

FreyFlight 

VOLUME 2

MASTERING THE iFLY 737 MAX

From Cold & Dark to Shutdown

THE PRACTICAL TRAINING GUIDE FOR
VIRTUAL 737 PILOTS



PRACTICAL
Step by step
to a successful flight



DETAILED
All systems, indications
and procedures explained



EASY TO UNDERSTAND
Background knowledge, practical tips
and common mistakes



FOR MICROSOFT FLIGHT SIMULATOR 2020

iFLY 737 MAX 8 - CURRENT VERSION

CHAPTERS 1 TO 11 • APPENDIX

FROM INITIAL POWER-UP TO COMPLETE SHUTDOWN

Friedbert "Bert" Frey



LEGAL NOTICE

Mastering the iFly 737 MAX

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Note on the Illustrations

The cockpit illustrations and screenshots used in this book were created by the author using the iFly 737 MAX for Microsoft Flight Simulator. They are intended solely to illustrate the operation, systems, displays, and procedures of the iFly 737 MAX.

The iFly 737 MAX is the simulation model covered in this book. This book is not an official manual for the iFly 737 MAX. Depending on the version of the simulation software, displays, controls, functions, and operating procedures may differ in detail.

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iFly 737 MAX8 for Microsoft Flight Simulator

For more information on the simulation model used and to purchase via Flight1:

<https://www.flight1.com/products.asp?pid=iflymax8&vid=flt1sf>

This practical manual is intended exclusively for use in the flight simulator. It is not a substitute for real-world flight training, approved aircraft documentation, or official operations or safety manuals.

Foreword

Welcome to FreyFlight.

This book was born out of a passion for flight simulation. It is aimed at simulator pilots who want to not only operate the iFly 737 MAX but also understand it. The goal is to convey the procedures of a realistic commercial flight in a clear, practical, and step-by-step manner.

The focus is not only on the individual switches and systems, but above all on the question: Why is a particular action performed, and what impact does it have on the rest of the flight?

All cockpit screenshots, illustrations, and practical examples are taken from the author's own flights in Microsoft Flight Simulator using the iFly 737 MAX. As a result, this manual is consistently oriented toward practical application rather than a purely theoretical description of the systems.

Each chapter builds on the previous one—from flight preparation through Cold & Dark, FMC programming, takeoff, cruise, and approach, all the way to landing and shutdown. The instructions are supplemented with practical tips, background information, and pointers on common mistakes, so that what you learn can be immediately put into practice in the simulator.

I hope you enjoy reading this and have successful flights at all times.

Friedbert "Bert" Frey
FreyFlight

Volume 2 - Contents at a Glance

This preview includes the opening pages of the book and an extract from Chapter 2, "Cold & Dark through Pushback".

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FREYFLIGHT • iFLY PRACTICAL MANUAL

Chapter 2

Cold & Dark through Pushback

Power • IRS • SimBrief • FMC • APU • Pushback

KAPITEL 1 – COCKPIT ÜBERBLICK
OVERHEAD PANEL
iFLY 737 MAX

Das Overhead Panel enthält die wichtigsten Systeme für Stromversorgung, Druckluft, Klimatisierung, Hydraulik, Beleuchtung und viele weitere Funktionen. Die meisten Schalter werden vor dem Start eingestellt und danach nur noch bei Bedarf verändert.

1 FLIGHT CONTROL
 A: Roll (Querruder)
 B: Yaw (Seitenruder)
 Disengage: Elektrische Trimmung aus.

2 STANDBY HYDRAULIC
 Alternatives Hydrauliksystem (B): Normal OFF. Nur bei Versagen des Systems A verwenden.

3 SPOILER
 Armed: Spoiler können bei Bodenerkennung ausfahren. Normal: ON

4 YAW DAMPER
 Beide: ON
 Erhöht die Richtungsstabilität am Boden und im Flug.

5 NAVIGATION LIGHTS
 POSITION: Positionslichter
 NAV: Navigationslichter Logo: ON

6 DC AMPS / AC VOLTS
 Anzeige der elektrischen Belastung (Ampere) und Spannung (Volt).

7 CIRCUIT BREAKER
 Zieht einen Schalter heraus, um den Stromkreis zu unterbrechen.

8 PANEL BRIGHTNESS
 Helligkeit der Instrumentenbeleuchtung: Nach rechts drehen = heller.

9 LAVATORY
 Lavatory Power and Water Heater. Normal ON.

10 STANDBY POWER
 BAT: Batterie ON
 AUTO: Schaltet die Batterie bei Bedarf automatisch zu.

11 FUEL PUMPS / CROSSFEED
 FWD / AFT PUMPS: ON
 CROSSFEED: Normal OFF (bei Bedarf ON).

12 ENGINE START
 1 und 2: Triebwerksstartschalter (Normal: L = 1, R = 2) GRD position zum Starten.

13 WINDOW HEAT / PROBE HEAT
 Verhindert Vereisung der Windschutzscheiben und Staudrucksonden. Normal ON.

14 AIR CONDITIONING
 PACKS: AUTO
 TRIM AIR: OFF (am Boden) AIR TEMP: nach Bedarf

15 RECIRCULATION / ISOLATION
 RECIRC FANS: AUTO
 ISOLATION VALVE: AUTO

16 ANTI-ICE
 WING ANTI-ICE: ON (bei sichtbarer Feuchtigkeit / Vereisung)
 ENG ANTI-ICE: ON (bei Bedarf)

17 LIGHTS
 LANDING: ON beim Start und unter 10.000 ft
 LOGO, POSITION, STROBE: nach Bedarf.

VOR DEM START – TYPISCHE EINSTELLUNGEN

✓ Battery ON	✓ Yaw Damper ON
✓ APU ON	✓ Window Heat / Probe Heat ON
✓ APU Bleed ON	✓ Transponder (im Pedestal) TA/RA
✓ Packs OFF	✓ Autobrake (Pedestal) RTO
✓ External Lights nach Bedarf	

MERKSÄTZE

- Erst Strom – dann Luft – dann Triebwerke starten.
- Packs OFF am Boden für maximalen Bleed Air Druck.
- RTO (Rejected Takeoff) vor dem Start einstellen.
- Nach dem Abheben: Packs AUTO, APU Bleed OFF.

TYPISCHE FEHLER

- ✗ Packs vergessen auszuschalten → zu wenig Bleed Air Druck.
- ✗ APU Bleed vergessen → Triebwerke starten nicht.
- ✗ Crossfeed vergessen zu schließen nach dem Tanken.
- ✗ Anti-ice unnötig auf ON → unnötiger Verschleiß.

LEGENDE

■ Anzeige / Licht
 ○ Schalter / Drehregler

Figure 1: Overhead Panel—the key systems for cockpit preparation

Objective: By the end of this chapter, the iFly 737 MAX will be fully prepared at the gate: the flight plan and performance data will be loaded, the APU will be running, and the aircraft will be ready for pushback and engine start.

1. What does “Cold & Dark” mean?

“Cold & Dark” means: The engines are not running, the APU is off, and the cockpit is largely without power. The aircraft is secured at the gate. In this chapter, we’ll systematically bring the aircraft up to operational status—first power, then navigation and flight planning, followed by APU and pushback preparation.

Chapter boundary: The actual engine start is covered in detail in Chapter 3. Chapter 2 ends exactly where pushback begins and engine start clearance has been granted.

1.1 Check the Initial Status

Scope	Desired State	Why is this important?
Parking position	Aircraft at the gate, wheels secured	Prevents unintended movement.
Parking Brake	SET	Secures the aircraft until the pushback instruction is given.
Landing Gear	DOWN, three green indicators after power-up	The landing gear must be extended and locked.
Engine Start Levers	CUTOFF	No fuel must enter the engines.
Thrust Levers	IDLE	Initial position for takeoff preparation.
Flap Lever	UP	Flaps are set later based on takeoff performance.
Speedbrake	DOWN	Spoilers retracted; move them later for control.
Fuel Control / Engine Fire Switches	Normal, not pulled	Systems remain connected and ready for takeoff.

2. Basic Electrical Supply

Step 1 – Turn on the battery

Operation: Set BATTERY to ON. Check that STANDBY POWER is set to AUTO. The protective caps remain closed.

Check: Displays and warning lights come on. BAT DISCHARGE may initially appear as long as no external power source is connected.

Why? The battery provides the initial power supply and enables, among other things, the APU to start.

Caution: Do not operate exclusively on battery power for long periods; use the GPU or APU as soon as possible.

Step 2 – Check emergency and utility power

Operation: Set EMERGENCY EXIT LIGHTS to ARMED; set CAB/UTIL and IFE/PASS SEAT to ON as needed.

Verification: The NOT-ARMED warning is off. No unexpected electrical warnings remain.

Why? The emergency lighting can automatically take over in the event of a power failure.

2.1 Ground power or APU?

Power Supply	Advantage	Operation	When is it appropriate?
GPU / Ground Power	Quiet, no APU power consumption	When the “GRD POWER AVAILABLE” light is on: Set GRD POWER to ON.	Longer preparation time at the gate.
APU	Independent; provides starter air later	Start the APU, switch on APU GEN.	No later than shortly before pushback/engine start.

Practical recommendation: If ground power is available, use the GPU first and start the APU only a few minutes before pushback. In the simulator, you can also start the APU immediately after the battery.

3. Turn on and align the IRS

The two Inertial Reference Systems provide attitude, heading, and position data. Without an aligned IRS, important displays remain incomplete, and LNAV/VNAV cannot operate reliably.

Step 3 – Set the IRS selector switches

Procedure: First, turn the IRS L and IRS R switches from OFF to NAV.

Verification: The ALIGN indicators light up. The alignment phase begins on the displays.

Why? NAV is the normal operating position for the entire flight.

Caution: Do not move the aircraft while ALIGN is active. With your iFly setting “IRS Fast Alignment,” alignment takes only a short time.

Step 4 – Confirm the reference position

Procedure: On the CDU, select INIT REF → POS INIT. Enter the GPS or gate position into the scratchpad line and paste it into SET IRS POS.

Verification: Both IRS units reach NAV; ALIGN goes out, and the PFD/ND display complete navigation data.

Why? The entered position provides the starting point for the IRS.

Caution: Do not accidentally enter outdated or incorrect coordinates.

Tip: Turn on the IRS first—then take your time programming the EFB and FMC. This way, the alignment time runs during flight preparation.

4. EFB and SimBrief

The iFly 737 MAX Electronic Flight Bag imports the flight plan, load, fuel, and performance data. Your screenshot shows the en-route map with the key import buttons.



Figure 2: iFly EFB – SimBrief import and transfer to the FMC or aircraft

4.1 Meaning of the EFB Buttons

Button	Function	Recommended Use
Import SimBrief Flight	Loads the most recently generated SimBrief flight into the EFB.	Always press this first; check departure, destination, and route.
Send Flight Plan to FMC	Primarily transfers the route to the FMC.	Useful when cargo and fuel need to be checked separately.
Send All Data to Aircraft	Transfers the route and other flight/load data to the aircraft.	Convenient, but be sure to check the ZFW, fuel, and FMC data afterward.
Auto Generate Route	Generates a route without importing from SimBrief.	Use this only as an alternative; your normal workflow uses SimBrief.

Warning: “Send All Data to Aircraft” may overwrite existing FMC and aircraft data. Therefore, import the data first, then check all values, and only then make your own changes.

4.2 SimBrief Import – Recommended Procedure

- ☐ 1. Generate the current OFP in SimBrief and ensure the airframe/iFly configuration is correct.
- ☐ 2. Check the SimBrief Pilot ID in the EFB.

- ☐ 3. Click “Import SimBrief Flight.”
- ☐ 4. Compare the departure, destination, route, and planned fuel with the OFP.
- ☐ 5. Select “Send Flight Plan to FMC” or, if desired, “Send All Data to Aircraft.”
- ☐ 6. Never press “EXEC” in the FMC without checking first: Check RTE and LEGS thoroughly first.

5. Fully Prepare the FMC/CDU

The FMC is the flight management computer; the CDU is the device with a screen and keyboard that you use to operate it. The following sequence is a reliable procedure.



Figure 3: CDU on the PERF-INIT page; Autobrake and Speedbrake to the right of it

5.1 IDENT and POS INIT

Step 5 – Check IDENT

Procedure: Press INIT REF and check the IDENT page: aircraft type, engine data, and valid navigation data cycle.

Verification: The data matches the iFly 737 MAX and the AIRAC being used.

Why? An incorrect or outdated AIRAC can result in missing SIDs, STARs, or waypoints.

Step 6 – Fill in POS INIT

Procedure: Access POS INIT, enter the gate/stand, and apply the current GPS position under SET IRS POS.

Verification: IRS alignment is in progress or complete; the position is plausible.

Why? The FMC and the IRS use the same starting point.

5.2 Enter and Verify the Route

Step 7 – RTE Page

Procedure: Verify ORIGIN, DEST, FLIGHT NO., and the route from SimBrief. If setting up manually, enter airways and waypoints.

Verification: Departure and destination are correct; the route is activated but has not yet been flown blind.

Why? Importing saves typing, but does not replace the verification process.

Step 8 – Select DEP/ARR

Procedure: Select the departure path and SID, as well as the STAR and approach—if already known.

Verification: The runway and procedures match SimBrief, the weather, and the ATC clearance.

Why? ATC may assign a different runway or STAR later; in that case, change DEP/ARR accordingly.

Step 9 – Thoroughly Check LEGS

Procedure: Scroll through the LEGS pages. Check the order, headings, distances, and speed/altitude restrictions.

Check: No unexplained ROUTE DISCONTINUITY; no implausible jumps or route reversals.

Why? Only delete a DISCONTINUITY if the two waypoints are actually supposed to be connected directly.

5.3 PERF INIT – Explanation of your screenshot

Field	Meaning	Input / Check
GW / CRZ CG	Total weight and center of gravity in cruise flight	Often calculated from ZFW and fuel; check for plausibility.
PLAN/FUEL	Planned or available fuel	Compare with SimBrief Block Fuel and EFB.
ZFW	Zero Fuel Weight: Aircraft including cargo, excluding usable fuel	Import from EFB; central value for all weight calculations.
RESERVES	FMC reserve value	Enter the planned reserve from SimBrief as appropriate; no additional fuel load.
COST INDEX	Ratio of time costs to fuel costs	Enter your planned SimBrief score, e.g., CI 30.
CRZ ALT	Planned cruising altitude	Enter the value from SimBrief, e.g., FL360 as 360.
CRZ WIND	Cruising wind	Optional from OFP; improves calculation.
ISA DEV	Deviation from standard temperature	Optionally imported from SimBrief.
T/C OAT	Temperature at the top of the climb	Optional; improves performance calculation.
TRANS ALT	Transition Altitude	For the departure airport as per map/ATC; 18,000 ft on your screen.

Important: Check ZFW, available fuel, reserves, Cost Index, and CRZ ALT before every flight—even after “Send All Data to Aircraft.”

5.4 N1 LIMIT and TAKEOFF REF

Step 10 – N1 LIMIT

Operation: Select the appropriate takeoff thrust mode. Use derate or assumed temperature only in accordance with the EFB performance data.

Verification: The takeoff N1 is plausible and matches the performance calculation.

Why? Excessive thrust reduction without a correct calculation is not permitted—and is not advisable even in the simulator.

Step 11 – TAKEOFF REF

Procedure: Enter or confirm the takeoff flaps, center of gravity/trim, and V1, VR, and V2 values from the performance calculation.

Check: V-speeds appear on the PFD; the trim value matches the stabilizer trim set later.

Why? Flaps and trim must match the calculated takeoff configuration.

6. Load and refuel the aircraft

After importing the data, the passenger, cargo, maximum takeoff weight (MTOW), and fuel must all match. What matters is not only the display in the EFB, but also the consistency between the EFB, FMC, and SimBrief-OFP.

Value	Comparison	Typical error
Passengers / Cargo	EFB vs. SimBrief Payload	Import completed, but payload not sent to the aircraft.
ZFW	EFB vs. FMC PERF INIT	Outdated value following a loading change.
Block Fuel	EFB/Fuel display vs. SimBrief	Units (kg/lb) mixed up.
Takeoff Weight	FMC/EFB vs. permissible weight	Payload or fuel quantity too high.
CG / Trim	EFB Takeoff Performance vs. TAKEOFF REF	Trim not applied or incorrect flap configuration.

Units: Your iFly configuration typically uses kilograms. Before each entry, check that SimBrief, EFB, and FMC are using the same unit.

7. Start the APU

The APU supplies electrical power and bleed air for engine start. It is started no later than a few minutes before pushback.

Step 12 – Prepare to Start the APU

Operation: Set BATTERY ON and ensure a fuel supply. If AC power is available, the left AFT fuel pump can be turned on; the APU also has its own engine start power supply.

Check: Sufficient fuel available; no APU FAULT indicator.

Why? The APU cannot start without fuel and a battery.

Step 13 – Start the APU

Procedure: Move the APU switch from OFF to ON, wait briefly, then turn it to START (spring-loaded) and release.

Check: APU EGT rises in a controlled manner. After ramp-up, the APU GEN indicators show availability; the LOW OIL PRESSURE indicator goes out.

Why? The START switch automatically returns to the ON position.

Caution: Do not hold the switch in the START position continuously, and do not interrupt the ramp-up by switching the switch back and forth rapidly.

Step 14 – Engage the APU generator

Procedure: Switch APU GEN 1 and APU GEN 2 to ON. If the GPU was used, disconnect ground power afterward.

Check: TRANSFER BUS OFF and SOURCE OFF are off; the electrical supply is stable.

Why? The APU now takes over both electrical transfer buses.

Don't forget: APU BLEED is required for engine start. You can turn it on as part of the Before-Start configuration; the packs will then be turned off to achieve maximum start pressure.

8. Prepare the overhead for pushback

System	Position Before Pushback	Check / Note
YAW DAMPER	ON	Aligned with IRS; warning light off.
MAIN FUEL PUMPS	ON	All pumps for the filled main tanks are ON.
CENTER PUMPS	ON only if there is sufficient center fuel	If the tank is empty or nearly empty, OFF; watch for LOW PRESSURE.
HYD ENG PUMPS	ON	Pressure is generated only when the engines are running.
HYD ELEC PUMPS	Follow pushback/airline procedures	Do not operate unnecessarily during pushback; switch on as needed no later than during takeoff preparation.
WINDOW HEAT	ON	All four window heaters; no OVERHEAT warning.
PROBE HEAT	AUTO/ON according to iFly option	Active for the flight; check display.
PACKS	AUTO during preparation; OFF for pneumatic engine start	Switch immediately before engine start.
ENGINE BLEEDS	ON	Ready for takeover after engine start.
ISOLATION VALVE	AUTO	For normal start procedure.
APU BLEED	ON before engine start	Provides air to the starter.
EMER EXIT LIGHTS	ARMED	Protective cover closed.
SEAT BELTS	ON	Secure the cabin for pushback and takeoff.
BEACON	ON Immediately before pushback/engine start	Alerts ground personnel.

9. MCP, Pedestal, and Cockpit

Control	Desired state	Note
Flight Directors L/R	ON	Flight guidance for takeoff.

FreyFlight - Volume 2

End of Book Preview

Mastering the iFly 737 MAX

The complete edition guides you step by step from Cold & Dark through FMC programming, engine start, takeoff, cruise and descent to approach, landing and the safe shutdown of the iFly 737 MAX.

From initial power-up to complete shutdown.

More information about the FreyFlight book series:

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