

# A320 Fixed Based Simulator Procedures

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## **Introduction**

Please use the following procedures when operating the simulator. If there are any problems please call one of the contacts (See Appendix I – Contact Details)

## **Accessing the Simulator Premises procedures**

### **Opening the sliding door**

Use your two keys to open the sliding metal security door and the top bolt on the sliding glass door.

Enter the security code you were given into Bosh white keypad (which is situated close to the door) and press the \*stay button (bottom left).

### **Opening the simulator**

The keys to simulator and computer room are held in a safe under the kitchen sink. Enter the security number you were given and the press the B button

Open the Computer Room door and the simulator door.

Then put the Computer Room and Cockpit keys back in the safe and lock it.

### **Turn on Lights in the simulator**

Use the white remote control (labelled on back 'LIGHTS FANS' which is situated in the white cabinet in the cockpit area) to turn on the cockpit lights and the heat extractor fan in the computer room. Note, the small white switch half way up the control should be set to the right for S (Socket)

Click each green button (Numbers 1, 2 & 3)

If needed turn on the cockpit airconditioner (Remote control is held in a bracket on the back cockpit internal wall.

## **Starting Simulator**

### **STEP 1 - Turn On the Projectors**

Use the projector remote control (labelled on the back 'PROJECTORS' which is situated in the white cabinet in the cockpit area).

Point it at the screen through the cockpit windows at each of the three projectors and press the on button (i.e. left window, centre window and right window).

Note, it takes a minute or so before the projectors turn on and an image is displayed

### **Hard boot (when all PCS have been shutdown)**

#### **Turn on the PCs in the computer room**

STEP 2 - Go to the computer room

To turn on the computer room light the switch is located on the right hand side past the black netting material.

Turn on the power supply to the cockpit (located at the top of the computers rack)

This assumes all the pcs are turned off (except the PC labelled 'GATEWAY PC – DO NOT TURN OFF'). Please do not touch this PC

Turn on all the PCS (there are eight of them in the Computer room rack) starting at the bottom of the rack and working up (Except the GATEWAY PC) .

Turn off the Computer room light

Close the computer room door

#### **STEP 3 - Turn on the PCs in the Cockpit Area**

Turn on all four LCD Displays (Small round button on bottom right of the display)

#### **STEP 4 - TURN ON INSTRUCTORS WORKSATION (DISPLAY NO 1)**

Press the Instructors pc's start button

## **STEP 5 – VISUAL SYSTEM**

Confirm visuals are displayed on the curved screen (Outside the cockpit)

If Flight Simulator X is not displayed. Then on Visual PC press together CTRL/ALT/DEL and start task manager. Select the Application Flight Simulator and select it (This will make the Simulator visuals displayed on the curved screen).

## **STEP 6 – CONFIGURE SOFTWARE ON SERVER AND INSTRUCTOR STATION**

Wait until all the computers have re-booted and the software loaded (about 5 minutes).

If The ICFG (Blue page) screen does not load. Close it down by clicking on the top right [X] and re-start it by clicking the ICFG icon (on the desktop).

After the ICFG program has loaded (takes about 30 seconds). Select Miscellaneous then Control Loops. Set the Bank Sensitivity to 40 and the roll sensitivity to 41.

Minimise the program by clicking the [\_] on the top right of the screen.

On the AST Instructors program. Select Systems. Click on EXT Power.

If you want to hear pre-recorded ATC from Sydney Tower/Approach on the Instructions Station click on the 'ATC-SYDNEY' desktop icon. Then minimize WINAMP.

## **FLIGHT MODEL WORKSTATION (DISPLAY NO 2)**

Select Flight Model (pc)

Start 'Interface' It from the desktop ICON and after it has started minimize it.

*Note, the Interface It screen should be displayed. Minimise it by clicking the [\_] on the top right of the screen. If it is not displayed then the task must be deleted and the program re-started (Note, if INTERFACE IT is not running correctly as an application no light will be displayed on the overhead*

*panel). To do this Press together CTRL/ALT/DEL and select task manager. On Processes click on InterfaceIt and right click and then select end process. Then re-start interface IT by double clicking from the Interace It desktop icon*

Delete all Joystick assignments. To do this follow the instructions in Appendix L – Removing control axis assignment in Microsoft Flight Simulator FSX (Server Computer)

Left click the cursor on the Flight Simulator Screen (This will enable the engine noises etc).

To optionally run the TCAS program. Double click the TCAS Icon. Click on the TCAS program (in the bottom task bar). Select 'RA'. Minimise the program. Note, if TCAS info is not displayed on the Pilots screens then click on the TCAS program (on the bottom toolbar) and restore the program. Again select 'RA' and then minimize the program.

The simulator is now ready to be used.

### **Soft re-boot (When simulator is already running)**

From the Instructors Workstation. Select the ICFG program (which is already running). Select XXX and then select Re-boot all. Then Start at STEP 6 above.

## **Administration**

When a customer arrives please give them the customer details for and a pen and request them to write down their name, phone number and email address. Then place the filled in form in box supplied.

## **Flying Simulator**

### **Basic setup for a standard Flight**

Turn on the External Power (from the instructors workstation – via the Systems Option)

APU ON

Press Master Switch

Press Start Switch (if get fault repeat after turning off batteries)

ALIGN IRS

Turn 3 IRS switches to on

TURN ON FUEL PUMPS

Turn on all fuel pumps.

STATE OF OVERHEAD PANEL

Ideally all switches dark except APU Master, APU Start and APU Bleed Air

ENTER DATA IN MCDU

Takeoffs always with 1 flap

Enter following

INIT

PERF

INT – SECOND APGE

PERF - DESTINATION

START ENGINES

Start both engines (2 followed by 1)

TURN ON FLIGHT DIRECTORS ETC

Turn on flight directors and ILS

Set Heading and Speed to managed

LEAVE ON APU

Turn off External Power (from the instructors console)

## **TAKE OFF**

**INSTRUCTOR – Jetstar 1 cleared to take off Runway 34 L wind is calm**

PF – Advance throttles to FLEX

**PNF – Says ‘100 Knots’ (PF Says ‘CHECK’)**

**PNF – Says at 140 Knots ‘ V1 – ROTATE’)**

PF – Rotates to 10 Degrees

PF – Says ‘positive rate of climb gear up’ **(PNF – raises the gear and says ‘GEAR UP’)**

PF – At 200 Knots ‘Says flaps up’ – **(PNF raises flap and says ‘FLAPS RUNNING’)**

PF – Brings throttle to CLIMB detent

PF – Engages Autopilot and Says ‘autopilot on’ - **(PNF says ‘CHECK’)**

PF – AFTER TAKE OFF CHECK LIST

**PNF – GEAR UP  
FLAPS UP  
SPEED BRAKE OFF AND DISARMED  
AIR CONDITIONING PACKS AS REQUIRED**

## **CRUISE**

PF 1000 FT prior assigned level ‘SAYS 1000 TO GO’) – **PNF – SAYS ‘CHECK’)**

PF at assigned level ‘SAYS LEVEL XXX FT ALT GREEN’ - **PNF – SAYS ‘CHECK’)**

## **DESCENT**



PNF – BRIEFING FOR APPROACH – We will be doing an ILS at Runway XX minima is xxx ft. Missed approach turn onto heading xxx and climb to yyyyy.

PF – Says ‘Confirmed

PF – Says ‘1000 ft to go’ - (PNF says ‘CHECK’)

PF – Says ‘xxxx ft alt green’ - (PNF says ‘CHECK’)

## APPROACH

Turn on localizer then approach (confirm correct ils frequency entered)

PNF – says ‘1000 FT to go’ - (PNF says ‘CHECK’)

PNF – Says ‘ Minima’ – (PF – says ‘Visual landing)

## LANDING

PNF – says ‘70 knots’ – (PF reduces reverse thrust to idle).

## Shutting down Simulator

Step 1 – On the cockpit. Make sure gear is down throttles are at idle, fuel is off, fuel pumps are off, ADIRS switches are off, Flaps are up, speed brake is off and not armed

Step 2- Turn off the three projectors (using the remote control).

Step 3 - Turn off the visuals computer. On the three lcd screens exit from Microsoft Flight Simulator and then shutdown the PC.

Step 4 - Select on instructors workstation IFDG Program – Via Iconsole select shut down all.

Step 5 – Turn off four LCD displays (bottom right button)

Step 6 – Turn off air conditioner in cockpit. Use remote control. Make sure light is off (on the sensor)

Step 7 – Turn off all lights and fan in computer room (Use white remote control press red buttons 1 – 3)

Step 8 - In the computer room turn off the flight model computer (by pressing the on/off button)

Step 9 – Turn off cockpit power (press round button on transformer – situated top of computer rack)

Step 10 – Turn off computer room light

## **Locking up the Simulator Centre**

Step 1 - Make sure three simulator doors are locked (Computer room, Cockpit and side entrance). **PLEASE IMPORTANT ONLY LOCK THE TOP LOCK ON THE COCKPIT DOOR.**

Step 2 – Place simulator cockpit/computer room keys in safe

Step 3 - Turn off waiting room air conditioner

Step 4 – Go through – Close down check list

Step 5 – Turn off all lights (in whole building)

Step 6 – Lock main door(s) and set alarm (by pressing ‘0’ and then ‘away’)

## Procedures when Michael Collins is away (e.g Overseas)

- 1) Michael will do all bookings as before.
- 2) Only emergency phone calls will be re-directed to Henry.
- 3) If there are any problems with the Sim please email Michael [collinsm995@gmail.com](mailto:collinsm995@gmail.com)
- 4) If it is not possible to get the sim going then call all the customers and say they will be re-booked (by Michael) and then send an email to me. Ideally also provide a skype address (if you have one) and I will call you back to discuss the situation (as soon as I can). Typically depending exactly where I am the times will be as follows:
- 5) My normal number 0419 972 305 will only be monitored for left messages (i.e. you cannot call/sms me on this number.). I will be contactable by my normal email [collinsm995@gmail.com](mailto:collinsm995@gmail.com). If I pick up an overseas sim card for my mobile I will email you all the phone number. If I do get an overseas number (sim card) can you please not sms/call me when I am asleep (i.e. not during my times 11PM to 7AM – which depending on the country I am in will be about 8:00 AM to 4:00 PM Sydney time).
- 6) Typically my schedule is:
  - (1) Kong Kong 28/8/2011 to 29/8/2011
  - (2) London 1/10/2011 to 6/10/2011
  - (3) Croatia 7/10/2011 to 16/10/2011
  - (4) London 17/10/2011 to 23/10/2011
  - (5) Kong Kong 23/10/2011 to 25/10/2011

<b>Sydney Time</b>	<b>Time In Europe (approx depending on country)</b>
08:00 AM	11 PM
09:00 AM	12 PM
10:00 AM	1 AM
11:00 AM	2 AM
12:00 PM	3 AM
1:00 PM	4 AM
2:00 PM	5 AM
3:00 PM	6 AM
4:00 PM	7 AM
5:00 PM	8 AM
6:00 PM	9 AM
7:00 PM	10 AM
8:00 PM	11 AM
9:00 PM	12 PM

10:00 PM	1 PM
11:00 PM	2 PM

## Appendix A – Troubleshooting

### **1- Centre screens blank after selecting external power**

If the Centre screens (Upper and lower ECAMS) are blank (i.e. dark) after re-booting the simulator. Then the quickest way is to re-boot the SD EWD computer as outlined below or alternatively re-boot the simulator (See Appendix H – Re-booting the simulator).

Instructions for re-booting the SD EWD computer.

- 1- On the instructors pc selects systems (Near the bottom right of the screen)
- 2- Select SD EWD (pc) – (or using VNC Viewer IP address xxx.xx.xx.xx - TBA)
- 3- Press F8
- 4- Select ‘Send CTRL ALT DELETE’
- 5- Select Shutdown
- 6- Select Re-Start
- 7- Click ‘ok’

### **2- Engine Noise disappears during flight and also sim might freeze**

First look at the Visual Flight model screen

- 1- On the instructors pc selects systems (Near the bottom right of the screen)
- 2- Select Flight Model (pc)

If another process (e.g. a request to update a program etc) has taken focus then simply left click on the flight simulator window. If the

Microsoft Flight simulator program has crashed then it will be necessary to re-start the whole simulator and you will lose all data entered into the FMC

### **3- Instructor Station program freezes**

Press CTRL/ALT/DEL together. Then select restart.

### **4- Side sticks loose sensitivity**

Confirm in IFDG (under control loops ) sensitivity for pitch and roll are around 40.

### **5- Overhead panel not connected (i.e. Interface IT program not running)**

If the overhead panel has no lights on after a re-booting the simulator then most likely the 'Interface It' program is not running correctly on the server pc.

The quickest way is to re-start the 'Interface IT' program as outlined below or alternatively re-boot the simulator (See Appendix H – Re-booting the simulator)

Instructions for re-starting the 'Interface IT' program.

- 1- On the instructors pc select systems (Near the bottom right of the screen)
- 2- Select Flight Model (pc)
- 3- Press F8
- 4- Select 'Send CTRL ALT DELETE'
- 5- Select Task Manager
- 6- Select from the list of processes running 'Interface IT'
- 7- Click 'End Process'

- 8- The message 'Warning terminating a process can cause undesired results' will appear. Click YES
- 9- Click [x] to end Windows Task Manager
- 10- Click desktop icon 'Interface IT Management'
- 11- After the Interface IT program screen appears click on the [\_] to minimize it
- 12- Single left click on the Microsoft Flight simulator FSX screen (so the engine sound can be heard)
- 13- Click on the [x] on the top right of the virtual flight model screen to close down the window
- 14- This is the end of the procedure

### ***6- Breaking Switches and landing gear does not work***

The breaking switches (MAX, MEDIUM AND LOW) do not illuminate when pressed and also the landing gear does not go up.

Confirm the Map on terrain button is not pressed in (found close to the gear lever).

### ***7- Side sticks loose sensitivity/do not work as required***

- (1) Confirm the control sensitivities have been set in the IFDG program running on the instructor console.
- (2) Confirm that the control axis are not assigned in Microsoft FSX (Flight Simulator running on the server). See Appendix L – Removing control axis assignment in Microsoft Flight Simulator FSX (Server Computer)
- (3) If after doing this the sidesticks (especially if it is just one of the sticks) gives erroneous feedback then most likely there is a hardware error with the sidestick. Contact Michael Collins and in the meantime just use the good side stick (If necessary disable the malfunctioning side stick in the fly by wire program (FBW) running on the server). See Appendix M- disable side stick in the Fly by Wire (FBW) program. In addition there are now two spare portable side sticks that can be used if there is a major problem with the standard side sticks. (Both portable side sticks must be used together and you must activate them in fly by wire and also de-activate the standard ones).

Use an office chair (without the back rest) to place the portable side sticks on.

- (4) On the runway prior take off check both side sticks with the cross hairs on the Primary Flight Displays (PFD) and make sure they are centered when both side sticks are in the centre position and also move as expected when inputting roll and pitch.

### **8- All screens go blue**

- (1) Shutdown all the system just if you were packing up for the day (except you can leave the visuals on).
- (2) Go to the computer room and make sure (except for the visual computer bottom right) that all the computers are off. If not press the turn/on/off switches for several seconds until the computer shuts down.
- (3) Re-start the sim.

### **9- After applying external power all cockpit screens are black**

- (1) This typically happens after there was a power cut.
- (2) On the instructors station go into the overhead panel program (via VNC) Click near bottom right of screen.
- (3) When the overhead panel is shown on the screen click on the Bus Tie switch. The screens should then come up.

### **10- One side stick does not work correctly**

- (1) This typically happens if one of the wires to the roll potentiometer breaks or becomes intermittent
- (2) One option is to disable the faulty side stick in FBW (The fire by wire program running on the server computer). Just un-tick the tick box for both the ailerons and the elevator and save the configuration.
- (3) This will mean only one side stick will be useable.
- (4) After the days flying the faulty side stick should have its wires re-soldered. See Appendix N- how to re-solder wires on the Sidestick.

## **11- Both side sticks do not work correctly**

- (1) This typically happens if one of the wires to the roll potentiometer breaks or becomes intermittent (on both side sticks). One side stick would malfunction first and then later on it the other one might malfunction.
- (2) Disable the faulty side sticks in FBW (The fire by wire program running on the server computer). Just un-tick the tick box for both the ailerons and the elevator . Then enable the ailerons and elevator for both the sidewinder non fixed joysticks (that are in the cockpit) Then save the configuration.
- (3) This will mean that you can only use the two non fixed sidewinder joysticks.
- (4) Use an office chair with the back rest taken off it to place the joysticks on. It is best to have the front part of the joystick on the existing box and the remainder on the office chair.
- (5) After the days flying the faulty side sticks should have its wires re-soldered. See Appendix N- how to re-solder wires on the Sidestick.

## **12- Captains or F/O screens do not display correct info**

- (1) Either or both screens do not display the required info (might have some red lines on it)
- (2) On the overhead panel turn off the three ADR push switches. Then turn them back on again.

## **13- Flap lever very stiff**

- (1) Use screw driver to remove flap mechanism (note, need to remove two panels)
- (2) Adjust spring clip to where it should be
- (3) Replace flaps

## **14- Flaps not working properly**

- (1) If you cannot get the flap settings you want during a flight use the keyboard on the instructor computer (F6 = Retract flaps incrementally, F7 = Extend Flaps incrementally, F5 = Retract fully and F8 = Extend Fully).
- (2) After the flight you can go into FBW (fly by wire) and calibrate the flaps lever (Set maximum and minimum) and then save the settings.



(3) Note, a new flap lever is on order.

## **Appendix C - Re-setting to another Airport**

This is done via Microsoft flight simulator program on the flight model pc.

## **Appendix D - Simple VFR Flight**

TBA

## **Appendix E- Simple IFR Flight**

Sydney 34 L to Nowra

Nowra to Sydney 34L

## **Appendix F – Flying A320 as per typical airline procedures**

## **Appendix G – Fault Log**

### **Fault Log**

<b>Fault type (see table below)</b>	<b>Date</b>	<b>Time</b>	<b>Comments</b>

### **Fault Type Log**

<b>Fault Id</b>	<b>Brief Description</b>	<b>Full Description</b>	<b>Comments</b>
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1	Upper Lower Ecams Blank	After re-booting the simulator sometimes the Upper and Lower ECAM screens are blank after turning on external power.	Think this is more likely to happen when re-booting a dark and cold cockpit in fsx but one accidentally has the apu master, start and bleed buttons depressed. Need to confirm this theory
2	Interface It fails on re-boot of sim	Quite often after re-booting the simulator the Interface IT program does not run as an application but as a process. The process needs to be terminated and the program manually re-started.	
3	Whilst flying the engine noise stops and sometimes the sim freezes	This can be caused by quite a few things e.g. Microsoft FSX crashes, another program like a request to update a program runs and gets focus away from fsx etc.  This error does not happen to many times and it will be difficult to entirely eliminate it	
4	Instructor program freezes	This happens quite often. The instructors pc needs to be re-booted. Sometimes it has to re-booted a few times before the instructor programs runs without freezing.  Note, during the re-boot process the flight can still continue.	
5	Side stick loses sensitivity in Pitch	Sometimes the sidestick (so far it mainly appears to be the F/O) as this is the one which is most often being used.  Putting back on the autopilot for a period of time and using the Captains Sidestick normally fixes the problem. One theory is that the flight model in fsx has put on a lot of down trim which means	

		that the stick will be less effective in pitching up.	
6	Pitch trim settings lost on re-boot	After re-booting the sim most times the trim settings (usually the pitch) goes back to its lowest setting 5 (In ICFG under miscellaneous/control loops)	
7	Spoilers not deploying sometimes on landing	After landing sometimes (so far only a few times) the spoilers which were armed did not deploy	
8	Pressing R/T button on F/O side disconnects autopilot	It just needs to be mapped as per the Captains side stick	
9	Pitch/roll attitude should stay the same after centering the joystick	Wait until new joysticks are installed. Maybe needs another autotune or FSX flight model not correct	
10	Intermittently when select adf /vor switches it changes the Baro setting	Only happens sometimes	
11	Terrain data on PFD	When selecting the terrain data on the PFD button it causes error ???	
12	Roll out command sometimes not displayed on landing	Sometimes the Roll out command is not displayed on landing	

## Appendix H – Not Used

## Appendix I – Contact Details

If there are any problems with the simulator please call:

<b>Name</b>	<b>Phone Number</b>	<b>Comments</b>
Michael Collins	0419972305	Simulator Operator. If he does not answer call leave SMS

## **Appendix J – Close Down Check list**

Just prior turning out the lights/Setting the alarm and locking the front doors please double check:

- 1) All the three projectors have been turned off
- 2) PC in cockpit is turned off
- 3) LCD screens in cockpit are turned off
- 4) Air Conditioner in cockpit is turned off
- 5) Air Conditioner in waiting room has been turned off
- 6) All computers except gateway in computer room have been turned off
- 7) Cockpit power has been turned off
- 8) Computer in waiting room has been turned off
- 9) All simulator doors (Computer room, Cockpit and side entrance) are locked
- 10) Cockpit/Computer Keys are in the safe
- 11) Light in computer room has been turned off

## **Appendix K - New Ways of Entering Waypoints in the MCDU**

PLEASE NOTE AT THE MOMENT THE A320 SIMULATOR DISPLAYS INCORRECT LATITUDE/LONGITUDE IF DATA IS ENTERED AS BELOW. CURRENTLY YOU CAN ONLY ENTER WAYPOINTS

This is a very important addition because we saw many questions on forums about this. All the answers are here.

There are now 4 ways of entering waypoints in the MCDU:

1. Enter the waypoint name  
This is the most standard way of entering a waypoint. You can add intersections, or any type of navaid name here.  
If several intersection/navaid have the name entered, the multiple name page is displayed to let the pilot choose the

desired waypoint.

See the product documentation for more information about this.

2. Enter the waypoint coordinates

Many users don't know this was possible before this service pack... You can enter a waypoint by entering its latitude/longitude coordinates.

Enter the waypoint coordinates as a **AABBCCD** string, where the coordinates are **AA°BB.CC** and **D** is the orientation (N or S for the latitude, E or W for the longitude).

Example: To enter a waypoint which latitude is **56°23.45N** and longitude is **110°12.34E**, enter: **562345N/1101234E**

3. Enter a waypoint defined by an existing waypoint, a bearing and a distance

You can enter a "virtual" waypoint (a waypoint that does not exist) defined by an existing waypoint, a bearing and a distance. Use the syntax **waypoint/bearing/distance**.

For example, to enter a waypoint located at **10 NM** of the navaid **RBT** on the radial **270°** (full west from RBT), enter: **RBT/270/10**

Again, if several waypoints exist with the name specified, the multiple name page appears to let you select the one you want. This is very useful to enter SID/STAR according to the map.

4. Enter a waypoint defined by the intersection of 2 radials coming from 2 waypoints

You can enter a virtual waypoint defined by the intersection of 2 radials coming from 2 existing waypoints or nav aids, using the syntax **waypoint/bearing/waypoint/bearing**.

For example, to enter a waypoint that is at the intersection of the **270°** radial coming from **RBT** and the **130°** radial coming from **OE**, enter: **RBT/270/OE/130**

Again, if several waypoints exist with the name specified, the multiple name page appears to let you select the one you want. Keep in mind that the intersection you define may not exist. In this case, an error message is displayed on the MCDU.

This is very useful to enter SID/STAR according to the map.

All this is very important to remember, especially if you have to manually enter a SID or STAR that is not properly defined in the database.

## **Appendix L – Removing control axis assignment in Microsoft Flight Simulator FSX (Server Computer)**

- (1) Select Options from the main menu
- (2) Select Settings
- (3) Select Controls
- (4) Select the Control Axes TAB
- (5) There will be six FDS-FC1 assignments
- (6) Select the second from the last
- (7) Use the up down bar (on the left hand side of the screen) and confirm there are no entries in the Axis Column. If there are highlight it and select 'Delete Joystick Assignment Option' (at the bottom of the screen).
- (8) Confirm that there are no assignments and click OK (SAVE)
- (9) Then repeat from step 1 above for the last FDS-FC1 assignment.

## **See Appendix M- disable side stick in the Fly by Wire (FBW) program.**

- (1) On the server computer click on the Fly By Wire program (FBW) icon on the bottom of the screen)
- (2) Select Config
- (3) On the bottom part of the screen there is the Captains and F/O Pitch and Roll controls.
- (4) Move the side stick that you wish to disable to and the primary output numbers should change (this is to confirm you have selected the correct one)
- (5) Untick the use box for the Elevator and Aerolone.
- (6) Click Save (near top of screen)
- (7) Close screen by clicking top right cross.
- (8) Exit (close down) the fly by wire program (select top right cross)
- (9) Re-run the Fly by Wire (FBW) program from the deskstop ic

## **Appendix N- how to re-solder wires on the Sidestick**

- (1) Make sure simulator is totally shut down (same procedure when shutting down the simulator prior going home).

- (2) Get together the tools for the job (Soldering Iron, Solder and Philips Screw Driver). These can be found in the first filling cabinet. Note, the solder can be found in a white envelope (marked "SOLDER").
- (3) Remove the four Philips head screws that mount the sidestick to box.
- (4) Remove the sidestick (first removing the square USB plug)
- (5) See if there are any wires that have come off or are broken.
- (6) Re-solder them to the roll potentiometer.
- (7) Place back in the box (re-attach the USB plug)
- (8) Screw in the four Philips head screws
- (9) Re-start the Simulator
- (10) Do a test flight to see if the side sticks now work ok

Picture of Sidestick – Where to re-solder

