-FS2Crew2010: iFLY 737NG Edition-

MAIN OPERATIONS MANUAL

-ALWAYS CHECK THE FS2CREW SUPPORT FORUM AT AVSIM.COM FOR THE LATEST FS2CREW NEWS AND UPDATES-

TUTORIAL FLIGHT

STEP 1 (Adding FS2Crew to the iFly Panel.cfg):

1. Unlike with other versions of FS2Crew, there is <u>no</u> requirement for the 'FS2Crew Configuration Manger' for this iFly version, for the simple reason that it is not necessary!
2. To add or remove FS2Crew for the iFly 737, simply check (or uncheck) the button on the iFly Config Manager that says 'Enable FS2Crew' and then press 'Update'.
3. Ensure everything is run with Admin Rights to avoid any write permission issues that may prevent the Config Manager from adding FS2Crew to the 737's panel.cfg file.
4. MAKE SURE WEIGHT IS ADDED TO 'EACH' MODEL (CARGO, FUEL, ETC) OR THE AIRCRAFT WILL SPIN AROUND WHEN YOU LOAD IT! THE AIRCRAFT CANNOT BE EMPTY!

STEP 2 (Main Button Setup):

1. Let's set up the **Main Button** assignment. In the **CONTROLS – ASSIGNMENTS MENU**, assign any desired joystick button or keyboard button (or both) to:

   P3D: "ALTERNATE STATIC SOURCE ON/OFF"
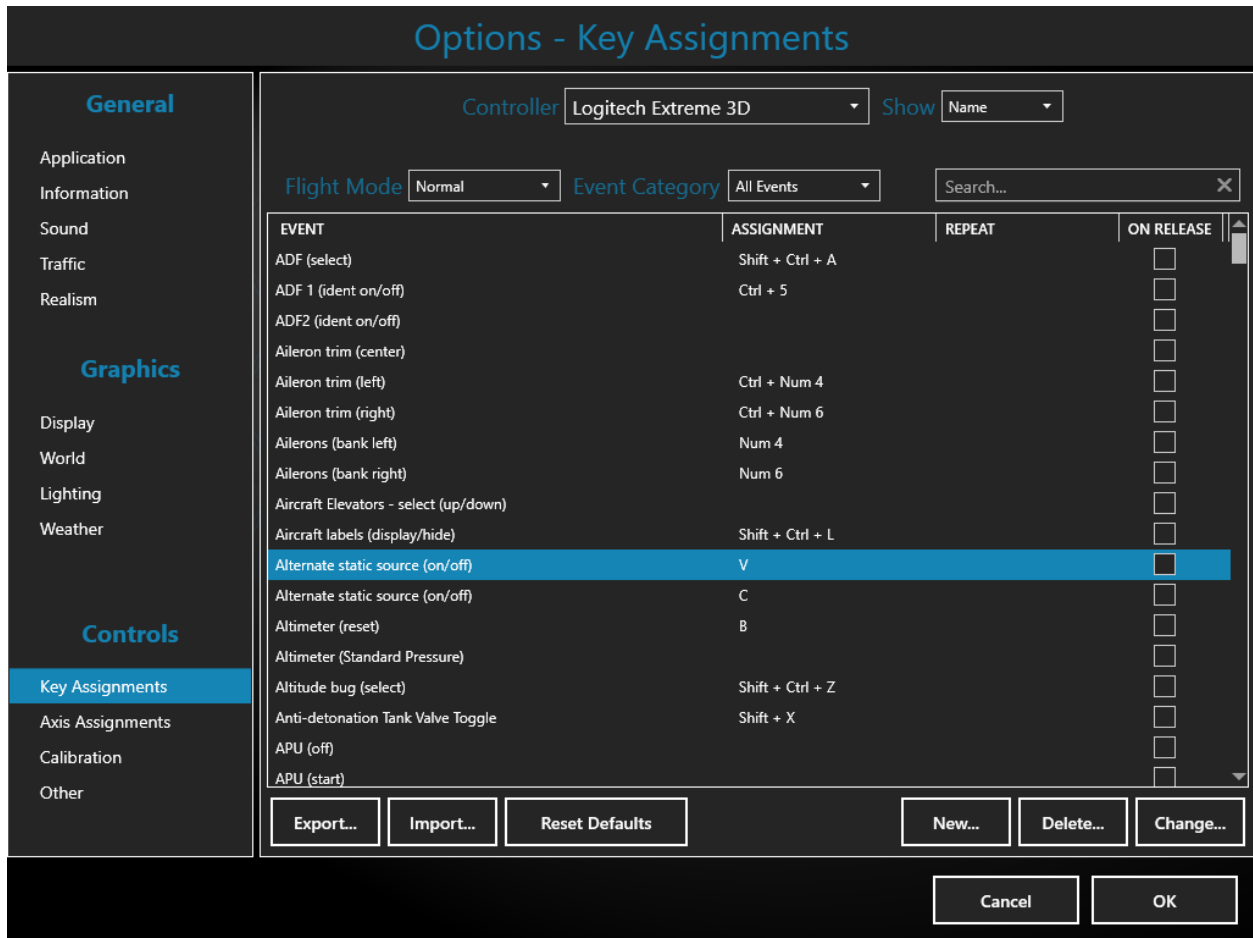
STEP 3 (Secondary Button Set Up):

1. Let's set up the **Secondary Button** assignment. In the **CONTROLS – ASSIGNMENTS MENU**, assign any desired joystick button or keyboard button (or both) to:

   P3D: "PROPELLER SYNC ON/OFF"
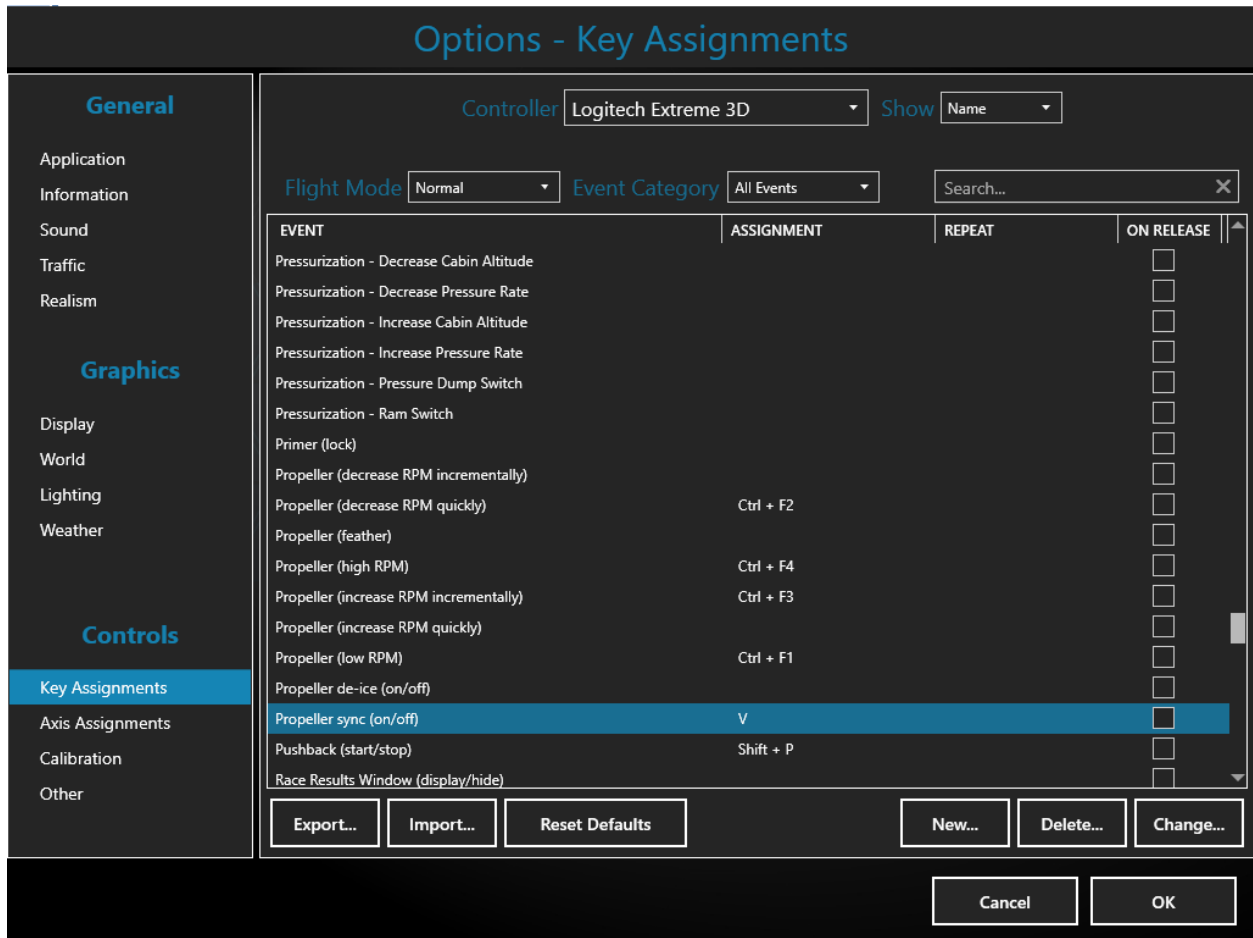
STEP 4 (Opening the Main Panel via a Clickspot):

1. To open the FS2Crew Main Panel, left click in the center area of the <u>Standby Attitude Indicator</u> in either the VC or 2D cockpit as shown below:

STEP 5 (Opening the Main Panel via a Key Assignment):

1. OPTIONAL: If you want to toggle open and close the FS2Crew Main Panel using a joystick button or keyboard press, you can do so by creating the following assignment. In the **CONTROLS – ASSIGNMENTS MENU**, assign any desired joystick button and/or keyboard button to:

   P3D: "AUTOFEATHER (ARM/OFF)"

Options - Key Assignments

Controller [Logitech Extreme 3D ▼] Show [Name ▼]

General

Application
Information
Sound
Traffic
Realism

Graphics

Display
World
Lighting
Weather

Controls

Key Assignments
Axis Assignments
Calibration
Other

Flight Mode [Normal ▼] Event Category [All Events ▼] [Search... ✕]

EVENT	ASSIGNMENT	REPEAT	ON RELEASE
Autobrake (decrease)			☐
Autobrake (increase)			☐
Autofeather (arm/off)	N		☐
Autopilot (decrease max bank)			☐
Autopilot (increase max bank)			☐
Autopilot (select NAV radio)			☐
Autopilot airspeed hold (on/off)	Ctrl + R		☐
Autopilot altitude hold (on/off)	Ctrl + Z		☐
Autopilot approach mode (on/off)	Ctrl + A		☐
Autopilot attitude hold (on/off)	Ctrl + T		☐
Autopilot back course mode (on/off)	Ctrl + B		☐
Autopilot heading bug (decrement)			☐
Autopilot heading bug (increment)			☐
Autopilot heading hold (on/off)	Ctrl + H		☐
Autopilot localizer hold (on/off)	Ctrl + O		☐
Autopilot Mach hold (on/off)	Ctrl + M		☐
Autopilot master (on/off)	Z		☐
Autopilot N1 hold (on/off)			☐

[Export...] [Import...] [Reset Defaults]   [New...] [Delete...] [Change...]

[Cancel] [OK]

STEP 6 (Understanding the Main Panel):

NOTE: The Panel will load "unpowered" (displays off). Press the 'PWR' button to turn the unit on!

From Left to Right:

SK: Used to quickly skip or advance between different major points (such as different Checklist sections) in the Checklist/Commands list.

LEFT DISPLAY: Main Button Display. Displays the next checklist item or command that will be actioned when the Main Button is pressed.

Yellow text: Checklist Item.

White text: Command item (example: Gear Down).

ARROWS: Used to manually cycle to the next (or go back to the previous) available checklist item or command listed in the Main Button Display screen.

Note that the Checklist items/Commands will auto-cycle to the next position in the expected sequence of events. However, should you wish to skip to a particular item, you can use the arrow buttons to do so.

You might also want to use the arrow buttons to skip to particular item or checklist if you used a Saved Flight and you don't wish to start from the beginning of the FS2Crew flow.

RIGHT DISPLAY: Secondary Button Display. Displays the next command that will be actioned when the Secondary Button is pressed.

Note: When the Pre-Flight events time to departure counter is running, the time to engine start/departure will be displayed as a numeric value in yellow (T + XX).

Left click this value directly to fast forward the time down to engine start in one minute increments.

ARROWS: Used to manually cycle to the next (or previous) available checklist item or command listed in the Secondary Button Display panel.

Note: Generally, you should never need to use this function as FS2Crew is programmed to flow seamlessly through each stage of flight.

HS: Toggles the Headset on/off. If enabled, the First Officer's (FO's) voice will be routed through your headset.

Note: The audio device associated with your headset must be selected in the FS2Crew CFG Panel.

Note: Not all FO audio will be routed through your headset even if 'Headset' is selected. Some FO dialog, such a pre-flight conversations, will still go through your speakers as the FO would not normally be wearing his headset until closer to engine start.

BR: Opens/closes the FS2Crew Departure/Approach Briefing Panel. *Note: depending on your screen resolution, you may need to 'drag' the panel up to see the entire text.*

FA: Flight Attendant Call Button. Press to contact the FA.

PA: Opens/closes the FS2Crew Public Address Panel.

CFG: Opens/closes the FS2Crew Config Panel.

LK: 'Locks' all panels and forces them to remain open even if you switch views.

LT: Toggles on/off night lighting.

VOL: Controls volume of the FO.

CAB: Controls volume of the Cabin Announcements.

PWR: Toggles on/off the power.

RIGHT SCREW: Closes Main Panel.

STEP 7 (Understanding the Config Panel):

To open the Config Panel, press the **CFG** button on the FS2Crew Main Panel.

AUDIO SETUP:

HEADSET: If using a headset, the audio device associated with that headset <u>must</u> be selected here.

CREW REGION: Select the available Crew Accent voice set/region.

PRE-FLIGHT:

TIME: Time remaining to Departure/Engine Start. To 'Pause' the timer, hit the FS 'Pause' button ('P') on your keyboard.

PWR SRC: Power Source to be used during at the Departure and Arrival Gate(APU or External Power and Air). The FO will bring the selected power source on line during his initial setup routine.

Note: If using External Power, you are responsible for manually starting the APU if needed for engine start. You are also responsible for disconnecting external power.

RUN PF: Starts the Pre-Flight Events.

Note: Running the Pre-Flight Events is <u>OPTIONAL</u>. You do not need to run it for every flight.

Note: To Fast Forward the time down, left click the Time Remaining value (T + XX) displayed in the Secondary Display Panel on the Main Panel. Click <u>directly on the number itself</u>.

AES: If using AES, select 'Yes'. If 'Yes' selected, FS2Crew will not control the doors or air bridge.

DOORS: If you want FS2Crew to control the outer doors, select 'Yes'.

GATE DEP: If departing from a Gate, select 'Yes', otherwise select 'No.' If 'No' is selected, FS2Crew will deploy the airstairs.

GATE ARR: If arriving at a Gate, select 'Yes', otherwise select 'No.' If 'No' is select, FS2Crew will deploy the airstairs.

START-CREW:

PB REQ: Pushback Required (Yes or No).

DIST: Pushback Distance.

TAIL: Left, Right or Straight.

ANGLE: Final Pushback Tail Angle.

STEP 8 (Running the Pre-Flight Events and starting the plane in a Cold and Dark state):

1. Print out Appendix E and F from this manual. The most important thing is that you understand the crew flows and their associated triggers.   The flows are the heart of this software.
2. Load the iFly 737NG then load the "Cold and Dark" iFly 737 Panel State.
3. Let's get going!   Open the FS2Crew Main Panel by left clicking the Standby Attitude Indicator.
4. Press the **PWR** button on the FS2Crew Main Panel to power-up the FS2Crew unit. The FS2Crew displays will then come alive.
5. Next, open the Configuration Panel (CFG), and press the **RUN PF** button. Note that the time remaining to engine start/departure, which starts at plus 30 minutes, and which is visible in the Secondary Display panel on the Main Panel, will begin counting down.

      Note that running the Pre-Flight events is OPTIONAL. You do not need to run the pre-flight events for every flight!

STEP 9 (Controlling your crew – it's very easy!):

1. The FO will perform his flows as described in Appendix H, so in order to follow his actions make sure you have printed out Appendix H!
2. Use the Main Button to call for items/checklists listed in the Main display Panel. Use the Secondary Button to call for items/commands listed in the Secondary display Panel.
3. The Main and Secondary Panel will show which item comes next in sequence, so it's just a matter of following the sequence.
4. It's important that you always setup the FMC for each flight! FS2Crew requires the data from the FMC to activate various events during the flight.

 PRINT OUT APPENDIX H (THE CREW FLOWS). THE CREW FLOWS ARE THE MOST IMPORTANT PART OF THIS MANUAL.

 FS2CREW READS A LOT OF USER ENTERED DATA ENTERED FROM THE FMC. YOU SHOULD SETUP AND USE THE FMC FOR EACH FLIGHT FOR FS2CREW TO WORK PROPERLY!

APPENDIX A: GO AROUND PROCEDURES:

To initiate a go around, press the Secondary Button while "Missed Approach" is displayed in the Secondary Display Panel.

Press the Secondary Button again to call for Flaps 15.

The remaining calls and procedures, which are actioned using the Main Button, are identical to those used during a normal climb-out sequence.

APPENDIX B: NOISE ABATEMENT DEPARTURE PROFILES (NADP)

The following two profiles may be used during the initial climb sequence. These profiles were formally known as ICAO 'A' and 'B' respectively. During departure, the sequence of calls as displayed in the Main and Secondary Windows will vary depending on which of these NADP's was selected on the FS2Crew Departure Brief page.

NADP 1:

- From runway to 1500 AGL:

       *Takeoff Power & Takeoff Flaps
       *Climb at V2 + 10 to 20 Knots

- At 1500 feet AGL:

       *Reduce to Climb Thrust & continue climbing at V2 + 10 to 20 Knots

- At 3000 feet AGL:

       *Accelerate to Flaps Up Speed
       *Retract Flaps/Slats on Schedule

NADP 2:

- From runway to 1000 AGL:

       *Takeoff Power & Takeoff Flaps
       *Climb at V2 + 10 to 20 Knots

- At 1000 feet AGL:

       *Accelerate to Flaps Up speed
       *Retract Flaps/Slats on Schedule
       *When flaps up, maintain Flaps Up speed + 10 knots maximum

- At 3000 feet AGL:

       *Accelerate to en-route climb speed

APPENDIX C: USING EXTERNAL POWER/AIR

If External Power/Air has been selected as the power source for pre-flight, FS2Crew will automatically connect External Power and Air after you start the Pre Flight Events sequence.

Note: If want to use the APU for engine start, you will need to manually start the APU prior to Engine start and <u>turn on the APU Bleed</u> before commencing the engine start sequence. You will also need to confirm on the FS2Crew Config Panel that the Ground Power/Air option has automatically updated to 'APU' (the APU bleed switch is the trigger for this to occur. Time remaining to engine start must also be less than 25 minutes). If it remains on EXT, the FS2Crew FO will think you're still using External Power/Air and act accordingly.

Note: Due to the way the iFly 737NG works, the parking brake must be set in order for ground power to connect or stay connected. Be mindful of this during shutdown when the engineer gives you the okay to release the parking brakes.

Note: When using External Power/Air for start with Pushback required, you have two options:

Option #1: Start Both Engines at the Gate Prior to Pushback:

      i)   *In the 'PB REQ' box select the ← option.*
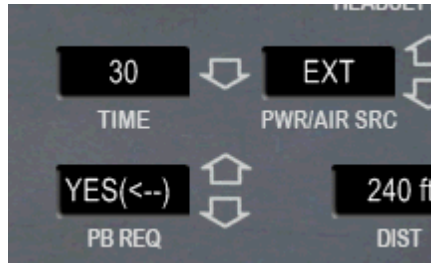
ii)   *The ← indicates that you will start both engines <u>prior</u> to pushback.*

iii)   *After starting engine #1 (the left engine), manually connect the left engine generator to the bus and switch the Ground Power Switch on the overhead to 'off'.*

iv)   *Next, instruct the ground crew to disconnect external air and the GPU. Be sure to do this AFTER you have connected Engine Generator 1 to the bus or you will lose power.*

v)   *The ground crew will clear you to Start #2 when he informs you that the external air and power have been removed.*

vi)   *Follow the prompts to complete the pushback.*

Option #2: Start Left Engine at Gate and Right Engine at end of Pushback:

i)   *In the 'PB REQ' box select the → option.*

ii) The → indicates that you will start the left engine prior to pushback and the right engine at the end of the pushback.

vii) After starting engine #1 (the left engine), manually connect the left engine generator to the bus and switch the Ground Power Switch on the overhead to 'off'.

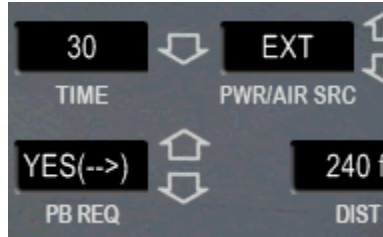iii) Next, instruct the ground crew to disconnect external air and the GPU. Be sure to do this AFTER you have connected Engine Generator 1 to the bus or you will lose power.

iv) Start Engine 2 when cleared by the ground crew. The ground crew will clear you to start Engine 2 near the end of the pushback sequence.

v) Follow the prompts to complete the pushback.

APPENDIX D: THRU FLIGHT PROCEDURES

FS2Crew models thru-flight procedures. You do not need to reload the aircraft to fly a 2nd leg.

To make a thru flight, simply cycle the Left Display forward using the down arrow button to return to the 'Pre-Flight Checklist'. Do this after completing the 'Shutdown' checklist. Do not run the 'Secure' aircraft checklist as you would only do that if it was the last flight of the day and you were handing the aircraft over to engineering.

Next, start the 'Pre-Flight Events' if desired, and follow the same procedures used during the 1st leg. Note that the FO will not perform all the same actions during his pre-flight setup flow as many of the items are only done on the first flight of the day only.

APPENDIX E: DE-ICING PROCEDURES

FS2Crew models de-icing procedures. If the temperature is below 5 degrees C, you will be presented with the option to call for de-icing during the pre-flight events routine (at approximately 14 minutes remaining to engine start). If you do NOT want to be de-iced, simply ignore the prompt!

If you do not wish to use the de-icing services, simply ignore the prompt. You can run the de-icing procedure either at the gate (prior to engine start) or at a remote de-icing pad.

Just prior to de-icing, and if you want to de-ice at the gate, press the Secondary Button to call "DE-ICE CHECKS". This prompt will display at approximately 1 minute remaining to engine start after you have 'thanked' the FA when he/she tells you the cabin is ready for departure.

Note: If you plan to de-ice at a remote pad, call for the "DE-ICE CHECKS" when you arrive at the remote de-icing pad. If you plan to de-ice at the gate, run the de-ice checks prior to starting the engines.

The FO will then perform his de-ice prep flow: APU Bleed Off and Engine Bleeds Off. As Captain, you are responsible for setting the stab trim full nose down. The FO will leave the APU running if it is on. If you wish to have the APU off during de-icing, you must manually shut-it down, however, ensure the ground power is connected or you will lose power. If you're at a remote pad, leave the engines running. Make sure Wing Anti-Ice is off.

After the FO has completed his de-icing flow, press the Secondary button again to call "READY FOR DE-ICE" to tell the De-Ice coordinator that you're ready to start the de-icing.

The de-icing team will then de-ice the aircraft. This takes approximately 3 minutes.

When de-icing is complete, the De-Ice Coordinator will radio you, and provide you with his employee number, the start and end time, etc. Click the Secondary Button again to disconnect the De-icing Coordinator.

APPENDIX F: COLD WEATHER PROCEDURES

FS2Crew models cold weather procedures. If the route to the runway is heavily contaminated, you may wish to use cold weather procedures. This entails taxing to the runway with the flaps up, and then selecting the takeoff flaps prior to taking the runway. The way FS2Crew models it, you will call for the takeoff flap prior to calling for the Before Takeoff Checklist.

To enable cold weather procedures, select "**CONTAM – CLD PROC (Y)**" in the departure brief. Note that 'Y' stands for 'Yes'. If you select 'N' for 'No', the FO will not use cold weather procedures.

If you wish to use cold weather procedures at the arrival airport, select '**CONTAM – CLD PROC (Y)**' in the Approach Brief section. When this option is selected, the FO will <u>not</u> raise the flaps all the way up during his After Landing flow; instead, he'll only retract them to flaps 15. Once you arrive at the gate, the engineers would then inspect the flap tracks to ensure they are clear of snow and slush. Important: If the flaps are left down, you will need to manually raise them after being cleared by the ground crew to do so. You will also need to manually shut off the ELEC HYD PUMPS after the flaps have been raised.

APPENDIX G: CIRCUIT TRAINING/TOUCH AND GO'S

FS2Crew models circuits/touch and go's. To put FS2Crew into circuits mode, select 'CIRCUIT TRAINING' for the Approach Type. You would use this mode if you wish to make practice circuits. Circuits are modeled on the standard Boeing circuits profile.

Notes:

1. Automation is generally not used during circuit training.
2. Takeoff MUST USE FLAPS 5!
3. Downwind will be flown at Flaps 5.
4. On touchdown, the FO will automatically raise the Flaps to 15.
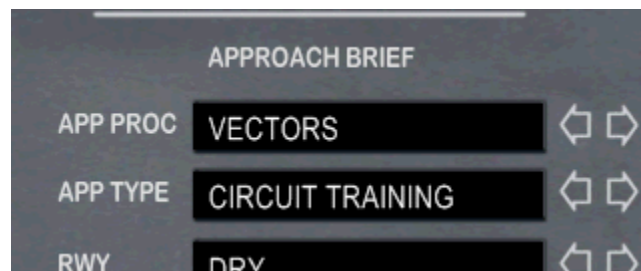
APPENDIX H: CREW FLOWS

B737NG CREW FLOWS

CAPTAIN/PILOT FLYING:

Pre-Flight

1. Set up 'Comm' and 'Nav' Radios and the 'FMC'.
2. Do not forget to enter the Transition Altitude on the FMC 'PERF INIT' page; the FO uses this altitude as the trigger to call "Transition Altitude".

```
COST INDEX          TRANS ALT
50                      18000
-------------------------------
<INDEX              N1 LIMIT>
```

3. Setup EFIS panel as desired.
4. Input the landing elevation in the pressurization panel.
5. Confirm speedbrake is in the down detent.
6. Call "PRE-FLIGHT CHECKLIST" after the FO has also finished his Pre-Flight procedure.
7. When ready, open the Departure Briefing Panel and perform the Departure Brief.

Before Start

1. Call "BEFORE START PROCEDURE" just prior to pushback.
2. Autopilot panel:
   i)   IAS selector in autopilot panel to V2.
   ii)   Initial heading set.
   iii) Initial altitude set.
3. Taxi and takeoff briefing.
4. Obtain Pushback/Start clearance.
5. Set Trim for takeoff.

6. Call "BEFORE START CHECKLIST".
7. At first movement or just prior to engine start, announce via the PA: "CABIN CREW ARM SLIDES". (Note there is no response in the simulation to this call).

Engine Start

1. Call "START (LEFT/RIGHT) ENGINE.
2. At approx 20 percent N2, select fuel lever to run (idle detent).

Before Taxi

1. After both engines have stabilized, arm autothrottle.
2. Call "FLAPS_____" as needed for takeoff (Unless Icing Conditions).
3. Check flight controls with slow and deliberate movements.
4. Call "BEFORE TAXI CHECKLIST".

Before Takeoff

1. Call "BEFORE TAKEOFF CHECKLIST" after FO informs you that the cabin is secure for takeoff.

Takeoff

1. Announce "CLEARED" when takeoff clearance received.
2. Call "TAKEOFF" when starting the takeoff roll.
3. Advance throttles to approx 40% N1. Let the engines stabilize. Then set takeoff power (press TOGA).

Climb

1. Call "GEAR UP" after PNF announces "POSITIVE RATE".
2. 400 feet: Call roll mode: "HEADING SELECT" or "LNAV".
3. 1500 or 1000 feet: Call "SET CLIMB THRUST" depending on your profile.
4. Call "SET FLAPS UP SPEED" or "LEVEL CHANGE" depending on profile NADP 1 or 2.
5. Call "FLAPS____" to retract the flaps on schedule.
6. After flap retraction is complete, call for VNAV.
7. Engage autopilot: "COMMAND A".
8. Call "AFTER TAKEOFF CHECKLIST".

Prior to Top of Descent

1. Set autobrake for landing.
2. Select the landing VREF and Flap on the INIT Page in the FMC.
3. Set the Decision Altitude or Decision Height.

   If shooting a CAT II or CATIII Monitored ILS approach, you must set the DH selector to <u>RADIO</u> and select a Radio Altimeter value (i.e., 100 feet, 50 feet, etc).

   If shooting a <u>non</u>-Monitored Approach (ILS, VOR, NDB, RNAV), then you must set the DH selector to <u>BARO</u>, and select the Barometric Decision Altitude as found on your approach chart.

   If shooting a normal CAT 1 ILS approach, the barometric Decision Altitude is usually 200 feet above the runway elevation. So, for example, if the runway elevation is 150 feet, the Decision Altitude (BARO) is probably about 350 feet.
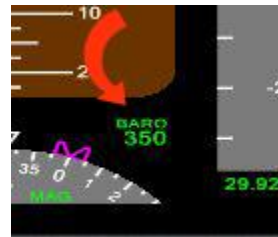
4. Set the Transition Level in the FMC 'DES FORECASTS' Page. The FS2Crew FO will use the entered value for his 'Transition Level' call.

```
            DES FORECASTS 1/1
     TRANS  LVL        TAI  ON/OFF
     18000             -----/-----
```

5. Brief for the Approach.
6. Call "DESCENT CHECKLIST".

Approach

1. Call "APPROACH CHECKLIST" at 10,000 feet or the Transition Level, whichever is lower.
2. Setup Nav Radios for the approach.

Landing

1. Call "FLAPS___" as required to bring the flaps down on schedule.
2. At glide slope alive, call "GEAR DOWN" and "FLAPS 15".
3. Call "LANDING CHECKLIST".
4. The FO will run the checklist but will hold the checklist at the landing flap challenge.
5. Call for the final landing flap.
6. The FO will then complete the landing checklist.
7. At 500 feet call "CLEARED".
8. At minimums call "LANDING" or "GOING AROUND".

After Landing

1. Speedbrake lever down.
2. If the taxiway is contaminated with snow or slush, set the stab trim full nose down (0 – 2 Units) to prevent melting ice/slush from getting into the balance bays.

Pre-Shutdown

1. When at the gate, set the parking brake.

Shutdown

1. After FO calls: "READY FOR SHUTDOWN", set engine start levers to cut-off. (If using the GPU at the arrival gate, shut down #2 first, connect the GPU, and then shutdown #1).
2. The FA will call the cockpit. You will hear a 'chime' sound and the FA button on the FS2Crew Main Panel will say 'On'. Press the FA button on the FS2Crew Main Panel to reply to the FA.
3. After the slides have been reported disarmed, announce via PA: "CABIN CREW – DOORS MAY BE OPENED".
4. Call "SHUTDOWN CHECKLIST".

Secure

1. Call "SECURING AIRCRAFT CHECKLIST" if you will be leaving the aircraft unattended.

2. After FO completes the Securing Aircraft procedure, turn off the APU and/or Ground Power Switch.

3. If APU was operating, wait two minutes after the APU GEN OFF BUS light extinguishes before placing the Battery Switch to Off.

FIRST OFFICER/PILOT MONITORING:

* = First Flight of Day only

Pre-Flight Electrical

Trigger -> Pressing the Start button in the Pre-Flight Section on the Config Panel.

1. Master Battery on.
2. Parking brake set.
3. Bus Xfer switch auto.
4. Standby power on.
5. If BBJ model (Aux fuel bleeds off & Gnd Xfer off).
6. Fire tests (only if using APU).*
7. Start APU or Connect External Power/Air.
8. If using APU, check APU Gen Voltage on Voltmeter before connecting APU generators. If using GPU, check GND pwr.
9. Left Aft Fuel Pump on for APU if APU selected as power source.
10. Left Center Fuel Pump if center fuel quantity > 1000 pounds (APU only)
11. Position lights on.
12. Wheel well fire test (If APU used).
13. Wing lights on for exterior walkaround if flying at night.
14. IRS's to NAV.
15. EEC 1 and EEC 2 on.

Pre-Flight Main Procedure

Trigger -> Pre-Flight Time Remaining +18 minutes.

1. Yaw damper on.
2. IFE on.
3. Fire tests (only if using GPU).
4. Emergency lights arm.
5. No smoking on.
6. Fasten seatbelt auto.
7. Window heat test and window heat on.
8. Eng Hyd Pump A and B on.
9. Elec Hyd Pump A and B off.
10. Trim air on.
11. Recirc fans auto.

12. Pack auto.
13. Isolation valve open.
14. Engine Bleeds on.
15. APU bleed on (Only if APU running. If external ground air is not available, manually start the APU now for air conditioning).
16. Ignition selection switch set.
17. Logo light if night on.
18. Flight directors on.
19. Set altimeters.
20. Oxygen test*.
21. Autopilot disengage light test*.
22. GPWS test*.
23. Fuel flow Reset.
24. Autobrake RTO.
25. If BBJ: Aux fuel bleeds off.
26. Cargo fire test*.
27. Push master fire warning*.
28. VHF 1 and 2 test (and RTP 1 and 2 test if BBJ model)*.
29. TCAS test (IRS must be aligned first)*.
30. Overspeed test*.
31. Stall test*.
32. Verify FMC pages.

Before Start

Trigger -> Command: "BEFORE START PROCEDURE".

1. FO's FMC to legs page.
2. Fuel pumps on.
3. Seatbelt sign on.
4. Isolation valve open.
5. Electrical Hydraulic pumps on.
6. Beacon on.
7. Lower display to Engine.

Engine Start

Trigger -> Command: "START (LEFT/RIGHT) ENGINE".

1. Packs off.
2. Ignition to ground.

Before Taxi

Trigger -> Calling for the takeoff flap selection.

1. Set takeoff flaps (if non-cold weather procedure in effect).
2. Confirm Gen 1 voltage on Voltmeter.
3. Engine Generators on.
4. Probe Heat on.
5. Engine and Wing Anti Ice as required.
6. Packs auto.
7. Isolation Valve auto.
8. APU Bleed off.
9. APU off.
10. Reset Packs.
11. Engine Start Switches to Cont (only if Auto not Available).
12. Blank lower display unit.
13. Recall.

Note: The FO will set the takeoff flaps based on the value entered in the FMC, not the value selected on the FS2Crew Departure Brief page.

Note: If a 'Bleeds Off' takeoff was briefed for in the Departure Brief, the FO will configure for a bleeds off takeoff during his Before Taxi flow assuming EAI or WAI is not required for taxi. If EAI or WAI is required for taxi, the FO will configure for a bleeds off takeoff during his Before Takeoff flow.

Note: If cold weather procedures were selected, the FO will perform a 'flaps movement check' by extending the flaps to 40 before bringing them back up. When using cold weather procedures, you will taxi with the flaps up.

Before Takeoff

Trigger -> Announcing takeoff clearance has been received with the command: "CLEARED FOR TAKEOFF".

1. Strobes on.
2. Landing Lights on.
3. Runway Turnoff Lights on.
4. Taxi Light off.
5. Center Fuel Pumps off (only if center fuel less than 2300 Kgs).
6. Traffic/Terrain/Weather display.
7. Xponder TA/RA.

Initial Climb

Trigger -> Gear up.

1. Runway Turnoff Lights off.

After Takeoff

Trigger -> Flaps Up.

1. Engine start switches to off (only if Engine/Wing Anti Ice not on).
2. Autobrake off.
3. Gear levers handle off.

Note: If a 'Bleeds Off' takeoff was briefed for, the FO will restore the bleeds after the 'Climb Thrust' call and turn WAI back on if it was off.

10,000 Feet in Climb

1. Landing lights off.
2. Seatbelt switch auto.
3. Center fuel pumps On (if quantity greater than 500 kgs and they were Off for takeoff).

Cruise and Descent

1. Check FMC pages. Select VOR – Update Off on Nav Options (only if RNAV/RNP app)
2. In descent, FMC to 'Legs' page.

3. Center fuel pumps off if quantity falls below 500 kgs.
4. In descent, center fuel pumps off if quantity falls below 1400 kgs.
5. High Alt Button on if landing elevation greater than 8400 feet.

10,000 Feet in Descent

1. Landing lights on.
2. Seatbelt signs on.
3. Select RNP Progress Page and verify RNP.
4. PA: "CABIN CREW PREPARE FOR LANDING".

Landing

1. After Flaps 1 call: "CABIN CREW TAKE YOUR SEATS".
2. Select RNP Progress Page if RNAV/RNP approach.
3. Engine Start Switches to Cont (if Auto not Avail) and Runway Turnoff lights on (tied to gear down call).
4. If Flap 15 used for landing, set Ground Proximity inhibit switch to Flap Inhibit.

After Landing

Trigger -> Captain announces "OKAY TO CLEAN UP".

1. Start APU (Only if Power Source on Config Panel <u>preselected</u> to APU)*
2. Flaps up (or flaps 15 if cold weather procedures in effect).
3. Probe heat off.
4. Landing lights off, Strobes off, Taxi light on.
5. Engine start switches off (if EAI/WAI not on).
6. Autobrake off.
7. Transponder standby.

Note: If 'EXT' is selected as the Power Source for the Gate, use the following procedure: After arriving at the Gate, shutdown engine #2 (the right engine). Contact the ground crew and instruct them to connect the GPU and External Air via the command displayed in the Secondary Window. Wait 30 seconds for the

ground crew to connect the GPU and EXT (they'll notify you when it's connected). Once the GPU and External Air have been connected, you can shut down engine #1 (the left engine).

Pre Shutdown

Trigger -> Parking Brake Set.

1. PA: "CABIN CREW DISARM SLIDES".
2. Confirm APU GEN on voltmeter.
3. APU Generator on and Taxi light off.

Shutdown

Trigger -> Engine Fuel Levers to Cut-Off.

1. Seatbelt signs off.
2. Beacon off.
3. Fuel pumps off (except Left Aft for APU and Left Center if fuel in center tank.
4. Wing and Engine anti-ice off.
5. Electrical Hydraulic pumps off.
6. Isolation Valve open.
7. APU Bleed on.
8. Reset Packs.
9. Flight Director off.

Securing Aircraft

Trigger -> Captain calls for the Securing Aircraft checklist

1. IRSs
2. Emergency Exit Lights
3. Window Heat
4. Packs

B737NG NORMAL CHECKLIST

PREFLIGHT

Oxygen	Tested, 100 percent
Inst Xfer & Display Switches	Normal, Auto
Window Heat	On
Pressurization Mode Selector	Auto
Flight Instruments	Set
Parking Brake	Set
Engine Start Levers	Cutoff

BEFORE START

Flight Deck Door	Closed and locked
Fuel	__ KGS/LBS, Pumps On
Passenger Signs	On
Windows	Locked
MCP	Set
Takeoff Speeds	Set
CDU Preflight	Completed
Rudder & Aileron Trim	Free and Zero
Taxi & Takeoff Briefing	Completed
Anti Collision Lights	On

BEFORE TAXI

Generators	On
Probe Heat	On
Anti-Ice	____
Isolation Valves	Auto
Engine Start Switches	Cont /Auto
Recall	Checked
Autobrake	RTO
Engine Start Levers	Idle Detent
Flight Controls	Checked
Ground Equipment	Clear

BEFORE TAKEOFF

Flaps	___, Green Light
Stabilizer Trim	___ Units

AFTER TAKEOFF

Engine Bleeds	On
Packs	Auto
Landing Gear	Up and Off
Flaps	Up, No Lights

DESCENT

Pressurization	Landing Alt _____
Recall	Checked
Autobrake	____
Landing Data	VREF___ Minimums___
Approach Briefing	Completed

APPROACH

Altimeters	_____

LANDING

Engine Start Switches	Cont/Auto
Speed Brake	Armed
Landing Gear	Down
Flaps	____, Green Light

SHUTDOWN

Fuel Pumps	Off
Probe Heat	Off
Hydraulic Panel	Set
Flaps	Up
Parking Brake	____
Engine Start Levers	Cutoff
Weather Radar	Off

SECURING AIRCRAFT

IRS's   Off
Emergency Exit Lights   Off
Window Heat   Off
Packs   Off