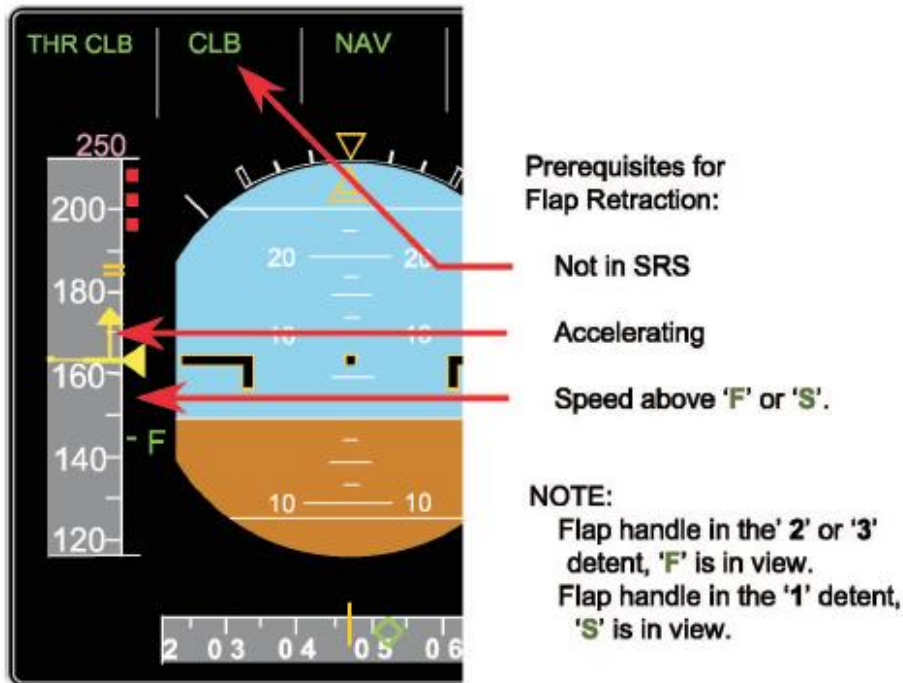
If the take-off configuration was CONF 2, then F will be displayed on the

PFD speed tape. Once above F speed and accelerating (it is not necessary that

the target speed be S or faster), call for "Flaps 1". You then confirm

that the speed is above F, repeats the call and then selects Flaps 1. Once above S speed

and accelerating to a target speed of green dot or greater, the PF request "Flaps

zero".

Maneuvering in the clean configuration with the speed below Green Dot is not

recommended.

Once the aircraft is in the clean configuration, the PNF disarms the ground

spoilers and turns off the NOSE and RWY TURN OFF lights. Above the

applicable sector MSA, the TERR ON ND pb should be deselected if used during

take-off..[11]

When workload permits, call for the After Take-off checklist:

AFTER TAKEOFF	
GEAR.. UP	
FLAPS..UP	
PACKS..ON	

---

[10] A340 FCTM
[11] A340 FCTM

3.8.2   Climb out

Once the aircraft is fully retracted with flaps and clean, it's appropriate to engage the autopilot to manage the aircraft. As you cross the transition altitude, which for Madrid-Barajas Airport (LEMD) is 13,000 feet, adjust the altimeter to STD.

At heavy weights and when the speed exceeds 250 knots on the green dot speed, it's imperative to accelerate to that speed. If necessary, request authorization from ATC to exceed 250 knots below 10,000 feet.

Upon reaching 10,000 feet, the aircraft will typically change speed to the climb speed, usually 320 knots, when in Managed mode. However, if ATC constraints or environmental factors such as weather or terrain exist, it's advisable to proactively switch to Selected mode by setting a speed on OPEN CLIMB or by adjusting Vertical Speed. This proactive approach helps to avoid spending excessive time around 10,000 feet accelerating to the target speed. It's recommended to start accelerating (with ATC permission) around 6,000 feet above ground level or earlier, progressing gradually until reaching 320 knots. This ensures a smoother and more efficient climb phase.

 The modes for using the autopilot are as follows:

LATERAL NAVIGATION

With the AP/FD in NAV, the aircraft will follow the programmed SID. If a

deviation from the programmed SID is required, e.g. ATC vectors or weather

avoidance, select HDG. If HDG is selected, the climb mode reverts to OP CLB.

When cleared to a specific waypoint, perform a DIR TO to ensure correct

waypoint sequencing, and re-engage CLB mode.

VERTICAL NAVIGATION

The AP/FD climb modes may be either

• *Managed*

• *Selected*

Both climb modes can be flown with either managed or selected speed.

Managed Climb Mode

The managed AP/FD mode in climb is CLB. Its use is recommended as long as the aircraft is cleared along the F-PLN. Although CLB mode will try to observe altitude constraints, the next climb altitude is always set on the FCU. CLB mode will not adjust aircraft speed to achieve altitude constraints.

Selected Climb Mode

The selected AP/FD modes in climb are OP CLB or V/S.
OP CLB is to be used if ATC gives radar vector or clears the aircraft direct to a given FL without any climb constraints. Any programmed FMGS climb constraints will be ignored.

The use of low values of V/S, e.g. 1000 fpm or less, may be appropriate for small altitude changes as it makes the guidance smoother and needs less thrust variation. In areas of high traffic density, low values of vertical speed will reduce the possibility of nuisance TCAS warnings. As a guide, a value of +1000 ft/min is appropriate when in close proximity to other aircraft. The A/THR mode will automatically revert to SPEED and adjust thrust to maintain the target speed. Whenever V/S is used, pay particular attention to the speed trend as V/S takes precedence over speed requirements. If the pilot selects too high a V/S, the aircraft may be unable achieve both the selected V/S and target speed with Max Climb thrust. In this case, the AP/FD will guide to the target V/S, and the A/THR will command up to Max Climb thrust and allow the speed to decelerate. When VLS is reached the AP will pitch the aircraft down so as to fly at a V/S to maintain VLS.

SPEED CONSIDERATIONS

Managed

The managed climb speed, computed by the FMGS, provides the most economical climb profile as it takes into account weight, actual and predicted winds, ISA deviation and Cost Index (CI). The managed climb speed also takes into account any speed constraints, e.g. the default speed limit, which is normally 250 kt up to 10000 ft. At heavy weights, Green Dot can be greater than 250 kt. In this case, you must manually set to accelerate to Green Dot even though the magenta speed target on the PFD indicates 250 kt. By switching to SELECTED speed.

Selected

If necessary, the climb speed can be selected on the FCU. This may be required

to comply with climb constraints, ATC clearances or during weather avoidance or penetration.

The speed to achieve the maximum rate of climb, i.e. to reach a given altitude in the shortest time, is situated between ECON climb speed and Green Dot. There is no specific indication of this speed on the PFD. A rule of thumb to achieve maximum rate climb is to select 285 kt/0.78M.

The speed to achieve the maximum gradient of climb, i.e. to reach a given altitude in a shortest distance, is Green Dot. The PERF CLB page displays the time and distance required to achieve the selected altitude by climbing at Green Dot speed under the "Expedite" heading. Avoid reducing to Green Dot at high altitude, particularly at heavy weight, as it can take a long time to accelerate to cruise mach number. There is no operational benefit from selecting a speed lower than green dot. When IAS is selected, there is no automatic changeover to Mach.[12]

Trim tank transfer for GWCG targets

The A340-300 incorporates realistic trim fuel tank transfers, which occur to maintain the desired Gross Weight Center of Gravity (GWCG) targets during both climb and descent phases. The optimal GWCG for the A340-300 is typically aft during climb and at cruise levels. To achieve this, when crossing FL255, the inner or center fuel tanks will automatically begin transferring fuel to the trim tank.

To monitor the progress of this fuel transfer process, you can access the FUEL synoptic on the lower ECAM page. As the transfer initiates, an ECAM message labeled "TRIM TK XFR AFT" will appear in the messages section, indicating that the process has commenced. This feature ensures that the aircraft maintains optimal performance characteristics throughout the flight, enhancing efficiency and stability.

---

[12] A340 FCTM

3.9.1   Cruise

At higher weights, the A340 can be a slow climber, and may last up to around 30 minutes reaching cruise altitudes.

Once the cruise flight level is reached, "ALT CRZ" is displayed on the FMA, and

cruise Mach number for best economy based on cost index is targeted by the

A/THR system. On reaching cruise level, the PF shall confirm the commanded

thrust is set correctly and the desired speed/mach target is properly maintained.

If ATC limits CRZ FL to a lower level than that displayed on the PROG page,

insert this lower CRZ FL in the CDU. Otherwise, there is no transition into CRZ phase:

consequently the managed speed and Mach targets are not modified and A/THR

Managed speed

When the cruise altitude is reached, i.e. "ALT CRZ" on the FMA, the A/THR

operates in SPEED/MACH mode. The optimum cruise Mach number is

automatically targeted. Its value depends on:

- *CI*

- *Cruise flight level*

- *Temperature deviation*

- *Weight*

- *Headwind component.*

The optimum Mach number will vary according to the above-mentioned

parameters, e.g. it will increase with an increasing headwind. If there is no

overriding operational constraint, e.g. ATC speed control, the managed Mach

should be maintained as it provides the optimum trip

Selected speed

Should ATC require a specific cruise speed, or turbulence penetration is

required, select the new cruise speed on the FCU.

At high altitude, the speed should not be reduced below Green Dot as this may

create a situation where it is impossible to maintain speed and/or altitude as the

increased drag may exceed the available thrust. [13]

STEP CLIMBS

In the SimBrief flight plan, step climbs may be indicated depending on the length of the flight. However, for this tutorial flight, we won't be executing step climbs as it's a short journey.

As an example, let's consider a flight from Los Angeles International Airport (KLAX) to Paris Charles de Gaulle Airport (LFPG), where step climbs are highlighted.. It shows that initially its FL330 then at KP12A it's a step climb to FL350, then at CHARN is FL370. **Go to the INIT page in the CDU, and on the CRZ FL, you can set the higher level, the aircraft will climb to its new flight level, but also change the target altitude on the FCU.**

KLAX/24R N0481F330 OSHNN1 BEALE Q842 WINEN DCT KD57Q DCT KD72U DCT RAP DCT KP12A/N0482F350 DCT KP21C DCT YRL DCT CHARN/N0477F370 DCT LAKES/M082F370 DCT URTAK DCT 59N050W 59N040W 59N030W 58N020W DCT SUNOT/N0468F370 DCT KESIX DCT APSOV DCT PEPOD DCT MAKUX DCT SOSIM L15 KEPAD L151 MID/N0466F290 Y803 SFD UM605 XIDIL/N0437F250 UM605 BIBAX BIBAX9E

---

[13] A340 FCTM

3.10.1   Descent

Before beginning the descent phase, it's essential to gather the latest weather information for the destination airport. Navigate to the METAR section on the EFB and input the ICAO code for the destination airport, in this case, GCXO. Confirm that the planned arrival runway matches the one set up in the CDU.

Next, cross-check the arrival and approach procedures in the CDU to ensure they correspond to the runway currently in use at the destination airport. Reviewing the arrival procedure and approach beforehand allows for better planning and preparation, especially during periods of high workload.At this point, we'll also set up the CDU for the approach phase. Navigate to the PERF page and move to the APPR section. Consult the charts for the ILS runway 12 at GCXO and note the Minimum Descent Altitude (MDA), which is 2370 feet. This altitude may seem high due to the elevation of GCXO, which is 2077 feet. The MDA is the altitude at which the aircraft will call out "minimums," and the pilot will decide whether to continue with the landing.

Additionally, consult the METAR for GCXO and input the barometric pressure (QNH), temperature, and wind into the CDU. This information allows the aircraft to calculate the correct approach speed based on these factors, ensuring a safe and efficient approach and landing.

Before commencing the descent phase, it's crucial to crosscheck the Top of Descent (TOD) point indicated on the navigation display. Verify that the TOD aligns accurately with the arrival chart and any altitude constraints specified along the descent path.

While the VNAV system is operational, it's essential to acknowledge that it may not always be 100% accurate, as it relies on default Asobo avionics. To ensure accuracy, double-check the distance and position of the TOD point. Utilizing a VOR station located at the destination airport can serve as an additional verification method to confirm the TOD's accuracy.

By confirming the alignment of the TOD with the arrival chart and any altitude constraints, you enhance the precision of the descent planning process, promoting a safe and efficient arrival at the destination airport.

Time to do our descent checklist:

DESCENT		
BRIEFING/MSA.............. COMPLETE/_____(PF/PM)		
MINIMA.........................MDA/DH_____SET (PF/PM)		
STATUS.. CHECKED		

The Descent can be MANAGED or SELECTED. Managed being if NAV is selected and follows constraints according to those on the arrival and approach procedure. Selected would be either OPEN DESCENT or VS. In the case of Open descent, the aircraft will idle the thrust and descend at the speed for which you have selected. In the case of VS, the aircraft will keep the speed you selected and descend according to the Vertical Speed you select on the FCU. In this case we will be landing with MANAGED descent, we have selected the first constraint altitude which is 6,000 feet as the first altitude constraint into Tenerife.

Now we reduce the ND range knob and see our arrival at Tenerife

As we cross FL245, the trim tank now will automatically move (transfer) fuel forward for the approach, so that we have a more forward GWCG for landing. The ecam message "TRIM TK TXF FWD" appears. This process may end before final approach, if not, it will automatically stop once gear is selected down.

Important notes on the descent from the FCTM for what's ahead:

DESCENT ADJUSTMENT

Weather avoidance or ATC vectoring may require descent profile adjustment.

If the aircraft is below the profile, select a lower target speed or adjust the V/S.

After regaining the profile, re-engage managed descent to maintain the FMGS

computed profile.

If the aircraft is above the profile, an increased rate of descent will be required.

Use speedbrake with OP DES, however be alert to the increased VLS at high

altitude. ATC and weather conditions permitting, a higher speed may be

selected.

DESCENT CONSTRAINTS

Descent constraints may be automatically included in the route as part of an

arrival procedure or may be manually entered through the F-PLN page. The

aircraft will attempt to achieve the constraints provided DES mode is engaged. A

DIR TO action in response to an ATC clearance to a STAR waypoint removes

procedural altitude constraints. However, if intermediate waypoints altitude

restrictions are relevant, e.g. for terrain awareness, or there is an ATC

requirement, then perform the "DIR TO" with ABEAMS. Constraints can be

re-entered at these abeam waypoints. [14]

3.10.2   Approach

As we continue our descent, it's crucial to monitor our speed closely. In managed descent mode, the aircraft will attempt to slow down to 240 knots at around 11,000 feet. However, it will maintain the descent profile, so it's important to extend the speedbrake if necessary to ensure our speed remains below 250 knots (50% deployment is standard).

Approaching the ASUX waypoint, we may find ourselves flying above 6,000 feet because the current VNAV calculation anticipates maintaining an altitude above 6,000 feet to meet the subsequent constraint of reaching 4,000 feet for the final approach. Therefore, to intercept the ILS from below the glideslope, we should plan to descend to 4,000 feet at ASUX. This adjustment ensures that we capture the ILS signal correctly and maintain the appropriate altitude for the approach phase.

---

[14] A340 FCTM

.
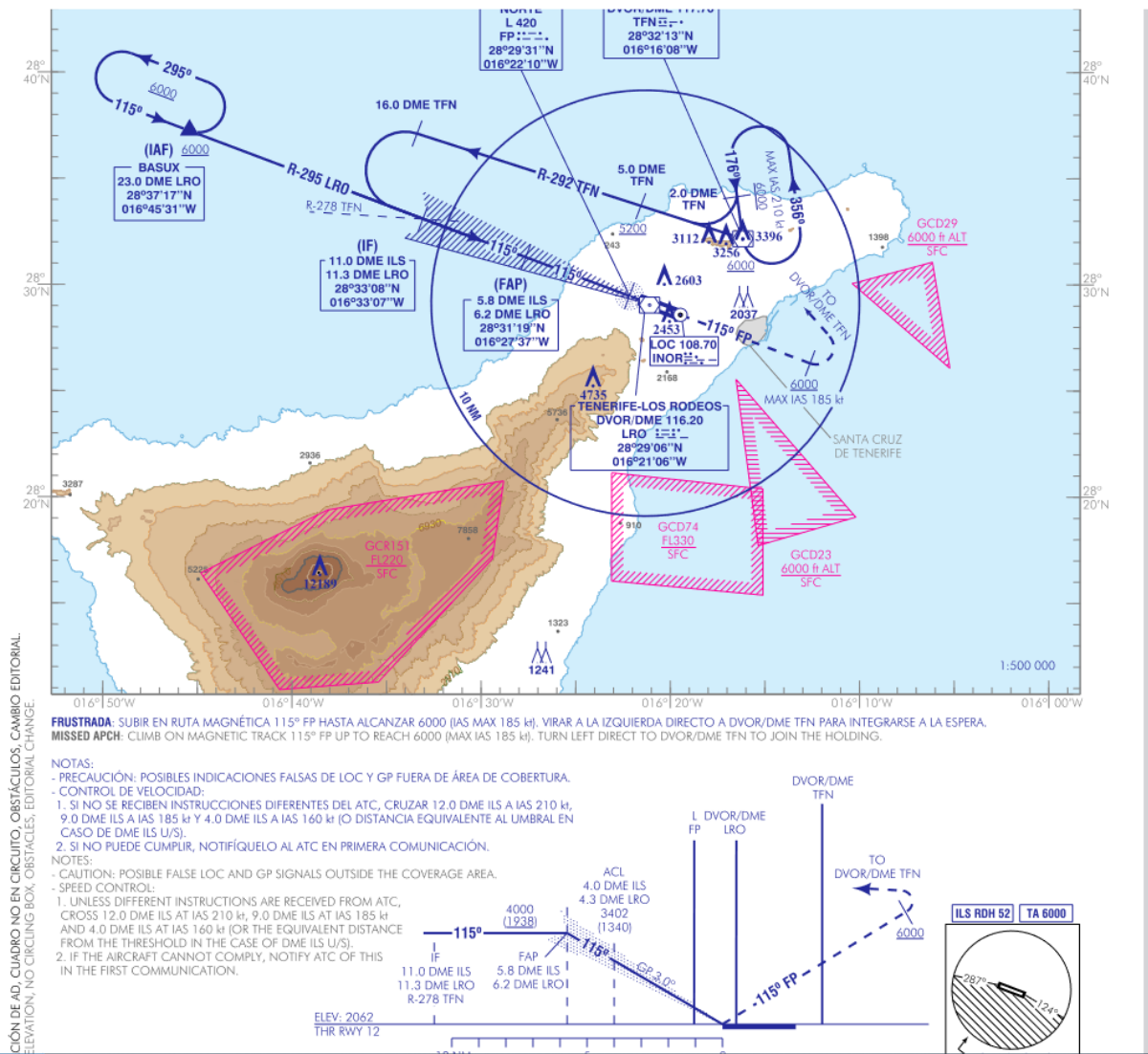
For our descent to 4,000 feet, we'll switch to OPEN descent mode to have more control over our altitude and speed. First, change to Selected mode and set a speed of 210 knots. To maintain our descent rate, keep the speed brake extended. **As we cross the transition altitude of 6,000 feet, adjust the altimeter setting to 1016, which is the local QNH for GCXO**.

---

[15] AIP Spain GCXO ILS 12 approach chart
    https://aip.enaire.es/AIP/contenido_AIP/AD/AD2/GCXO/LE_AD_2_GCXO_IAC_1_en.pdf

As we descend below 6,000 feet and prepare for the approach, we can select Flap 1, ensuring our speed is below 220 knots before doing so. If the speedbrake is still active, deactivate it at this point.

Approaching ASUX, where the aircraft should be at roughly 2,000 feet above ground level due to the airport's elevation, we should prepare to engage the APPR mode. Clicking on the LS button will activate the ILS approach on both the Primary Flight Display (PFD) and Navigation Display (ND), allowing the aircraft to manage the glide slope and localizer for the approach into GCXO. This proactive approach ensures that the aircraft is properly configured and ready to capture the ILS signals for a smooth and precise landing.

The FCTM explains how we should manage our approach phase activation:

APPROACH PHASE ACTIVATION

Activation of the approach phase initiates a deceleration from managed descent

speed. In NAV or LOC mode, the approach phase activates automatically when

sequencing the deceleration pseudo-waypoint. When in HDG mode or if an early

deceleration is required, the approach phase can be activated via the PERF

page. When the approach phase is activated, the magenta target speed

becomes VAPP but the A/THR will maintain the minimum speed for the actual

configuration.

APPROACH SPEED CONSIDERATIONS

VAPP

VAPP displayed on the PERF APPR page is equivalent to VLS for gross weight

and landing flap configuration, plus an increment based on the inserted tower

wind component. This increment is equivalent to the higher of 5 kt or 1/3 of the

tower headwind component for the landing runway in the F-PLN. VAPP is

computed at the predicted landing weight while in CRZ or DES phase, and using

the current gross weight once the approach phase is activated.

The minimum 5 kt increment must be retained if A/THR is ON or if severe icing

conditions are anticipated. The pilot can insert a lower VAPP on the PERF APPR

page, down to VLS if landing is performed with A/THR OFF, no wind, downburst

or icing. A higher VAPP may be inserted if gusty wind or downburst conditions

are anticipated but the increment to VLS is limited to 15 kt.

Managed speed should be used for final approach as it provides ground speed

mini guidance even when the VAPP has been manually inserted. [16]

---

[16] A340 FCTM

As for speeds deceleration planning the FCTM explains:

DECELERATION AND CONFIGURATION CHANGE

Managed speed is recommended for the final approach. Once the approach

phase has been activated, the A/THR controls the speed to the minimum

required for the current configuration. These speeds are:

• *Green Dot for Flaps 0*

• *S speed for Flaps 1*

• *F speed for Flaps 2 and 3 (if Flaps 3 is not selected as the LDG CONF)*

• *VAPP for Flaps Full (or for Flaps 3 if selected as the LDG CONF)*

To achieve a constant deceleration and minimize thrust variation, select the next

configuration when reaching the target speed + 10 kt, e.g. when the speed

reaches Green Dot + 10 kt, select Flaps 1. The IAS must be lower than VFE

Next. Using this technique, the average deceleration rate will be approximately

10 kt/nm in level flight (20 kt/nm with speedbrake extended).

When below VFE CONF 1, the PF calls for "Flaps 1". The PNF visually confirms

on the PFD that the speed is below VFE CONF 1, calls "Speed checks, Flaps 1"

and then selects the flap lever to Flaps 1. He then monitors the E/WD to confirm

that "1" is displayed in blue during transit and becomes green when the

slats/flaps reach the correct position. This sequence should be repeated for

subsequent flap settings.

If ATC requires a specific speed, select it on the FCU. When the speed control

no longer applies, resume managed speed. If flying the intermediate approach in

selected speed, activate the approach before resuming managed speed,

otherwise the aircraft will accelerate to the previous descent speed.

In certain circumstances, e.g. tailwind or heavy weight, the deceleration rate may

be insufficient. In this case, the landing gear may be lowered before selection of

Flaps 2 and preferably below 220 kt to avoid undue stress to the gear doors.[17]

On the use of Auto Throttle the FCTM recommends:

USE OF A/THR

A/THR is recommended for all approaches as it provides accurate speed control.

If planning to use manual thrust, A/THR should be disconnected by 1000 ft on

the final approach.

---

[17] A340 FCTM

The use of A/THR does not absolve the pilot from his responsibility to monitor its

performance. If A/THR operation is not satisfactory, use manual thrust.[18]

Further:

FCU ALTITUDE SETTING

When established on final approach, set the missed approach altitude on the

FCU. This can be done at any time after G/S or FINAL APP mode engages. For

a selected non-precision approach using FPA, the missed approach altitude

must only be set when the aircraft is below the missed approach altitude and no

further level segment is required. This will prevent an unwanted ALT capture on

final approach.

Do not set the MDA or DH on the FCU. Setting the MDA or DH on the FCU

would result in an unwanted ALT* when approaching MDA or DH, resulting in the

approach becoming destabilised at a critical stage.

AP DISCONNECTION

When disconnecting the AP for a manual landing, avoid the temptation to make

unnecessary inputs on the sidestick.

So before we reach our FAF which is at 4,000ft we are already at 4,000ft, and with flap 1, we let managed speed do the speed for us

---

[18] A340 FCTM

Given the visual illusion of the airport appearing higher than our current altitude, opting for the ILS approach is the prudent and best choice (it's always the standard with the A340 wherever there is an ILS available). As we approach the airport, it's evident that we are intercepting the localizer from the right, and the Glide Slope (G/S) is not yet active since we are below the designated altitude of 4,000 feet.

Sticking to the ILS approach ensures that we maintain precision and accuracy during the landing phase, especially in challenging conditions where visual cues may be misleading. As we continue to track the localizer, we'll wait for the G/S to become active, indicating that we are properly aligned with the glide path for a stabilized descent toward the runway at GCXO.

The FCTM states the following on initial approach:

INITIAL APPROACH

Check that the LS pb has been pressed and that the LOC and GS scales are

displayed on the PFD, and the ILS ident is correctly displayed.

INTERCEPTION OF FINAL APPROACH COURSE

The criteria that must be met prior to pressing the APPR pb is detailed in FCOM

3.03.18

Pressing the APPR pb arms the approach mode. LOC and G/S are displayed in

blue on the FMA. The second AP, if available, should be selected at this stage.

If the initial ATC clearance is to intercept the localiser only, press the LOC pb on

the FCU until cleared for the approach.

Executing some subsequent mode changes through the MCDU (e.g. "Direct to"

FAF to update the flight plan), will disengage the armed modes of G/S and LOC

blue. Reselection of APPR pb will be necessary.

Monitor aircraft position to anticipate and confirm the correct LOC and G/S beam

is being intercepted to protect against false captures. Observe the FMA for the

correct modes during the ILS capture process.

FINAL APPROACH

Plan to intercept the glideslope from below with at least Flaps 1 selected. When

approaching one dot below the glideslope select Flaps 2. In managed speed, the

aircraft will decelerate to F speed. If the glideslope is intercepted in level flight

below 2000 ft AAL the aircraft may need to be configured beyond CONF 2 prior

to glideslope capture in order to achieve the stabilised approach criteria.

After glideslope capture, set the missed approach altitude on the FCU and check

that it is displayed on the PFD. If the F-PLN has sequenced correctly, either

automatically or manually, a blue go-around procedure will be displayed on the

ND, indicating that NAV mode is available for the go-around. If there is no

go-around procedure displayed, the F-PLN may be incorrectly sequenced and

the go-around will have to be flown using selected modes and raw data.

Select the gear down approaching 2500 ft AAL. Selecting L/G down is the cue

for PNF to arm ground spoilers and set NOSE switch to TAXI, and RWY TURN

OFF switch ON. Once the gear is down, select the remaining stages of flap.[19]

We done most of the things, except for lowering the gear at 2,500 ft AAL (Airport Altitude level) as we have delayed it a bit to save some fuel, but its best to do it standard at 2,500ft, and it helps slow down with the added drag and with the proper flap configuration.

Do not plan to do a FULL AUTOLAND, as the plane still doesn't have the required avionics for this type of landing. And neither GPS or RNAV approaches are currently available.

---

[19] A340 FCTM

Once we get the glideslope moving towards our altitude, we lower the gear, and set flap 2

Now we are to proceed with the landing phase.

3.10.3   Landing

Flaps 3 should be set once gear is down completely, and before 1,000feet AAL, we we should have full flaps configuration and also check the speed, also make sure you have the Go Around altitude set which for this approach is 6,000ft.

Bellow 1,000ft AAL, we should be stable, the landing ecam memos should all be green and completed (no blue) already have completed the Landing checklist:

LANDING

CABIN	READY
ALTIMETER.........................QNH_____	SET (PF/PM)
AUTOBRAKE..	OFF/_____
...........................FINAL ITEMS..............................	
A/THR..	SPEED/OFF
LDG MEMO......................................	LDG, NO BLUE

LDG -	L/G ....DOWN	-	SPLRS ....ARM
-	SIGNS....................ON	-	FLAPS.................SET

Very soon we are going to hit our MDA, and we will hear minimums callout, the FCTM says about this:

MINIMUM DESCENT ALTITUDE (MDA)

When approaching MDA, expand the scan to include outside visual cues. When

the required visual conditions to continue the approach are met, disconnect the

AP and select the FDs off. If not visual by the MDA or MAP, whichever occurs

first, go-around. Do not fly level at MDA whilst attempting to achieve the required

visual reference.

MDA is the lowest permitted altitude for AP use. If still engaged following a

managed approach, the AP will disconnect at MDA − 50 ft. The modes will revert

to TRK/FPA.

Do not set MDA as a target altitude on the FCU since this would cause a

spurious ALT* when approaching MDA and result in the approach becoming

destabilised at a critical stage. [20]

On short finals:

The FMA mode now is LAND, so at this point we are committed to landing unless we become unstable.
The glideslope on the stock (default) GCXO airport seems to be a bit off, and we are coming a bit high compared to the PAPI, nonetheless we got a long runway ahead, notice no autobrake selection. Unless it's a short, or wet runway or we are heavy, autobrake on the A340 is mostly not needed. Reversers and ground spoilers are enough to slow us down. Runway in Tenerife is 11,000ft long. We only need less than half for today.

Before starting the flare, the FCTM explains on the visual cues:

VISUAL AIM POINT

When available, PAPI, VASI or ILS glideslope, provide cues to assist in

maintaining the correct path in the latter stages of the approach. The correct

approach path brings the aircraft to 1000 ft beyond the runway threshold. This is

the visual aim point. Assuming a constant speed and attitude, this point should

not move relative to the windscreen. Make small control inputs as required to

maintain the visual aim point fixed in the windscreen until initiation of the flare.

Close to the ground, high sink rates must be avoided even at the expense of

---

[20] A340 FCTM

maintaining glideslope or the visual aim point. Priority should be given to correct

attitude and sink rate. If runway length is limiting, a go-around should be

initiated.[21]

Be prepared to flare, the FCTM states:

FLARE

The techniques below assume a stabilised approach at VAPP and on the

glidepath. Unless an unexpected or sudden event occurs, e.g. windshear, it is

not appropriate to use sudden or abrupt control inputs during landing. Additional

considerations applicable to landings in crosswind and slippery runway

conditions are described later in this chapter.

Autotrim ceases at 100 ft and the pitch law is modified to the flare mode, as

described in FCTM Ch 2. At this point, a backpressure on the sidestick is

required to maintain a constant flight path.

The flare technique is conventional. Commence a gentle, progressive flare just

after the 40 ft auto-callout. The typical pitch increment in the flare is

approximately $2-3°$, associated with about a 5 kt speed decay in the

manoeuvre. Retard the thrust levers to idle and allow the aircraft to touchdown

without a prolonged float. A prolonged float increases both the landing distance

and the risk of tailstrike. In order to assess the rate of descent in the flare and

the aircraft position relative to the ground, look well down the runway.

At 20 ft the "RETARD" auto-callout occurs. This is a reminder rather than an

order. If thrust is required, e.g. due to sinking windshear, do not retard the thrust

levers immediately. The A/THR will then add thrust during the flare to maintain

target speed. [22]

FLARE will be shown on the FMA, and once the callout is "RETARD" you can retard the throttles and at that moment autothrottle is disconnected. If we got a crosswind, before touching down we can apply rudder input.

The FCTM expands a bit what's best course of action after touchdown:

DEROTATION

On landing, the rear main wheels touchdown first. The aft sidestick input applied

for the flare should then be relaxed towards the neutral position. This allows the

---

[21] A340 FCTM
[22] A340 FCTM

aircraft to derotate naturally until front main gear contact. After main gear touchdown, fly the nose down conventionally, controlling the derotation rate to ensure a smooth nosewheel touchdown. Lower the nosewheel without delay. Do not keep the nose high in order to increase aircraft drag during the initial part of the rollout. This technique is inefficient as it reduces braking efficiency by delaying full weight-on wheels, increases the risk of a hard nosewheel touchdown and also increases the risk of tailstrike. If braking is applied with the nose high, up to full back stick may be required to control the nose down pitching moment.

After touchdown, with reverse thrust selected on at least one engine and one main landing gear strut compressed, the ground spoilers partially extend to further establish ground contact. The ground spoilers fully extend when both main landing gears are compressed. A small nose down input on the elevators is introduced by the control law, which compensates the pitch up tendency with ground spoiler extension.

ROLLOUT

During the rollout, use the rudder pedals to maintain the aircraft on the runway centreline. At high speed, directional control is achieved with rudder. As the speed reduces, nosewheel steering becomes active. The steering handwheel is not to be used until taxi speed is reached.[23]

---

[23] A340 FCTM

Once landed if needed keep using rudder to align with the runway centerline. Apply reverse thrust and verify that the speed brake has been deployed.

At 70kts stow the reverse thrust, and manually apply toe brakes to exit the runway. In the case of GCXO we may have touched down a bit later due to the off G/S signal, so the first high speed taxiway exit may have been missed. Therefore, we taxi all the way to the end (via E-5 taxiway), we slow to 15 to 10 kts to make the 90 degree left turn. We bring our flaps up, our speed brakes, turn off our Landing lights, our Strobes, our nose light switch to TAXI.

3.10.4   Taxiing at destination

As we get close to the gate, we can start our APU that way once we shut down engines we can stay with our own power whilst the external power is connected by the ground crew, also turn off the WX radar and taxi lights before entering the apron. Before shutting down engines verify that in the ECAM you have message saying APU avail.

Once we shut down, we can go to the ground services section and open doors, and allow for stairs and cargo to be on the plane. We then run the shutdown checklist.

SHUTDOWN	
PARK BRAKE	ON
ENG RUNDOWN	NORMAL
SEAT BELTS	OFF
EXT LTS	SET
FUEL PUMPS	OFF
FLAPS	UP
SPOILERS	DISARM
RADAR/PWS ◁	OFF

Once we are done and ready to exit from the aircraft we do the secure checklist

SECURING	
OXYGEN	OFF
ADIRS	OFF
APU BLEED and APU	OFF
EMER EXIT LT	OFF
NO SMOKING	OFF
BATTERIES	OFF

And that's it for today, stay tuned for any future updates to this tutorial.

Troubleshooting & Support

Visit our forums http://www.latinvfr.org/forum/index.php

4.0 Works cited

In this tutorial the Flight Crew Training Manual (FCTM) for the Airbus A340-300 was extensively used, and also a standard Quick Reference Handbook (QRH). Credit to Airbus

LatinVFR (LVFR) Airbus A340-300 manual. Version 1.0 May 9th 2024.

340-313   NORMAL CHECKLIST

BEFORE START
MEMO.. CHECKED
SIGNS...................................ON/AUTO
FLT INST................................CHECKED (PF/PM)
FUEL ...._____KG
....CHKS WITH FLT-PLN (PM)

START
FMS........................... COMPLETE (PF/PM)
HARNESS........................... SECURE (PF/PM)
WINDOWS/DOORS......................CLOSED (PF/PM)
BEACON...ON
THR LEVERS ....IDLE
PARKING BRAKE................................ON/OFF

AFTER START
ANTI ICE.......................................ON/OFF
STATUS ....CHECKED
TRIM.............................ZERO/_____UNITS
APU BLEED.......................................OFF
..........................FINAL ITEMS..........................
GROUND CREW................................ CLEAR

BEFORE TAKEOFF
FLAPS............................ CONFIG _____(PF/PM)
FLT CTLS........................... CHECKED (PF/PM)
LOADSHEET.................ACKNOWLEDGED (PF/PM)
T/O DATA............... RW_____CHKD & SET (PF/PM)
EFIS.......................... SET FOR DEP (PF/PM)
BRIEFING.............................COMPLETE (PF/PM)
T/O MEMO.............................T/O, NO BLUE

T.O	- SIGNS..............ON	- AUTO BRK.........MAX
	- SPLRS ....ARM	- TO CONFIG ......NORM
	- FLAPS................TO	

..........................FINAL ITEMS..........................
CABIN.......................................READY
PACKS............................ON/OFF (PF/PM)

AFTER TAKEOFF
GEAR...UP
FLAPS..UP
PACKS...ON

DESCENT
BRIEFING/MSA.............. COMPLETE/_____(PF/PM)
MINIMA...........................MDA/DH_____SET (PF/PM)
STATUS .... CHECKED

LANDING
CABIN ....READY
ALTIMETER...........................QNH_____SET (PF/PM)
AUTOBRAKE................................OFF/_____
..........................FINAL ITEMS..........................
A/THR.......................................SPEED/OFF
LDG MEMO..........................LDG, NO BLUE

| LDG | - L/G..............DOWN | - SPLRS ....ARM |
| | - SIGNS..............ON | - FLAPS...............SET |

SHUTDOWN
PARK BRAKE.....................................ON
ENG RUNDOWN..........................NORMAL
SEAT BELTS.....................................OFF
EXT LTS..SET
FUEL PUMPS.....................................OFF
FLAPS..UP
SPOILERS.................................DISARM
RADAR/PWS .... OFF

SECURING
OXYGEN...OFF
ADIRS...OFF
APU BLEED and APU...........................OFF
EMER EXIT LT....................................OFF
NO SMOKING.................................... OFF
BATTERIES......................................OFF