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Chapter 1: Introduction

Introduction by Fred:

I will first start this tutorial out by quoting myself:

"I would like to say that I do not fly the 737NG series in real life. I do not work on them, in them, around them, or within 100 miles of them (I live in a small town with a tiny airport.) All that means is that what I have to say about the functionality, procedures, etc may be incorrect in some form or fashion. I would love to hear how my procedures differ from the real world, because I, like you, am after the most realism possible(you would not have bought this package if you weren't after top notch realism ;-), and I will do a lot to accomplish this realism."

This is my second version of this tutorial. I have done some(read: a lot of) redesigning of my original concept because I thought my first rendition of my tutorial was, well, very messy and not as informative as it could have been. Please enjoy the changes, I feel that they make this tutorial 100% better!

I am going against the wise words of my public speaking teacher by saying this: I am sorry for the layout of this document. I do not own any professional publishing software which would have enabled me to layout this document in a more acceptable fashion. In fact, I am lucky that it is in PDF format; I only recently discovered that by Open Office Software can export documents to PDF format. So please excuse the ugly layout.

I suggest that you read through this manual at least once before flight, as it will make your life so much easier! And don't be afraid to pause the sim! You don't lose points for doing it slow, and you don't get any for doing it fast either! Take your time and learn what you need =)

A statement about SU2:

This update changes the whole plane. The plane is brand new, so completely different from the original that it is scary. The beta testers went through 70+ beta test aircraft before the SU2 release, as stated by Robert Randazzo. We did our work folks, I think you'll like it!

Conventions:

If I want you to do something, I will indicate that by:

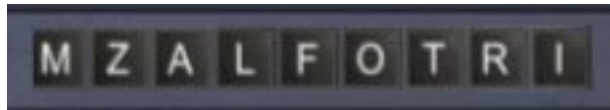
- Do this
- Do this next
- Do this next next

Info Bits, and me communicating to you, the trainee, will all be indicated by:

| |
|--|
| The person saying: Something interesting is said here. |
|--|

I will indicate ATC communications as above, with the exception being that the text will be in *italics*.

The panels are switched by pressing the MZALFOTRI buttons.



MZALFOTRI is explained in the following table

| | |
|---|---------------|
| M | Main Panel |
| Z | Zoom Panel |
| A | Approach View |
| L | Landing View |
| F | FMC |
| O | Overhead |
| T | Throttle |
| R | Radio |
| I | Not yet used |

If I say open the Overhead Panel, you press the O button.

I have included pictures of somethings, unlike my first tutorial. The included pictures are not a sequence of switch clicks to follow, rather

they guide you in the understanding of what you should have done. Also, you might notice small discrepancies between a few of the FMC shots., such as different arrival times. This is because I took the pictures on several different flights, and the times and other flight dependent items will be off just slightly.

What you need:

You need the following:

- PMDG 737NG 737NG, version 1.2(SU2). Available for purchase at www.precisionmanuals.com
- Microsoft Flight Simulator 2002 or Microsoft Flight Simulator: A Century of Flight.
- Patience
- Recommended: The default SU2 Procedures for KORD and KJFK
- Recommended: Default Navdata present in SU2(0312 cycle)
- Optional: This guide printed out.

Chapter 2: Flight Sim Setup

Flight Scenario:

You are part of PMDG Airlines. You have just been hired and you are on your first non-simulator familiarization flight. You are flying 101 passengers in a 737-700 from KJFK(John F. Kennedy International Airport, New York City, New York), to KORD (Chicago O'Hare International Airport, Chicago, Illinois). You will be flying in the left seat, with Fred Clausen, PMDG's 737NG Checkout and Training pilot, in the right seat. Fred will be handling all of the ATC communications, so your only worry will be flying the plane.

One other thing: NO WEATHER! Please do not set any dynamic, real world, or special scenario weather. This tutorial is done assuming no weather, and you could get in trouble if you insert non-standard weather.

Flight plan:

We will be flying KJFK-COATE-J36-FNT.PMM4-KORD

| ID | Name | DIST | HDG | VIA | LAT | LON | TYPE |
|-------|------------|------|-----|------|-----------|-----------|-----------|
| KJFK | KJFK | 51 | 319 | | N40:38:22 | W73:46:44 | AIRPORT |
| COATE | COATE | 40 | 312 | J36 | N41:08:10 | W74:41:42 | INT |
| LHY | Lake_Henry | 36 | 303 | J36 | N41:28:32 | W75:28:57 | 110.80VOR |
| DGRAF | DGRAF | 14 | 302 | J36 | N41:41:10 | W76:13:20 | INT |
| MINEO | MINEO | 101 | 301 | J36 | N41:46:11 | W76:31:20 | INT |
| WAAKE | WAAKE | 28 | 298 | J36 | N42:20:31 | W78:40:51 | INT |
| DKK | Dunkirk | 22 | 282 | J36 | N42:29:26 | W79:16:26 | 116.20VOR |
| DKK23 | DKK23 | 72 | 282 | J36 | N42:30:58 | W79:47:29 | INT |
| YXU30 | YXU30 | 26 | 291 | J36 | N42:34:50 | W81:25:26 | INT |
| GOOSS | GOOSS | 20 | 299 | J36 | N42:40:49 | W82:00:14 | INT |
| FNT2 | FNT2 | 44 | 286 | J36 | N42:48:26 | W82:26:35 | INT |
| ATTIX | ATTIX | 13 | 288 | J36 | N42:55:04 | W83:26:10 | INT |
| FNT | Flint | 36 | 260 | PMM4 | N42:58:00 | W83:44:49 | 116.90VOR |
| DEWIT | DEWIT | 72 | 258 | PMM4 | N42:48:09 | W84:32:59 | INT |
| PMM | Pullman | 44 | 265 | PMM4 | N42:27:55 | W86:06:20 | 112.10VOR |
| PIVOT | PIVOT | 22 | 262 | PMM4 | N42:20:13 | W87:06:56 | INT |
| PAPPI | PAPPI | 22 | 218 | PMM4 | N42:16:11 | W87:36:25 | INT |
| KORD | KORD | | | | N41:58:46 | W87:54:15 | AIRPORT |

Departure: We will takeoff from KJFK, runway 4L. After takeoff, we will fly a heading of 100 degrees, and await further ATC clearance. Once clearance is received, we will fly those vectors until we join the COATE transition. In other words, the Kennedy 8 vector departure.

Arrival: Once we get near Chicago, we will start the Pullman 4 arrival on the Flint VOR transition. We will fly the STAR until PAPPY intersection, where we will turn to WAVIE intersection to intercept the 27L ILS signal for a full CATIII ILS landing.

Flight Sim Setup:

We will need to get the aircraft loaded up. Please select the PMDG Load Manager from the PMDG Simulations Start Menu item. Choose the 700_Single tab, and put 101 passengers in the airplane. In the forward cargo bay, put 6100 lbs of cargo, and in the aft cargo bay, please put 7050 lbs of cargo. In the end, it should look like:

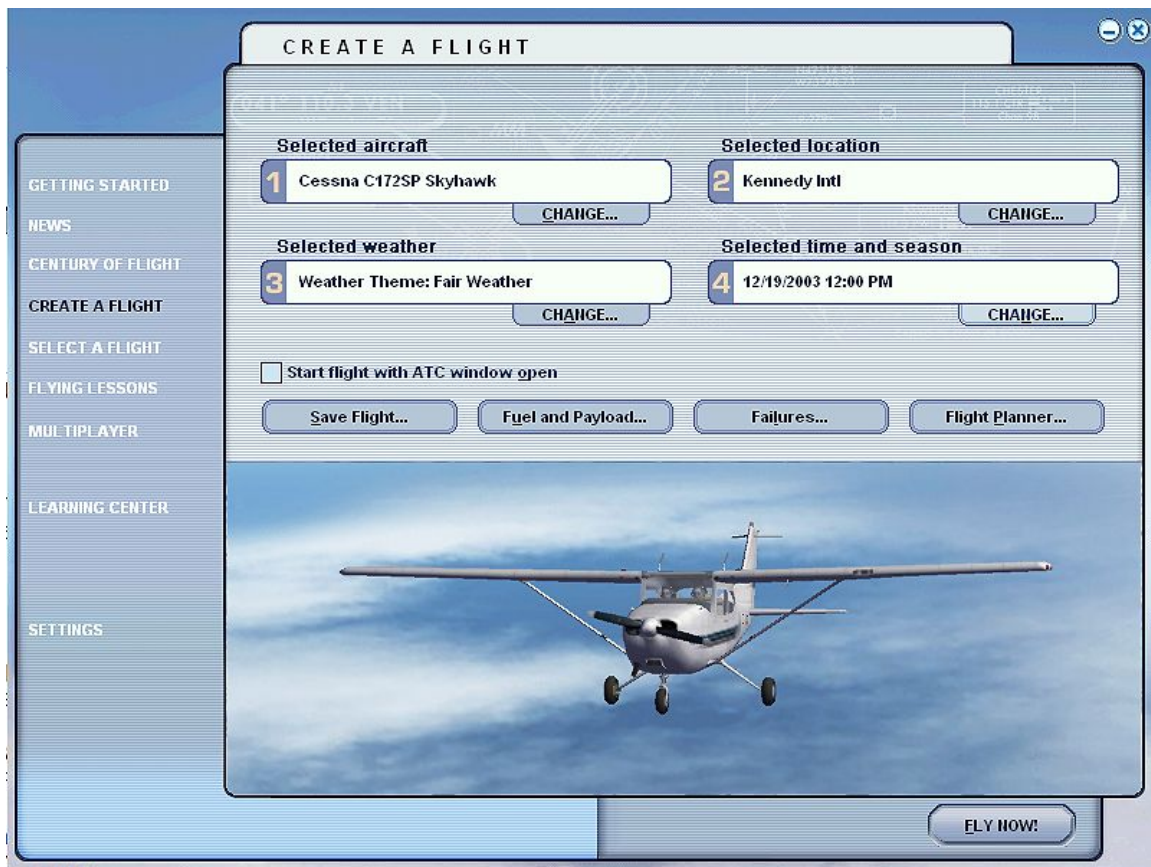


Next, please load up Flight Sim. If your default flight has another airplane besides the Cessna 172SP Skyhawk, select the Skyhawk now.

In the Selected Location pop up, please choose KJFK and Gate 1 [NOTE: if you use FS2002 you may have to choose another gate]

In the Selected Time and Season pop up, please set the time to be 17:00 Zulu, or 12:00 Lima.

You should end up with something like this:



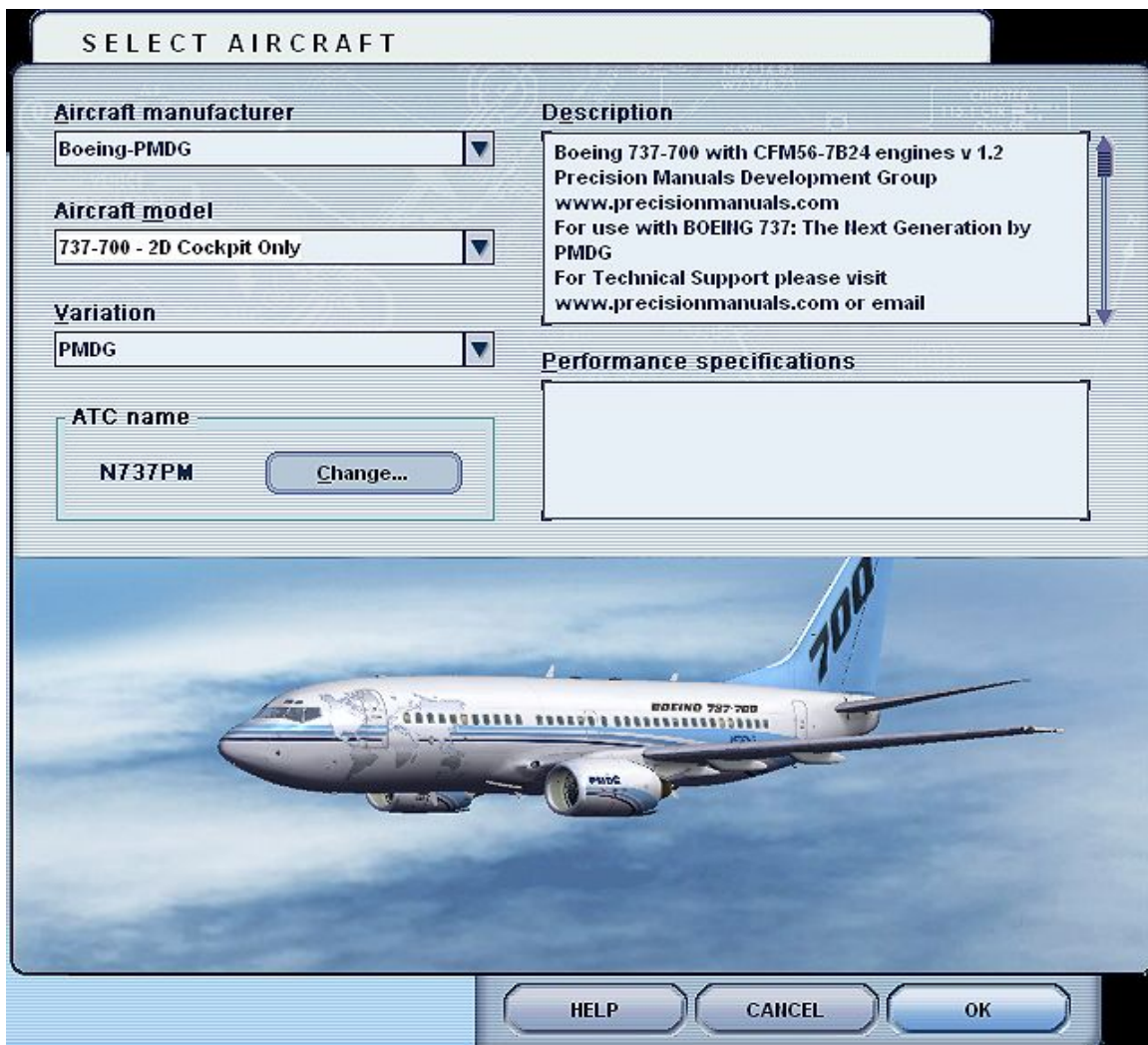
Press FLY NOW! and lets go!

Pre-pre-flight:

Make the Cessna panel look like this:



And now load up the PMDG 737-700 2D Cockpit Only.



After that, move the fuel cutoff switches to off. They are located on the Throttle pop up panel.

The fuel cutoff switches will look this:



Now open up the fuel dialog box and make it look like this:

FUEL SETTINGS

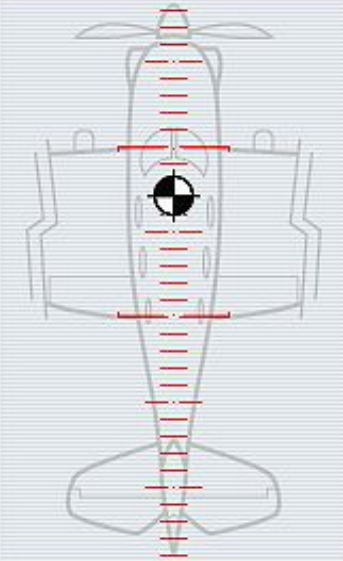
Boeing-PMDG 737-700 - 2D Cockpit Only

Display fuel quantity as weight

| Tank | % | Gallons | Capacity |
|--------|------|---------|----------|
| Left | 100. | 1288 | 1288 |
| Center | 0.0 | 0 | 4299 |
| Right | 100. | 1288 | 1288 |

Total fuel: 37.5 2576 6875

Fuel weight Lbs/Gal: 6.7



HELP CANCEL OK

Chapter 3: Preflight

Flight Deck Safety Inspection:

- Open up the Overhead Panel
- Turn on the Battery Switch ON



- Close the Overhead Panel
- Clear any cautions by hitting the Caution Light on the glare shield
- Open the Overhead Panel back up
- Make sure the Electric Hydraulic pumps are OFF.



Now your Overhead will look like this:



- Close the Overhead Panel by selecting the Main Panel
- Check and make sure the Landing Gear Lever is DOWN and in the locked position.
- Check for 3 green lights

Info Bit: 3 Green Lights indicate that the landing gears are extended. 3 Red Lights indicate that the gears are either traveling to fully extended, or traveling to fully retracted. To tell which way the gears are moving, look at the position of the landing gear lever. No lights indicate that the gears are retracted.

Preliminary Flight Deck Preparation:

- Open the Overhead Panel
- Ground power switch to ON



- Close the Overhead Panel by selecting the Main Panel

Fred: Now we will test out the fire circuit logic. This is to ensure that we get the proper indications when we have a fire.

- Open up the Throttle Panel
- Put your cursor over the 'OVHT/FIRE' part of TEST switch(your cursor will change to a +), and press your left mouse button



Fred: A bell chime will go off. The red light on the glare shield will illuminate, and the caution light will illuminate as well. If you hear and/or see these indications in flight, you're in trouble =)



- Press the Fire Lamp Light to extinguish the light. This also silences the warning horn.
- Press the Caution Lamp Light to extinguish the light.
- Close the Throttle Panel by clicking on the T button.

Fred: Now we will establish a more useful form of power to the plane, the APU. The APU, or Auxiliary Power Unit, is located in the aft section of the plane. It is a small jet engine that puts out enough bleed air and power to start the main engines, and power the basic systems of the plane for all modes of operation except flight.

- Open the Overhead Panel up
- Toggle the APU switch to START, and it will spring load back to ON at the right time
- Wait for the APU Gen light switches to illuminate as shown:



- Then toggle both the left and right APU generators to ON.

Your overhead will now look like:



Flight Deck Preparation:

- Toggle the Yaw Dampen switch to ON.
- Ensure that the ENGINE VALVE CLOSED lights are illuminated
- Ensure that the SPAR VALVE CLOSED lights are illuminated
- FILTER BYPASS lights are extinguished

This configuration is shown here:



- Move the left tank fore and aft pump switches to ON
- Ensure low pressure lights go off as you switch the pumps to ON
- Move the right tank fore and aft pump switches to ON
- Ensure low pressure lights go off as you switch the pumps to ON

This configuration is shown here:



- CAB/UTIL power switch to ON
- IFE/PASS switch to ON



- Emergency Exit guard DOWN
- Ensure that the Emergency Exit NOT ARMED light extinguished



- NO SMOKING switch to ON
- FASTEN BELTS switch to ON



- Window Heat switches, all four of them, to ON.
- Probe Heat switches to ON



- System A Electric Hydraulic pump ON
- System B Electric Hydraulic pump ON



- Set the Flt Alt reading on the pressurization panel to read 39000
- Set the landing field elevation to read 650.



- Set the RECIRC fan to AUTO
- Set the packs(both left and right) to AUTO
- Set the ISO valve to OPEN
- Set the Engine Bleeds to ON
- Set the APU Bleed to ON



Your overhead will look like:



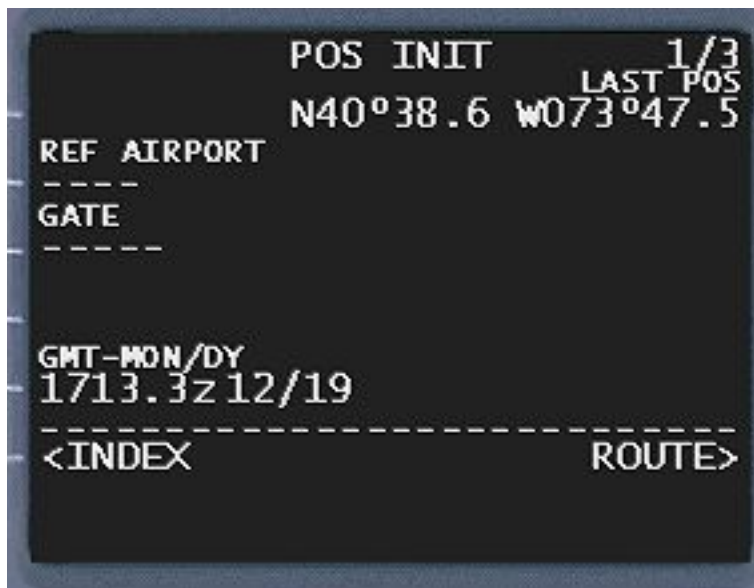
- Close the Overhead Panel by choosing the Main Panel
- Set the Captain's Flight Director switch to ON
- Make sure the Autothrottle switch is OFF
- Turn the Autobrake rotary to RTO



FMC Preparation:

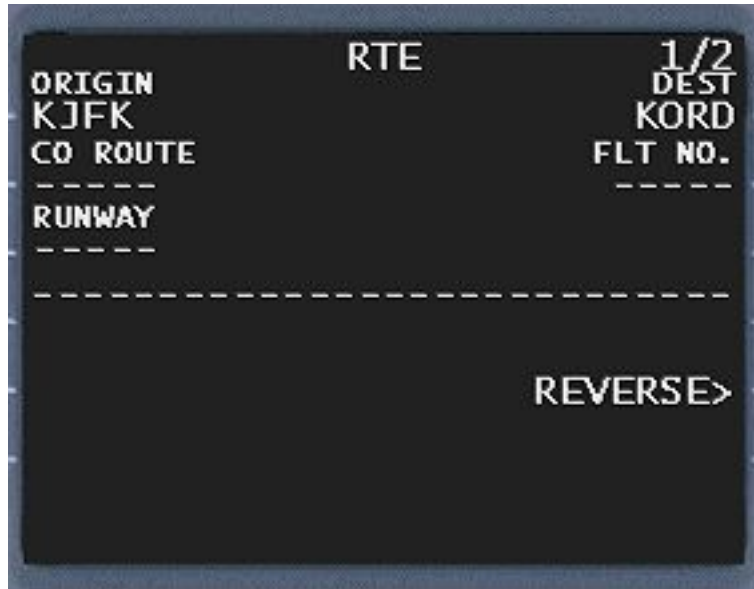
If you look at the FMC and cringe, you might want to read Appendix B: FMC 101 for a refresher and/or introduction to the FMC. Also, I stress the unimportance of reading the FMC manual PMDG includes with the SU2 plane. You don't need to read it now, but for future use of this aircraft it would behoove you to read the FMC manual.

- Open up the FMC
- You will be presented with a FMC window with a couple of options, press LSK 1L
- You will see the IDENT Page. You need to do nothing, so press LSK 6R to go to the POST INIT page
- Press LSK 1L to have the FMC automatically insert the current position

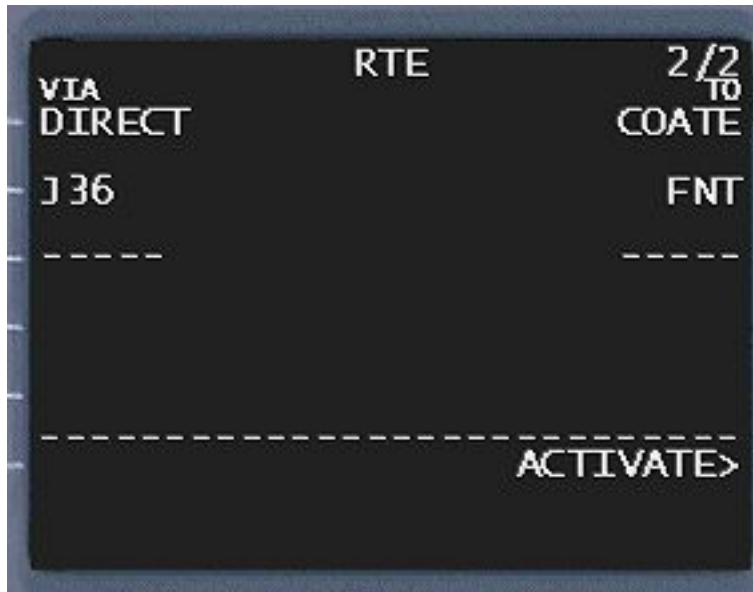


Info Bit: Note that the real FMC doesn't have this capability, at least as far as I know. However, I hate typing in LAT/LON positions into the FMC, so this cheat is OK with me. =)

- Press LSK 6R to go to the RTE PAGE
- Enter KJFK into the scratch pad and press LSK 1L to upload departure airport
- Enter KORD into the scratch pad and press LSK 1R to upload the destination airport



- Press NEXT PAGE to go to page RTE PAGE 2/2
- Enter COATE, which is our transition out of the SID, and press LSK 1R
- Enter J36 into the scratch pad, and then press LSK 2L to upload it
- Now enter FNT, which is our transition to the PMM4 STAR, and then upload it to 2R



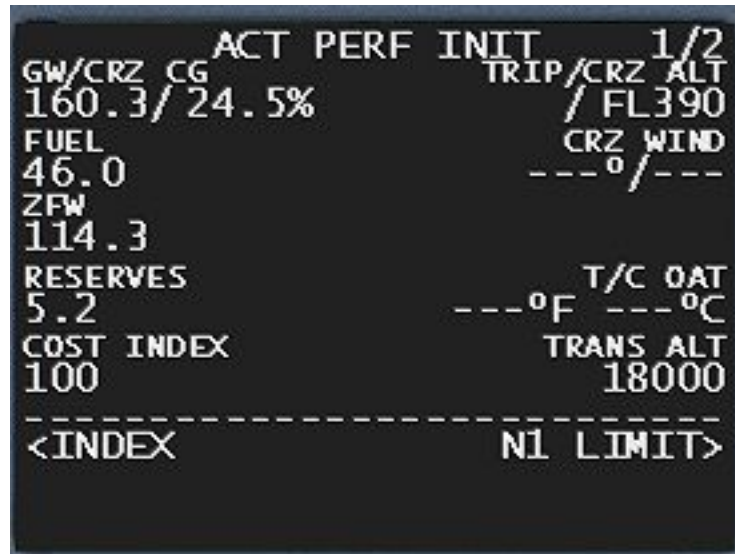
Fred: What you have done is to enter a whole slew of way points, via the power of the FMC airway entry capability.

- Press DEP ARR
- Press LSK 2R
- Choose the LSK that corresponds to the PMM4 arrival
- Then choose the LSK on the left side that corresponds to the FNT transition



- Press LSK 6R to ACTIVATE the flight plan

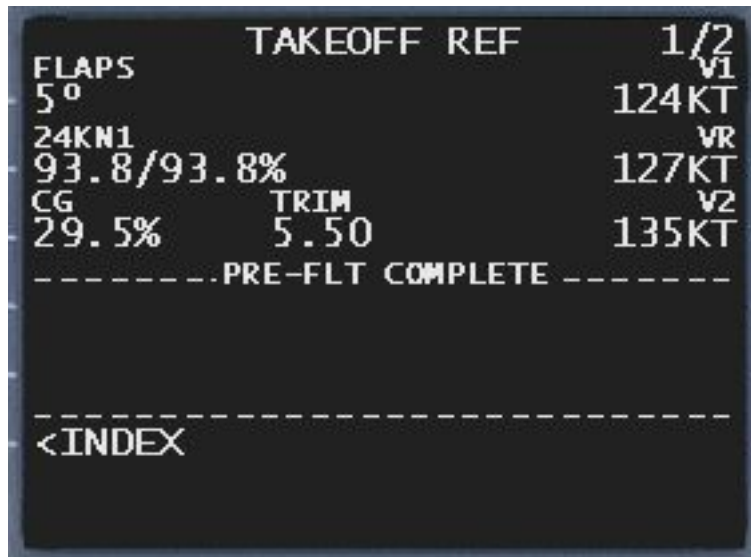
- Press EXEC
- Press LSK 6R to go back to the RTE page
- Press LSK 6R to go to the PERF INIT page
- Enter 114.3 into the scratch pad and upload it to LSK 3L
- Enter 5.2 into the scratch pad and upload it to LSK 4L
- Enter 100 into the scratch pad and upload it to LSK 5L
- Enter 390 into the scratch pad and upload it to LSK 1R
- Press EXEC



- Now press LSK 6R until you get to the TAKEOFF Page
- Enter 5 and upload it to LSK 1L

Info Bit: This is your takeoff flap settings. It is most common for the 737NG airplanes to takeoff with Flaps 5, and land with Flaps 30.

- Press LKS 5R
- Choose LSK on the right side which corresponds correspond to RW04L
- Press EXEC
- Press LSK 6R until you get back to the takeoff page
- Now press LSK 1R, 2R, 3R



Fred: You have just had the FMC calculate your V speeds. Make a note of your V2 speed.

Also, I think it is important to explain why I had you enter your departure runway as the very last thing, just before V speed calculation. The reason I chose to program my FMC in this manner is that when I fly VATSIM, I do not call for my clearance until I have programmed the FMC up to the V speed calculation. And often times I won't get a runway to taxi to until I push back. However, in this scenario, we know what our departure runway will be =)

- Close the FMC

| |
|--|
| <i>PMDG 1: New York Delivery, request clearance to O'Hare as filed</i> |
| <i>New York Delivery: Roger, cleared as filed to O'Hare, vectors to COATE then as filed. Climb and maintain 5000. Turn right heading one zero zero after takeoff, expect RW4L for departure.</i> |
| <i>PMDG 1: Roger</i> |

Fred: Now we know what our clearance is, lets let our plane know. It also should be mentioned that in a real ATC situation, we would have read our clearance back to the controller. However, because this is a tutorial and the clearance is in front of you, written down, there is no need to read back :)

- Rotate the Heading knob on the MCP to 100
- Rotate the Alt knob on the FMC to 5000
- Set your V2 speed into the IAS/Mach Window



Engine Start and Taxi:

- Open the Overhead Panel
- Turn OFF the Left and Right Packs
- Switch the Anti-Collision Light On

Info Bit: The proper start sequence for the NG series is Engine 2(right side) first, then Engine 1(left side)

- Move the Right Side Engine Starter to GND
- Close the Overhead Panel
- Watch the EICAS display as the N2 increases. At 20% N2, open up the throttle panel. Count off 4 seconds, and then switch the right side Fuel Cutoff switch to ON
- Repeat the above 3 steps for the Left Engine
- Make sure the Overhead Panel is open
- Move the Engine Generator switches to ON
- Close the APU Bleed Switch
- Turn back on the Left and Right Packs to AUTO
- Turn OFF the RECIRC Fan
- ISO valve to AUTO
- Turn the APU OFF
- Landing lights ON

Overhead should now look like this:
[Picture on the next page]



- Close the Overhead Panel

Fred: Now we will taxi to RW 4L. I recommend whilst taxiing to increase throttle to about 30% N1 until you reach the desired taxi speed. At that point, move the throttle to idle and you should be able to maintain the ground speed you want with little throttle jerking.

- Taxi to RW4L, turn onto the runway, and stop
- Open up Overhead Panel
- Set both Engine Start Levers to CONT
- Close Overhead Panel by selecting the Main Panel
- Set flaps five
- Turn the autothrottle ON
- Verify no caution alerts are displayed. If they are, just clear the warnings

Chapter 4: Flight

Takeoff:

Fred: Now to explain the takeoff procedure. You will advance the throttles to 40% N1 and begin to roll down the runway. At 40% N1 keep advancing the throttle, but press the TO/GA switch(the top left MCP screw) to engage the TO/GA mode of the airplane. You will rotate when you hear Robert Randazzo's voice call 'ROTATE', and smoothly rotate the plane to 15 degrees. When you observe positive climb rate, retract the landing gear. At 100 feet off the ground, turn to 100 and climb through 1000. Follow the PFD pitch indications(NOT ROLL); they should keep you at about V2. At 1000 feet, engage the autopilot. You will notice that as soon as you turn the AP on, you will see the IAS in the IAS speed window increase to V2 + 20, which is the climb speed for the moment.

- Takeoff as described above and climb to 1000
- After passing 1000, you can begin retracting flaps. Set 250 in the IAS Speed window and retract flaps according to the schedule.

Fred: Every time your speed passes a green mark with a number, retract your flaps one notch. One thing to remember is that going from flaps 5 to the next level of flaps 1, you need to retract 2 notches of flaps(you skip over flaps 2)

- Once you pass 2500 AGL, as indicated by the PFD radar altimeter going blank, engage CMD A autopilot.
- After you engage the Autopilot, press LVL CHG on the MCP

New York Departure: Turn left heading 360 after passing 4000. Climb and maintain FL390

PMDG 1: Roger, after passing 4000 left to 360, and climb and maintain FL390

- Enter 39000 into the MCP ALT window
- After passing 4000, enter 360 into the MCP HDG window
- Press VNAV

Climb out:

| |
|--|
| <i>New York Center: Turn left heading 300 after passing 10000. Direct COATE when able.</i> |
| |
| <i>PMDG 1: Roger</i> |

- Enter 300 into the MCP HDG window after you pass 10000 feet
- After passing 10000, turn off the landing lights and set the Engine Start Levers on the Overhead to Off
- Turn off the Fasten Seat Belt sign
- Once rolled out on 300, press LNAV and let the plane do its thing
- After passing FL180, press the EFIS Baro Rotary button in the middle to change over to STD mode

Cruise:

Fred: At this point, the plane will fly itself. At some point, the plane will cross the magenta line and being flying direct COATE. Let plane do its thing. Just monitor the situation and make the the plane doesn't do anything untoward.

At 10 nm from MINEO, you get a call from NYC:

New York Center: PMDG 1, you are 10 nm from MINEO, please hold at present position for spacing.

- Open up the FMC
- Press the HOLD button
- Press LSK 6R for PPOS hold
- Press EXEC

After about 1 revolution, you get this call:

New York Center: PMDG 1, please exit hold when able and continue as filed.

- Press LSK 6R to arm the exit hold
- Press EXEC to tell the FMC that you do want to exit

Descent:

Fred: T/D is calculated at a couple of NM short of PMM VOR. As you approach, you can watch the miles to T/D decrease slowly by observing the following indication on the FMC PROG page.



| FROM | PROGRESS | 1/2 |
|---------------|------------------------|-------------|
| FNT | ALT ATA FL390 1840z | FUEL 8.8 |
| 260° | DTG ETA | FUEL |
| DEWIT | 13 1845z | 8.4 |
| 258° | | |
| PMM | 84 1854z | 7.8 |
| | 174 1910z | 7.5 |
| RORD | | FUEL QTY |
| TO T/D | | 8.6 |
| 1854z / 76 NM | | |
| WIND | | |
| 270°/25 | NAV STATUS> | |

As you approach 30 nm before T/D, Chicago Center calls and says:

Chicago Center: PMDG 1, descend now to cross PAPPI at 5000, 200 knots. Expect RW27L for landing.

- Enter 5000 into the MCP ALT Window
- Open up the FMC
- Press the LEGS page.
- Press NEXT PAGE until you see PAPPI displayed on the FMC
- Enter 200/5000 into the scratch pad, and then press the LSK on the right side that corresponds to the PAPPI intersection
- Press the DES button
- Press DES NOW
- Press EXEC
- Press DEP ARR
- Press LSK 2R
- Press NEXT PAGE until you see DILS27L
- Press LSK 2R to select the WAVIE transition
- Press EXEC

- Press LEGS
- Press NEXT PAGE until you see a ROUTE DISCONTINUITY shown
- Press the LSK on the left side WAVIE. This should transfer WAVIE to the scratch pad
- Press the LSK on the left side by the ORD VOR
- Press EXEC

Fred: This should erase ORD as a way point(as a side note, I have no idea why ORD is included in the procedure), erase the ROUTE DISCONTINUITY, and make your life easier.

- Press INIT REF
- Press LSK 2R.

Fred: This tells the FMC what our approach speed and flaps will be, and it will calculate approach parameters based off of this data.

- Make a note of your approach speed
- Close the FMC
- Open up the Overhead
- Turn on the FASTEN SEATBELT Sign
- Close the overhead and return to your preferred forward panel

Fred: The first part of this inserts the FMC descent restriction into the FMC. This causes the FMC to recalculate all related descent parameters, including the T/D pseudo way point. The next part puts the plane into a 1000 fpm shallow dive until it intercepts the VNAV path, where VNAV will start to descent via the optimum profile. And the last part sets up the FMC for landing.

- Enter 272 into the CRS selector

Fred: This is the ILS heading

- Open up the Radio Panel
- Enter 111.10 into the NAV 1 radio.
- Press the circled button to transfer the Standby Frequency to the Active Frequency



- Repeat for NAV 2 Radio
- Close the Radio Panel
- As you pass 18000, press the center of the BARO rotary switch to switch out from STD mode.

Chicago Approach: Cross WAVIE at 2500, cleared for the ILS approach 27L. Maintain 3000 until established on the localizer.

Approach:

- Open up the FMC
- Press LEGS
- Press NEXT PAGE until you see WAVIE
- Enter /2500
- LSK to the right side key that corresponds to WAVIE intersection
- Close the FMC
- Enter 2500 in the MCP ALT window
- As you pass PAPP, press VOR LOC on the MCP
- After passing WAIVE, press SPEED
- Enter the Approach Speed into the MCP Speed window

Info Bit: If we had wind conditions, we would have to correct the approach speed by (going off of memory here) adding the constant wind speed and one-half of the gust component, I **think** that is the right formula anyway=)

- Press APP on the MCP
- Press CMD B
- Extend flaps according to the schedule, as explained below

Fred: Every time you cross a green marking, extend the flaps one more notch (again, going from Flaps 1 to Flaps 5 will require 2 notches). Extend until you are at Flaps 30.

Landing:

- At the Outer Marker(as shown on the PFD, top right hand corner of the artificial horizon), extend the landing gear. This should happen at about 1500 feet AGL.
- Autobrake to MAX
- Shift - / to arm spoilers for deploying on landing
- Wait for the plane to touchdown
- At touchdown, press Z to disengage the autopilot
- Apply forward pressure on the control column to get the plane's front landing gear on the ground
- After the front gear is on the ground, engage reverse thrust. At 60 kts idle the throttle once again, and turn off the autobreak, and retract spoilers.
- Break manually until you are about 20 kts ground speed
- Now look for an exit to the right, and take it

Taxi to Parking:

- After you have exited the runway, retract all flaps
- Begin taxing to the gate
- Press / to stow the spoilers
- APU ON
- All lights OFF
- Flight Director OFF
- When able, APU Generators ON
- When at the gate: Engage the parking brake

Shutdown:

- Fuel Cutoff Switches to OFF
- WINDOW HEAT OFF
- Hydraulic Pumps OFF
- RECIRC Fan OFF
- APU Bleed OFF
- Emergency Exit Lights OFF
- Left and Right packs OFF
- APU OFF
- Battery Switch OFF

Final Words:

Congratulations, you did it! You flew from KJFK and landed safely in KORD. That wasn't so hard was it?

I am interested in hearing your comments on this tutorial! I didn't get very many comments on my first tutorial, so I didn't know what most of you thought of it. So PLEASE email your comments! My email is included below. The only thing I ask is that you include some very obvious email subject, like PMDG Flight Tutorial or something to that effect. The reason for that is that my email filters are very sensitive to spam, and it will delete your mail very fast if your email looks anything like regular, plain old spam.

I am also interested in hearing your comments about any future tutorials that might be produced by me. I would like to know what, if anything, I should do for my next tutorial. Any special procedures, functions of the aircraft I haven't covered, or anything along those lines I would be interested in hearing.

Also I would like to thank Timothy Metzinger for a couple of ideas that I had seen in his tutorial that helped me guide my improvements for this guide.

Fred Clausen
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Appendix A: About The Author

About the author: I am 17 years old, looking to join get into the New Mexico State University Air Force ROTC program, where I hope to major in Computer Science. After getting my commission as a United States Air Force Officer, I hope to get into flight training, where I want to fly anything the Air Force wants me to. I hope to serve 10 years, and at that point I might get out of the service and fly commercially. However, that is a long ways down the road so I can't say for sure whats going to happen.

I live in New Mexico. No, before I get asked, we ARE part of the United States, we DON'T speak Spanish(no habla espanol), but we DO eat Mexican food a lot. You have no idea how many people who live in the United States get confused with those basic facts, especially the fact that New Mexico is part of the United States. Makes me wonder what we teach these kids in grade school LOL.

Appendix B: FMC 101

Layout:



In the above picture, the FMC is divided into three sections. The top most section is the LCD, with the **Line Select Keys**, or LSK for short, on each side. The LSKs are used to transfer information to the FMC. If I say enter 110.0 into the scratchpad, and then upload that information to LSK 1L, what you would do is hit the following keys:

[1][1][0][.][0] and then on the LEFT side, you hit the top most line select key.

To differentiate between the LSKs on either side, an L or an R is appended to the LSK number to indicate what side. For instance, LSK 2R means the second LSK down on the right side. LSK 2L means the second key down on the left side.

The next section are the program keys. These keys take you to different pages, where you can either enter information, or view details about your flight.

And the last section are the Alpha-Numeric keys. These keys are used to enter information which appears on the scratchpad.

DIR TO:

If you want to go DIRect TO a way point, do the following:

- Open up the FMC
- Press LEGS
- Press NEXT PAGE until you find the way point that you want to go DIRect TO
- Press the LSK on the left side that corresponds to the way point you want to go DIRect TO
- Press next page until you are back to page 1/of something
- Now press LSK 1L
- Press EXEC

CLR Button:

Nifty little time saver was added for SU2. If you accidentally type the wrong thing into the scratchpad, you have a fast way to erase it. Say

you typed in ROFLE when you meant TOFLE. To erase that the old way would mean pressing CLR 5 times. Not anymore! Just hold down the CLR button, and after 2 seconds the scratchpad is cleared. A very handy function if I do say so :)

Normal Holds:

In my tutorial above I covered a PPOS (present position) hold. However, the most common type of hold you will be issued in your flying is a hold at a specific way point in your flight plan. To create a hold at a way point, do the following:

- Open up the FMC
- Press HOLD
- Press NEXT PAGE until you find the way point that you want to hold at.
- Press the left side LSK by the way point that you want to hold at
- Press LSK 6L
- Press EXEC

Exiting the hold is the same as exiting a PPOS hold.

Appendix C: Acronyms

These are the acronyms that I feel are necessary to know in order to complete this flight. I am forgetting some but this should help you out.

ACT – Active, opposite of MOD
ATC – Air Traffic Control
AP – Autopilot
APU – Auxillary Power Unit
BTW – By the way
DEP/ARR – Departure/Arrival
DES NOW – Descend Now
DILS – DME Equipped ILS
EXEC - Execute
FMC – Flight Management Computer
GEN – Generator
ILS – Instrument Landing System
ISO – Isolation Valve
KTS - Knots
LSK – Line Select Key
LOL – Laugh out Loud
MCP – Mode Control Panel
MOD – Modified
NM – Nautical Mile
OVHT/FIRE – Overheat/Fire
PERF INIT – Performance Init
POS INIT – Position Initialization
PPOS – Present Position
RECIRC – Recirculation Fan
RTE – Route Page
T/C – Top of Climb
T/D – Top of Descent
TOGA – Takeoff/Go-around
TO/GA – See TOGA

Appendix D: Manual Landing

To do a manual landing, substitute this section here for the landing section above the in tutorial.

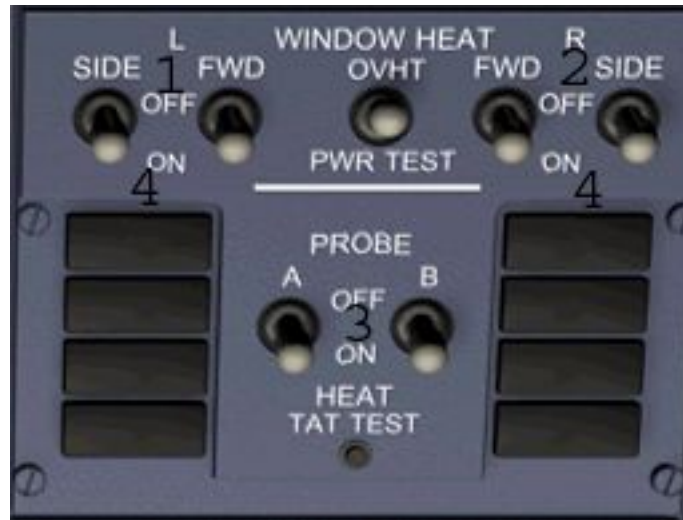
Manual landing:

- At the Outer Marker(as shown on the PFD, top right hand corner of the artificial horizon), extend the landing gear. This should happen at about 1500 feet AGL, set Autobrake to MAX
- Shift - / to arm spoilers for deploying on landing
- At 1000 ft radar altimeter, disengage the autopilot
- Follow the G/S and LOC readings
- Flare at 50 ft, and land
- After the front gear is on the ground, engage reverse thrust. At 60 kts idle the throttle once again, and turn off the autobreak, and retract spoilers.
- Break manually until you are about 20 kts ground speed
- Now look for an exit to the right and take it

Appendix E: Overhead Switch Guide

This guide is here for your convenience. Use this guide if you cannot find a switch that I have mentioned in my tutorial.

Overhead:



Probe and Window Heat

- 1) Left Side Window Heat. Switch positions are ON, OFF
- 2) Right Side Window Heat. Switch positions are ON, OFF
- 3) Probe Heat. Switch Positions are ON, OFF
- 4) Left and Right Side Probe Heat Failure Indicator



Pneumatic Panel

- 1) Left Pack. Switch positions are OFF, AUTO, HIGH
- 2) RECIRC FAN. Switch positions are OFF, AUTO
- 3) Right Pack. Switch positions are OFF, AUTO, HIGH
- 4) Right Engine Bleed. Switch positions are OFF, ON
- 5) APU Bleed. Switch positions are OFF, ON
- 6) Left Engine Bleed. Switch positions are OFF, ON
- 7) ISO VALVE. Switch positions are CLOSE, AUTO, OPEN



Pressurization Panel

- 1)FLT ALT. Set your cruise alt here
- 2)LAND ALT. Set your landing alt here
- 3)Pressurization source selector. Switch positions are AUTO, ALTN, MAIN
- 4)Manual Outflow Valve Control. Switch positions are CLOSE, OPEN
- 5)Outflow Valve Indicator



Anti-Ice and Hydraulic Panel

- 1)Wing Anti-Ice. Switch positions are ON, OFF
- 2)Left and right ENGINE Anti-Ice. Switch positions are ON, OFF
- 3)Left Engine Hydraulic Pump. Switch positions are ON, OFF
- 4)Left ELECTric Hydraulic Pump. Switch positions are ON, OFF
- 5)Right Engine Hydraulic Pump. Switch positions are ON, OFF
- 6)Right ELECTric Hydraulic Pump. Switch Position are ON, OFF



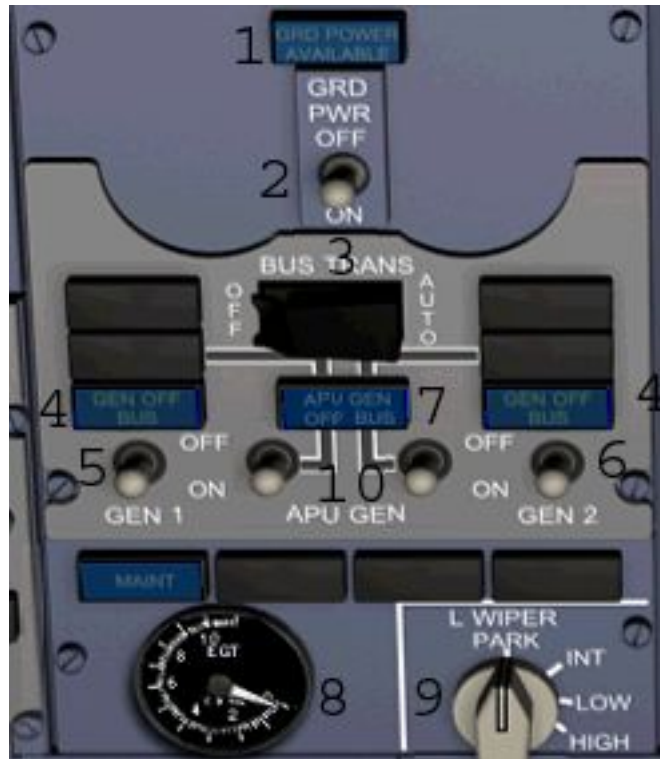
Internal Lighting, Cooling, and Cabin Indication's

- 1) Panel Bright Switch. Switch positions are BRIGHT, OFF
- 2) SUPPLY EQUIP Selector. Switch positions are NORM, ALNT
- 3) EXHAUST EQUIP Selector. Switch positions are NORM, ALNT
- 4) EMERGENCY EXIT LIGHTS Indicator. Indicates if lights are ON (blank), or OFF(illuminated)
- 5) EMER EXIT LIGHTS. Switch positions are OFF, ARMED (NO ON)
- 6) NO SMOKING Cabin Light. Switch positions are OFF, AUTO, ON
- 7) FASTEN BELT Cabin Light. Switch positions are OFF, AUTO, ON



Electric Panel 1

- 1) Battery Switch. Positions are ON, OFF
- 2) CAB UTIL Power Switch. Positions are ON, OFF
- 3) IFE/PASS SEAT Power Switch. Positions are ON, OFF
- 4) Left Engine Drive Disconnect Light
- 5) Right Engine Drive Disconnect Light
- 6) Standby OFF Indicator
- 7) Left Engine Drive Disconnect Switch. Positions are ON, DISCONNECT
- 8) Right Engine Drive Disconnect Switch. Positions are ON, DISCONNECT
- 9) Standby Power Switch. Positions are ON, OFF



Electric Panel 2

- 1) GND Power Available Lighting
- 2) GND Power Switch. Positions are ON, OFF
- 3) BUS TRANSfer Switch. Positions are AUTO, OFF
- 4) Engine Generator BUS OFF Light
- 5) Left Engine Generator Switch. Positions are ON, OFF
- 6) Right Engine Generator Switch. Position are ON, OFF
- 7) APU GEN Bus OFF Light
- 8) APU EGT Gauge
- 9) Left Windshield Wiper Gauge. Positions are PARK, INT, LOW, HIGH
- 10) APU GEN Switch. Positions are ON, OFF



- 1) Cross Feed Valve. Positions are CLOSED, OPEN
- 2) Center Tank Fuel Pumps. Positions are ON, OFF
- 3) Left Tank Fuel Pumps. Positions are ON, OFF
- 4) Right Tank Fuel Pumps. Positions are ON, OFF
- 5) Pump Low Pressure Lights



- 1) Left Engine Starter Switch. Positions are GND, OFF, CONT, FLT
- 2) Engine Starter Selector. Positions are IGN L, BOTH, IGN R
- 3) Right Engine Starter Switch. Positions are GND, OFF, CONT, FLT